

Catalog Home

Mission

We honor our heritage as the state's flagship and land-grant university by providing accessible and affordable higher education of the highest quality; rigorous scholarship; the communication and application of knowledge; economic and community development; and responsible stewardship of our cultural, historical and natural resources.

In the exercise of our primary mission to promote learning, we seek to provide academic and co-curricular opportunities that will:

- Graduate students who have experienced the frontiers of scholarship and creative activity and who are prepared for the complexities of an interdependent world;
- Cultivate a community of learning energized by collaborative work among students, faculty, staff and external partners;
- Nurture an environment that values and manifests diversity, internationalization, free expression, academic freedom, personal integrity and mutual respect; and
- Promote opportunities for personal health and growth, physical health, athletic competition and leadership development for all members of the university community.

As Wyoming's only public university, we are committed to scholarship, outreach and service that extend our human talent and technological capacity to serve the people in our communities, our state, the nation and the world.

Mission Statement

- University of Wyoming Non-Discrimination Statement
- University Communication Statement

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our human talent and technological capacity to serve the people in our communities, our state, the nation and the world.

University of Wyoming Non-Discrimination Statement

The University is committed to equal opportunity for all persons in all facets of the University's operations and is an Equal Opportunity/ Affirmative Action Employer. The University will provide all applications for admissions, employment and all University employees with equal opportunity without regard to race, gender, religion, color, national origin, disability, age, protected veteran status, sexual orientation, gender identity, genetic information, creed, ancestry, political belief, or any other applicable protected category or participation in any protected activity. The University ensures non-discriminatory practices in all matters relating to its education programs and activities and extends the same non-discriminatory practices to recruiting, hiring, training, compensation, benefits, promotions, demotions, transfers, and all other terms and conditions of employment.

The University is also committed to complying with all of the rules, regulations, and relevant orders of the Secretary of Labor and the Office of Federal Contract Compliance Programs (OFCCP), issued pursuant to Executive Order 11246, the Vietnam Era Veterans' Readjustment Assistance Act, and Section 503 of the Rehabilitation Act of 1973, and has an audit and reporting system to facilitate compliance.

It is the continuing, active, individual responsibility of each principal Administrative Officer, Dean, Department and Division Head or Supervisor to assure that the University's Equal Employment Opportunity policy is followed when making decisions related to recruiting, hiring, training or promoting qualified persons.

For more information please see UW Regulation 1-3 (Equal Education and Equal Employment Opportunity Statement and Policy/Diversity Program).

University Communication Statement

The University of Wyoming assigned email account shall be one of the official means of communication with all students, faculty, and staff. All community members are responsible for all information sent to them via their University assigned email account. Members who choose to manually forward mail from their University email accounts are responsible for ensuring that all information, including attachments, is transmitted in its entirety to the preferred account.

All faculty, staff, and students are required to maintain an @uwyo.edu computer account. This account provides both an online identification key and a University official email address. The University sends much of its correspondence solely through email. This includes, but is not limited to, policy announcements, student account billing notifications, emergency notices, meeting and event notifications, course syllabi and requirements, and correspondence between faculty, staff, and students. Such correspondence is mailed only to the University official email address.

Faculty, staff, and students are expected to check their email on a frequent and consistent basis in order to stay current with University-related communications.

Faculty, staff, and students have the responsibility to recognize that certain communications may be time-critical.

Administration

- The Trustees of the University of Wyoming
- University Officers

- Administrative Officers
- Academic Officers
- Other Academic Officers

The Trustees of the University of Wyoming

Officers

John McKinley	Chairman
Kermit Brown	Vice Chairman
Laura Schmid-Pizzato	Secretary
Michelle Sullivan	Treasurer

Members

Term Appointed/Reappointed		Year Expires
2011/2017	Jeffrey S. Marsh, Torrington	2023
2015/2021	John McKinley, Cheyenne	2027
2015/2021	Michelle Sullivan, Sheridan	2027
2017	Kermit Brown, Laramie	2023
2021	Elizabeth Greenwood, Pinedale	2027
2019	Brad Bonner, Cody	2025
2017	David Fall, Gillette	2023
2018	Laura Schmid-Pizzatto, Rock Springs	2023
2017/2019	Macey Moore, Douglas	2025
2021	Carol Linton, Jackson	2028
2013/2019	Dave True, Casper	2023
2020	Brad LaCroix, Newcastle	2026

Ex Officio Members

Mark Gordon, Governor of Wyoming
Edward Seidel, President of the University of Wyoming
New President Elected April 2022, President of the Associated Students of the University of Wyoming
Brian Schroeder, State Superintendent of Public Instruction
Sandra Caldwell, Executive Director, Wyoming Community College Commission

University Officers

Ed Seidel	President
Kevin Carman	Provost and Executive Vice President
Neil Theobald	Senior Vice President for Finance & Administration
Bill Mai	Vice President for Administration
David Jewell	Deputy Vice President for Finance
Robert Aylward	Vice President for Information Technology
Ben Blalock	Vice President for Institutional Advancement and President/CEO, UW Foundation
Vacant	Vice President for Research and Economic Development
Kimberly Chestnut	Vice President for Student Affairs
Tom Burman	Director, Intercollegiate Athletics
Tara Evans	Vice President & General Counsel
Emily Monago	Chief Diversity Officer
Bill Mai	Vice President for Government & Community Affairs

Administrative Officers

Mike Samp	Chief, Campus Police
Vacant	Associate Vice President for University Operations
Vacant	Interim Associate Vice President, Human Resources
Steven Barrett	Vice Provost of Undergraduate Education, Academic Affairs
Tami Benham-Deal	Senior Vice Provost for Academic Personnel, Academic Affairs
Jim Ahern	Vice Provost of Graduate Education, Academic Affairs

Kyle Moore	Vice Provost of Enrollment Management, Academic Affairs
John Stark	Foundation Senior Vice President for Development
Diana Hulme	Associate Vice President for Research and Economic Development
Isadora Helfgott	Vice Provost for Global Engagement
Ryan O'Neil	Dean of Students

Academic Affairs:

Shelley Dodd	Director, Admissions
Jo Chytka	Director, Academic, Career, Exploratory Services
April Heaney	Director, Learning Resource Network
Kwanna King	Registrar, Office of the Registrar
Pilar Flores	Director, Student Educational Opportunity
Debra Hintz	Director, Scholarships and Financial Aid
Amanda Reeder	Director, Transfer Relations

Student Affairs:

Keener Fry	Executive Director, Alumni Relations
Pat Moran	Director, Campus Recreation
Eric Webb	Executive Director of Residence Life, Dining Services, and the Wyoming Union
Mary Beth Bender	Director, Student Health Services
Toi Geil	Director, University Counseling Center
Jeremy Davis	Director, Center for Student Involvement and Leadership

Academic Officers

Barbara Rasco	Dean, College of Agriculture and Natural Resources
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Warrie Means	Associate Dean and Director, Academic and Student Programs
Kelly Crane	Associate Dean and Director, UW Extension
Benjamin Rashford	Head, Agricultural and Applied Economics
Bledar Bisha	Interim Head, Animal Science
Christine Wade	Head, Family and Consumer Sciences
Gerard Andrews	Director, Microbiology Program
Andrew Kniss	Head, Plant Sciences
Scott Miller	Head, Ecosystem Science and Management
Jonathan Fox	Head, Veterinary Sciences
William Laegreid	Director, Wyoming State Veterinary Laboratory

Camellia Okpodu

Daniel Dale
Teena Gabrielson
J. Scott Turpen
Todd Surovell
Doug Russell
Naomi Ward
Debashis Dutta
Cynthia Price Schultz
Andrew Fitch
Eric Wodahl
Jacquelyn Bridgeman
Kelly Kinney
Mark Clementz
Jeffrey Means
Jonathan Prather

Joy Landeira

Katrina Zook

Susanna Goodin

Jinke Tang

Stephanie Anderson

Sean McCrea

Margaret Wilson

R. Scott Seville

Robert Godby

Interim Dean, College of Business

Ronn Smith

Senior Associate Dean

Steve Farkas

Assistant Dean

Steven Russell

Assistant Dean

Mitchell Oler

Chair, Accounting and Finance

David Aadland

Chair, Economics

Andrew Arnette

Chair, Management and Marketing

Nicole Choi

Director, MS Finance Program

Todd Cherry

Director, Economics Graduate Programs

Ben Cook

Director, MBA Program

Linda Price

Director, Marketing Ph.D. Program

Eric Johnson

Director, MS Accounting Program

Scott Thomas

John P. "Jack" Ellbogen Dean, College of Education

Alan Buss

Director, School of Teacher Education

Peter Moran

Director, School of Counseling, Leadership, Advocacy & Design

Andrea Burrows

Associate Dean, Undergraduate Programs

Jenna M. Shim

Associate Dean, Graduate Programs

Margaret Hudson Principal, UW Lab School

Leslie Rush Director, Wyoming School/ University Partnership

Cameron Wright Acting Dean, College of Engineering and Applied Science

David Mukai Associate Dean

David Bagley Associate Dean

Jeffrey French Head, Atmospheric Science

Patrick Johnson Head, Chemical Engineering

Dennis Coon Interim Head, Petroleum Engineering

Anthony Denzer Head, Civil and Architectural Engineering and Construction Management

Ruben Gamboa Head, Computer Science

John McInroy Head, Electrical and Computer Engineering

Carl Frick Head, Mechanical Engineering

David Jones Dean, College of Health Sciences

Tristan Wallhead Associate Dean

Michelle L. Hilaire Associate Dean

Sherrill J. Smith Dean, Fay W. Whitney School of Nursing

Kem Krueger Dean, School of Pharmacy

Mark Guiberson Director, Division of Communication Disorders

Derek Smith Director, Division of Kinesiology and Health Eleanor

Eleanor Pepi Downey Director, Division of Social Work

Brant Schumaker Director, WWAMI Medical Education

Brian Veauthier Director, UW Family Medicine Residency Program at Casper

Evan Norby Director, UW Family Medicine Residency Program at Cheyenne

Sandy Root-Elledge Executive Director, Wyoming Institute for Disabilities (WIND)

Craig Vaske Manager, Health Sciences Advising

Peter Parolin

Dean, Honors College

Leigh Selting

Associate Dean

Klint Alexander

Dean, College of Law

Sam Kalen

Associate Dean

Brent L Pickett

Dean, UW-Casper

Other Academic Officers

Ivan Gaetz

Dean, University Libraries

John Koprowski

Dean, Haub School of Environment and Natural Resources

Steve Smutko

Associate Dean

Holly Krutka

Executive Director, School of Energy Resources

Sam Shearer, Lt. Col

Head, U.S. Air Force ROTC

Thomas Haas, Lt. Col

Head, U.S. Army ROTC

Peter Parolin

Dean, Honors College

Janel Seeley

Director, John P. Ellbogen Center for Teaching and Learning

Steven Carpenter

Director, Institute for Energy Research and Director, Enhanced Oil Recovery Institute

Paul Flesher

Director, American Heritage Center

Marianne Wardle

Director, Art Museum

Jeffrey Hamerlinck

Director, Wyoming Geographic Information Science Center

For a complete list of all faculty and staff and their contact information, please see the UW Campus Directory or the UW Web site at www.uwyo.edu.

Admission to the University

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Admissions Office

150 Knight Hall

Department 3435

1000 E. University Avenue

Laramie, WY 82071-2000

www.uwyo.edu/admissions

307-766-5160

800-342-5996

Undergraduate Admission

UW welcomes all students to apply and will consider each student based on their individual academic achievement. Admission and programs of the University of Wyoming are offered to all eligible people without regard to race, gender, religion, color, national origin, disability, age, protected veteran status, sexual orientation, gender identity, genetic information, creed, ancestry, political belief, or any other applicable protected category. The Director of Admissions, through the Provost, is responsible for the admission of students. Admission of graduate students must also be recommended by the department of an applicable graduate program.

I. Definitions

Diploma: A formal document certifying the successful completion of a prescribed program of studies.

First Time Student: A student who has no prior postsecondary experience attending any institution for the first time at the undergraduate level. There are two exceptions: (1) students who attended any institution for the first time the summer prior to entering the University of Wyoming in the fall term and (2) students who enter UW with advanced standing (college credits earned before graduation from high school).

High School Student: A student enrolled in secondary school or pursuing a high school diploma or recognized equivalent. Includes students who have not received but are pursuing a high school diploma or recognized equivalent and taking college coursework concurrently.

High School Success Curriculum: Coursework during high school that includes successful completion of the following:

- A. Four (4) years of English;
- B. Four (4) years of math (including algebra I, II, and geometry);
- C. Four (4) years of science (including at least one year of physical science);
- D. Three (3) years of social science;
- E. Four (4) years of additional coursework including at least two (2) years of related courses taken in sequence (including fine and performing arts, career-vocational education, or foreign language).

Nationally Standardized Tests: ACT Assessment (ACT) or SAT Assessment (SAT) test results. Test results must be sent to the Admissions Office. SAT Assessment scores will be based off the Evidence-Based Reading and Writing + Math sections.

Returning Student: A student who previously attended UW but has not been enrolled for three consecutive semesters, including a summer term.

Transfer Student: A student entering the University of Wyoming for the first time but known to have previously attended a postsecondary institution at the same level (e.g., undergraduate, graduate). The student may transfer with or without credit.

II. Undergraduate Admission Requirements

All applicants for admission under twenty-one (21) years of age or transfer students who have fewer than twelve (12) transferable semester credit hours after high school, must provide an official copy of their ACT or SAT test results. Test results must be sent to the Admissions Office.

A. First Time Students

Admission into a degree seeking program shall be based on individual academic achievement. The University seeks to admit qualified undergraduate students who are new first time students or students that are concurrently enrolled in post-secondary education classes.

To be considered for admission, prospective students must submit an application, a one-time nonrefundable application fee, official high school transcripts (or high school equivalency exam), and an official ACT or SAT test score (if the applicant is under 21) to the University's Office of Admissions.

B. Assured Admission

Assured undergraduate admission shall be granted to high school graduates who meet the following requirements:

1. A cumulative, unweighted high school GPA of 3.000 (on a 4.000 scale)

2. A minimum composite ACT score of 21 or SAT score of 1060; and
3. Completion of the High School Success Curriculum while attending high school.

*UW is test optional for admission purposes for incoming students through fall 2025, spring 2026, and summer 2026.
PLEASE NOTE: check where test scores are required for scholarship consideration.

C. Admission with Support

Undergraduate admission with support shall be granted to high school graduates who meet the following requirements:

1. A cumulative, unweighted high school GPA of 2.500-4.000 and a minimum ACT score of 17 or SAT score of 900, or 2.250-2.490 and a minimum composite ACT score of 20 or SAT score of 1020; and
2. Completion of the High School Success Curriculum with no more than two deficiencies. Both deficiencies cannot occur in the same curriculum category.

Students admitted with support are required to participate in the University's academic transition programs administered by the Learning Resource Network (LeaRN).

*UW is test optional for admission purposes for incoming students through fall 2025, spring 2026, and summer 2026.

D. Admission with Alternative Educational Credentials

Undergraduate applicants with General Education Development (GED) credentials or other approved alternative educational credentials (i.e., High School Equivalency Test (HiSet)) should contact the University's Office of Admissions for specific application requirements. Students under 21 years of age with GED or the approved credentials must also have a minimum ACT score of 17 or SAT score of 900.

E. Transfer Students

Transfer students with twelve (12) or more transferable hours after high school must submit an application, a one-time nonrefundable application fee, and official transcripts from each previously-attended higher education institution. Transfer students must have at least a 2.000 cumulative GPA for undergraduate admission.

Transfer students with eleven (11) or less transferable hours after high school must also submit, official high school transcripts (or approved alternative education credentials), official ACT or SAT test score (if the applicant is under 21) and official transcripts from each previously-attended higher education institution. Admissions to transfer students with eleven (11) or less transferable hours must have at least a 2.000 cumulative GPA as well as meet the assured admissions requirements for first time students.

Official transcripts must be sent directly from the institution(s) to the University's Office of Admissions. Failure to disclose all previously attended institutions will be seen as a deliberate attempt to withhold academic history and may be reason for denied admissions and/or dismissal.

F. Home Schooled Students

Home schooled students shall be considered for admissions under the same requirements as First Time students.

G. Returning Students

Students returning to the University of Wyoming after not registering for classes for three or more consecutive semesters, including a summer term will need to submit a new application, provide official transcripts from all institution(s) attended since leaving the University of Wyoming, and be in good academic standing. Failure to disclose information about all institution(s) attended will be seen as a deliberate attempt to withhold academic history and may be reason for denied admissions and/or dismissal. Returning students must have a minimum 2.000 cumulative GPA from all undergraduate institutions.

Students suspended from the University of Wyoming must complete the reinstatement process. Academic reinstatement to the University of Wyoming does not constitute admissions to the institution. Students seeking reinstatement are required to meet admissions eligibility and criteria.

H. Holistic Alternative Admission

The University has the discretion to admit students who do not qualify under the above-described criteria.

III. International Students

Admission of international students is governed by the Admission Policy for International Students. This Policy is supplementary to the general admission policies described in this Regulation and provides for general admission standards for all international student applicants, including procedures for review and consultation with the various academic colleges and departments.

The Admission Policy for International Students shall be maintained and revised as determined by the Provost. Revisions are subject to the approval of both the Provost and the Vice Provost for Enrollment Management, and shall become effective from the date of their approval.

The Admission Policy for International Students shall be published and distributed by the Office of Admissions and will be available through the Admission Office's website.

IV. High School Guests

High school students requesting admission as high school guests must submit transcripts demonstrating a cumulative high school GPA of 3.000 on a 4.000 scale (official high school transcripts must be sent directly from the high school to the Office of Admission); a written recommendation from a high school counselor or principal; and official ACT or SAT test scores, if any.

V. Non-Degree Students

The non-degree admission status is a special status that is not available to international students or students who have a suspension status at UW or another college or university.

Applicants seeking admission as non-degree undergraduate students must submit an application and a one-time nonrefundable application fee to the Office of Admissions. Under this admission status, undergraduate students may take a maximum of eight (8) credit hours per semester and cannot apply more than twelve (12) total credits taken as a non-degree student toward an undergraduate degree.

VI. Second Bachelor's Degree Students

Students who have received a bachelor's degree from the University of Wyoming and are seeking a second bachelor's degree, but have not taken coursework since graduation, must submit a new application.

Students who have received a bachelor's degree from another institution, or who graduated from the University of Wyoming and have taken courses at another institution since leaving the University, must submit an application, a one-time nonrefundable application fee, and official transcripts from each previously-attended higher education institution. Official transcripts must be sent directly from the institution to the University's Office of Admissions.

Graduate Admission

I. Graduate Applicants

Prospective students are encouraged to consult with their respective academic department regarding the admission process before making a formal UW application.

Applicants must submit the UW graduate application and the nonrefundable application fee. One set of official transcripts must be sent directly to the UW Admissions Office from each previous collegiate institution.

Domestic applicants must have completed a bachelor's degree or equivalent from a regionally accredited institution. All applicants should have at least a 3.000 cumulative GPA (scale of 4.000).

Some graduate programs may require standardized examination scores for admission.

Applicants whose department requires the Graduate Record Examination (GRE) must request official scores be sent to the Admissions Office directly from the Educational Testing Service (ETS). Our institution code with ETS is 4855.

Some departments may require scores from the Graduate Management Admission Test (GMAT), rather than the GRE.

Letters of recommendation may also be required by some departments. Please see the academic department or program entries elsewhere in the Catalog for details about admission requirements.

Graduate applicants should contact the respective academic departments for questions concerning application status, degree program requirements, deadlines, and supplemental application materials they may require.

A. Admission Status Categories

Advanced-degree applicants may be admitted to the University of Wyoming in one of the following categories:

1. Admitted Graduate Student signifies the applicant has been accepted by the university and by a major department to work toward an advanced degree.
2. Conditional admission of a Graduate Student signifies the applicant did not meet the formal admission requirements but has sufficient potential that the university and the major department are convinced that the student will be successful as an advanced-degree candidate. Conditions are usually placed on such students in the form of performance criteria for the first one or two semesters. If the conditions of admission are not met within first two semesters, the student may be denied admission to the university graduate program and the degree program. At minimum, conditionally admitted graduate students must maintain a 3.000 GPA through their first semester. Failure to do so will result in revocation of admission. More restrictive conditions may be defined by the department.

Students admitted with graduate standing may elect to take any undergraduate or graduate courses for which they are prepared, subject to restrictions as outlined in the *University Catalog*. However, tuition will be assessed at the graduate

level for all courses taken with graduate status. Admission to graduate study does not automatically make a student a candidate for an advanced degree.

Note: Students working toward a second bachelor's degree are not considered graduate students and are subject to all undergraduate regulations.

B. Alternative Track Graduate Admissions (ATA)

Alternative Track graduate admissions are only available to individuals who have had at least two years* of relevant post-baccalaureate professional experience and whose undergraduate cumulative GPA is less than 3.000. Applicants who do not meet these basic criteria must be considered via regular graduate admissions. Applicants who do not meet the basic institutional, college and/or program regular admissions criteria may be considered for conditional admission.

Admission via the Alternative Track is full graduate admission. If a student is admitted via ATA, they are admitted fully and are not subject to any of the restrictions that would come with conditional admission. No conditional admissions will be allowed under Alternative Track admissions; all conditional admissions must go through the regular track admissions process.

*Programs may specify a longer period of post-baccalaureate professional experience. Please consult with the program in which you are interested.

Alternative Track Application Materials

The following must be submitted by the applicant to be considered for Alternative Track admission:

- Official transcripts of collegiate work completed, including any post-baccalaureate coursework. U.S. Military training transcripts that show neither grades nor degrees awarded may be submitted but are not required as part of the transcript requirement.
- A minimum of two letters of recommendation from:
 - a current or former college/university instructor of the applicant; and/or
 - a current or previous professional supervisor of the applicant.
 - Additional letters may be required by programs at their discretion.
- A statement of purpose that contains the applicant's:
 - Professional/career goals.
 - Educational goals.
 - Statement of how the graduate program will help the applicant attain their educational and professional goals.
 - Explanation for why the applicant would choose the University of Wyoming for graduate study.
- A full resume that contains:
 - Record of all post-secondary academic work, including the names of the institutions, dates of attendance, and degrees earned.
 - Record of all professional employment including dates for each (including any military service, AmeriCorp, PeaceCorp, Fulbright, etc. work experience).
 - Any special skills or competencies (including any certifications or licenses).
 - List of publications, prizes, awards, or other recognitions.
 - List of service/volunteer activities.

Please contact the program in which you are interested to see if Alternative Track Admissions is an option.

II. International Graduate Applicants

All graduate international students must submit the following in addition to the UW graduate application, official transcripts, and application materials required by the academic department.

1. Provide proof of English proficiency if student's native language is not English. The University of Wyoming's institutional minimum acceptable TOEFL score is 540 (76 iBT) and the minimum acceptable IELTS score is 6.5. TOEFL and IELTS scores must be sent directly from the testing agency to be considered official. Please note that some programs/departments require higher TOEFL/IELTS scores than what is required by the Admissions Office.
2. Provide proof of financial support. The Confidential Financial Statement for graduate international applicants can be found on the Admissions Office page, <http://www.uwyo.edu/admissions/international/requirements-graduate.html>. Students who are awarded a full graduate assistantship may not need to provide this documentation.
3. Provide a copy of student's passport. This passport copy can be submitted via a scanned e-mail to admissions@uwyo.edu.

More information on the international admission requirements for graduate students can be found on the Admissions Office website, <http://www.uwyo.edu/admissions/international/requirements-graduate.html>.

III. Graduate Non-Degree Student

1. Must complete and submit a Non-Degree Student application including a non-refundable application fee.
2. Transcripts are required for proof of undergraduate degree for non-degree status, and must be submitted to the Admissions Office.
3. Non-degree students may enroll in a maximum of 8 credit hours per semester (maximum of two courses). Only 12 credit hours taken in this status may be used towards a UW degree. This 12-credit hour rule may be decreased if prior courses were reserved for graduate credit as either an undergraduate or as non-degree student.
4. Admission with non-degree status is not available to international students or students on suspension.
5. Students admitted with non-degree status are assessed tuition and fees at the same tuition rate as degree-seeking students.
6. Students admitted with non-degree status do not qualify to receive financial aid.
7. Non-degree graduate students who decide to pursue a degree must apply to and be accepted by their respective graduate program and the Admissions Office.

IV. Western Interstate Commission for Higher Education (WICHE) Western Regional Graduate Program (WRGP)

The Western Interstate Commission for Higher Education (WICHE) was created in 1953 by the governors and legislators of the western states. The primary commitment is to provide access to educational programs through interstate cooperation. Wyoming provides opportunities for qualified residents in the following programs:

Western Regional Graduate Program (WRGP) provides opportunities for qualified Wyoming residents to attend distinctive or health-related graduate programs in participating WICHE states and territories. Those accepted pay resident or significantly reduced tuition at the school they attend. Graduate students from WICHE states or territories interested in the Haub School of Environment and Natural Resources, Doctorate of Nurse Practice and Graduate Social Work may be eligible for reduced tuition via the WRGP program.

Information about WICHE WRGP program may be obtained from the WICHE Certifying Office; Dept. 3432, 1000 E. University Ave, Laramie, WY 82071; (307)766-3499 or certoff@uwyo.edu or from WICHE, 3035 Center Green Drive, Suite 200; Boulder, CO 80301-2204, (303) 541-0214.

College of Law Admission

(307) 766-5419

E-mail: lawadmis@uwyo.edu

Web site: www.uwyo.edu/law/

1. Admission to the professional curriculum of law is granted by the College of Law Admissions Committee. The College of Law reserves the right to restrict the number of entering students to a class size consistent with its facilities and its educational objectives. Additional information and requirements are provided on the College of Law website.
2. Complete the electronic University of Wyoming College of Law Application for Admission through LSAC between September 1 and April 30. Applications received by December 15 will be considered for early admission.
3. Submit the application fee online through the College of Law website or by sending a check or money order to the College of Law.
4. Applicants must have a bachelor's degree from an accredited college or university (subject to some limited exceptions).
5. Take the Law School Admission Test (LSAT) administered by the Law School Admission Council (LSAC) no later than the April administration. Beginning in 2019, the LSAT will be given ten times each year at numerous locations within and outside of the United States. Information about the test, dates, test locations and application form may be obtained from LSAC, Box 2000, Newtown, PA 18940-0998, (215) 968-1001, or on the Web at www.lsac.org.
6. Register with LSAC's Credential Assembly Service (CAS) between September and January. Registration with CAS can be completed through the LSAC website (www.lsac.org). An official transcript from each college attended must be sent directly to CAS. It is advisable to register with CAS at the same time one registers for the LSAT. CAS prepares a report and forwards a copy to each law school to which application has been made. Applicants do not send transcripts directly to the College of Law until they are admitted. For more information about CAS, go to www.lsac.org.
7. International students must supply current TOEFL scores. Minimum scores required for admission are 600 on the written exam or 100 on the internet-based exam. International students must take the LSAT exam and register with the Law School Admissions Council (www.lsac.org). If a transcript analysis will not be provided by the LSAC for any foreign educational institutions attended, official transcripts must be provided with an English translation.

School of Pharmacy Admission

Admission to the preprofessional pharmacy program is through the university admission process described previously.

Admission to the professional curriculum leading to the entry-level professional Doctor of Pharmacy (Pharm.D.) degree is granted by the Dean of the School of Pharmacy upon the advice of the School of Pharmacy Admissions Committee. The application process requires that students apply to the School of Pharmacy using PharmCAS, for more information about PharmCAS log on to www.Pharmacas.org. Admission to the professional program is limited and competitive. The Pharmacy Early Assurance program grants provisional admission to the professional program to qualified freshman who meet program requirements. All preprofessional students participate in the pharmacy application process. For further information, contact the School of Pharmacy, Dept. 3375, 1000 E. University Ave., Laramie, WY 82071; (307) 766-6132.

Professional Health Access Programs

Western Interstate Commission for Higher Education (WICHE) Professional Student Exchange Program (PSEP)

The Western Interstate Commission for Higher Education (WICHE) was created in 1953 by the governors and legislators of the western states. The primary commitment is to provide access to educational programs through interstate cooperation. Wyoming provides opportunities for qualified residents in the following programs:

Professional Student Exchange Program (PSEP) offers certified Wyoming residents access to professional education in the fields of dentistry, medicine, occupational therapy, optometry, osteopathic medicine, physical therapy, physician assistant, podiatry, and veterinary medicine. To be eligible for certification, the applicant or a spouse must be a legal resident of the State of Wyoming for one year immediately prior to enrolling in professional school. Applications for certification are available by June 1 at www.uwyo.edu/certwy and are due no later than October 15 of the year preceding the anticipated start date of professional school. Applicants who are accepted to a professional program and who receive state support pay reduced tuition. In all fields except veterinary medicine, students receiving state support must either pay back the money expended on their behalf, or practice in their fields in the state of Wyoming for three years. State support is dependent on continued appropriations from the Wyoming State Legislature. The University of Wyoming School of Pharmacy welcomes applicants from residents of Alaska, Nevada and the CMNI through the PSEP program. Students accepted through PSEP may be eligible for tuition support from their home state or territory.

Information about WICHE PSEP program may be obtained from the WICHE Certifying Office; Dept. 3432, 1000 E. University Ave, Laramie, WY 82071; (307)766-3499 or certoff@uwyo.edu or from WICHE, 3035 Center Green Drive, Suite 200; Boulder, CO 80301-2204, (303) 541-0214.

WWAMI Medical Education Program

WWAMI is a contract program between the State of Wyoming and the University of Washington School of Medicine for medical education. Admission is twofold.

1. Applicants must be certified residents of Wyoming. To be eligible for certification, the applicant or parent or guardian must be a legal resident of the State of Wyoming for five continuous years immediately prior to enrolling in the WWAMI program. The application for certification is available by June 1 at www.uwyo.edu/certwy and is due no later than October 15 of the year prior to the anticipated start date of medical school. Participants pay reduced tuition and must either pay back the money expended on their behalf plus interest or practice medicine in Wyoming for three years.
2. Applicants apply to the University of Washington School of Medicine through the usual procedures and are subject to criteria established by the University of Washington.

Information may be obtained from the WWAMI Certifying Office, Dept. 3432, 1000 E. University Ave., Laramie, WY 82071; (307) 766-3878 or certoff@uwyo.edu.

WYDENT Dental Education Program

WYDENT is a contract program between the State of Wyoming and the University of Nebraska College of Dentistry and Creighton University School of Dentistry for dental education. Admission is twofold.

1. Applicants must be certified residents of Wyoming. To be eligible for certification, the applicant or parent or guardian must be a legal resident of the State of Wyoming for five continuous years immediately prior to enrolling in dental school. The application for certification is available by June 1 at www.uwyo.edu/certwy

and is due no later than October 15 of the year prior to the anticipated start date of dental school. Participants pay reduced tuition and must either pay back the money expended on their behalf or practice dentistry in Wyoming for three years.

2. Applicants must apply to the dental schools through the usual procedures and are subject to admission criteria established by the dental schools.

Information is available from the WYDENT Certifying Office; Dept. 3432, 1000 East University Ave; Laramie WY 82071; (307) 766-3878 or certoff@uwyo.edu.

Other Information

Western Interstate Commission for Higher Education (WICHE) Western Undergraduate Exchange (WUE)

The Western Interstate Commission for Higher Education (WICHE) was created in 1953 by the governors and legislators of the western states. The primary commitment is to provide access to educational programs through interstate cooperation. Wyoming provides opportunities for qualified residents in the following programs:

Western Undergraduate Exchange (WUE) allows residents of participating states and territories to attend a participating institution at reduced cost of 150% of the institution's resident tuition. Not all programs in the participating states offer WUE opportunities. The University of Wyoming invites competitive graduating high school senior from all WUE states and territories to apply for the WUE tuition discount. All undergraduate UW majors are eligible for WUE support. Information is available from the UW Admissions Office.

Wyoming Senior Citizen Policy

Wyoming senior citizens, age 65 and over, who have been admitted to UW may enroll in university courses on a space available basis at no cost upon presentation of evidence of age and Wyoming residence prior to the beginning of the term in which classes will be taken.

Scheduled Distance Education classes which meet minimum enrollment requirements are included in the courses available to senior citizens.

Board of Trustee Retirement Benefits

Beginning Spring 2002, official board retirees may attend University of Wyoming classes on a space available basis at no cost. To qualify for this benefit, you must be an official board retiree, 25 years of university service or age 60 with 15 years of immediately preceding university service. The spouse of an eligible retiree may receive a fifty (50) percent tuition discount and a surviving spouse may receive the employee's full tuition discount provided space is available. The spouses must contact Student Financial Services at sfs@uwyo.edu or (307) 766-6233 in order for this benefit to be applied.

Readmission

Readmission is the process for former University of Wyoming students to again be admitted to the university. Former UW students who have attended another college since their last UW enrollment must have one official transcript from each college sent directly to the UW Admissions Office. Undergraduate students who are returning to UW after an absence of one year or longer should complete an application for admission at least 30 days prior to registration, thereby allowing sufficient time to avoid delays in registration.

Academic Reinstatement: Former students who are on academic suspension at UW must petition for reinstatement through the dean of their college. A petition for reinstatement must be submitted no later than 15 days before the beginning of the semester or summer term in which the student wishes to register. A petition received after this deadline may not be processed until after the regular registration period.

Academic Renewal: An undergraduate student who returns to UW and has not completed a college course at UW, during the previous five years, will have the option of continuing his or her earlier UW cumulative GPA or commencing a new cumulative GPA under the Academic Renewal policy. Interested students must submit the Academic Renewal Application Form (which can be obtained in the Office of the Registrar) to the registrar no later than ten class days before the last day of classes of the semester in which the student returns to UW.

The entire UW transcript will remain intact. A note indicating the policy will precede the new part of the UW transcript if the student opts for academic renewal. At the discretion of the academic department in which the student is enrolled, credit hours for which the student earned the grade of C or better may be applied toward the completion of the degree requirements. The list of any departmentally approved courses must be indicated on the Academic Renewal Application Form when initially submitted to the registrar. No further changes may be requested.

A student's GPA and completed courses that were applied to a baccalaureate degree are not eligible for academic renewal.

Readmission for Military Service Members

Policy

The University of Wyoming acknowledges that students may be temporarily unable to attend classes or be required to suspend their studies in order to perform military service. UW encourages such students to resume their education once a military service obligation has ended and adopts this policy to ensure the timely readmission of such students.

In accordance with federal regulations, 34 C.F.R. 668.18 and the Department of Defense (DOD) Voluntary Partnership Memorandum of Understanding (MOU), the university will promptly readmit service members who seek readmission to a program that was interrupted due to a uniformed service obligation.

Student Responsibility

The student must provide oral or written notice of a uniformed service obligation to the Veterans Service Center as far in advance as possible, unless precluded by military necessity. Such notice does not need to indicate when the student will return to the university.

Tuition and Fees

A returning student must be charged the same tuition and fees in effect during the last academic year the student attended, unless veteran's education benefits or other service member education benefits will pay the amount in excess. For subsequent academic years, the returning student may not be charged tuition and fees in excess of what other students in the program are charged.

Readmission Requirements

A returning student will be permitted to reenroll in the next semester scheduled in the same academic program, unless the student requests a later date of reenrollment or agrees to a different program. A returning student will be readmitted into the same academic program the student was enrolled in prior to the military service or the student requests admission to a different program.

If the university determines that a returning student is not prepared to resume the program or is unable to complete the program, the university must make reasonable efforts to enable the student to resume or complete the program at no additional cost to the student. If such efforts are unsuccessful or place an undue hardship on the university, the university is not required to readmit the student.

In accordance with federal regulations, returning student who receive a dishonorable or bad conduct discharge from the Armed Forces (including the National Guard and Reserves) are not eligible for readmission under this policy. However, service members who receive dishonorable or bad conduct discharge may remain eligible for readmission even though they will not be entitled to the benefits outlined in this policy.

Residency Student Classification

The following Trustee regulations govern the classification of students at the University of Wyoming as resident or non-resident for tuition purposes, and shall be administered by the Associate Vice President for Enrollment Management and Registrar. (Trustee Regulation, Chapter VIII, Section 3.) See the University Regulations online for the most up-to-date version.

Student Classification for Tuition Assessment

Residing in Wyoming primarily as a student will not support a claim for resident status for tuition purposes. Qualifying for residency for tuition purposes at the University of Wyoming differs from what is normally required to be a "resident" of the State of Wyoming. A person may be considered a "resident" of Wyoming and still be a Non-Resident for tuition purposes at the University of Wyoming.

The governing regulation for residency classification for tuition and fee purposes, as approved by the University of Wyoming Board of Trustees, is UW Regulation 2-200. See the University Regulations online for the most up-to-date version.

Process

The University of Wyoming will determine the initial classification of resident or nonresident status for tuition purposes. Students classified as nonresidents who feel they meet residency requirements may apply to change their status through a form approved by the Office of the Registrar.

If a student classified as an out-of-state resident for tuition purposes wishes to petition their residency status at the University of Wyoming, they will need to conclusively demonstrate they have established a permanent home in Wyoming. Students must submit the Petition for Residency for Tuition Purposes, along with all specified relevant, appropriate, and verifiable documentation to the Office of the Registrar. The deadline for submission is no later than 5 p.m. of the first day of classes for the semester the student wishes to petition, based off of the University's academic calendar. The student bears the burden of providing documentation to show a permanent home has been established in Wyoming based on the required criteria of UW Regulation 8-1(III)(B)(8). See the University Regulations online for the most up-to-date version.

The Registrar or designee will evaluate the student's petition and documentation to determine whether the student has established a permanent home in Wyoming based on the requirements set forth in UW Regulation 8-1(III)(B)(8) or met any other residency criteria in UW Regulation 8-1. See the University Regulations online for the most up-to-date version. If a student subsequently meets the criteria of being a resident for tuition purposes, the student's residency

status will be reclassified by the Office of the Registrar and the resident tuition rate will become effective the semester the student submitted the petition. Under no circumstances will any tuition or fee adjustments be retroactively applied to previous semesters.

If a student's petition is denied, the student will be notified in writing of the denial.

Appealing the Registrar's Decision

If a student has a petition denied by the Registrar, the student may appeal the decision by submitting the Denied Residency Petition Appeal form to the Office of the Registrar within ten (10) calendar days of the original decision by the Registrar or designee.

The Residency Classification Committee will receive the student's Denied Residency Petition Appeal form, the written decision of the Registrar, and the student's previously-submitted petition and documentation which were submitted to the Registrar prior to the submission deadline for that semester. The Residency Classification Committee will determine if an error was made by the Registrar and will make a decision to affirm or reverse the classification decision of the Registrar. The decision of the Residency Classification Committee is final and there is no further level of appeal for that semester.

Measles, Mumps, Rubella (MMR)

Immunization Requirement

The University of Wyoming has implemented a policy to protect the University community against measles (rubeola), mumps, and rubella. All new on-campus students must provide proof of immunity to measles, mumps, and rubella prior to registration. Two doses of MMR vaccine (or equivalent) are required. The MMR immunization dates are to be entered into the Student Health Service Patient Portal (on the Student Health Service's webpage, <http://www.uwyo.edu/shser/>). Incoming students will use their UW user names and passwords to enter the Patient Portal, and click on Immunizations. Once the immunization dates are entered, students will upload a verified immunization record into the Patient Portal.

The only contraindication to the MMR immunization is a previous severe allergic reaction to the vaccine or vaccine component (neomycin, gelatin). Relative (temporary) contraindications include: pregnancy; persons with immunosuppressive illnesses or treatment; moderate or severe acute illness; and recent receipt of blood products. If you are uncertain as to whether you should receive the immunization, please talk with your health care clinician.

Exemptions may be granted to the requirement in two instances: a medical exemption for a contraindication noted above, and a religious exemption. A medical exemption requires completion of the Medical Exemption Form with a notation of the reason for the exemption and a medical clinician signature. To request a religious exemption, a notarized form must be completed and submitted. Exemption forms can be found on the Student Health Service website (www.uwyo.edu/shser/), and the original form must be submitted. If an outbreak of one of these illnesses occurs on campus, students granted an exemption may be excluded from campus for the duration of the outbreak.

For students unable to verify MMR vaccinations, the vaccine is available at the Student Health Service for a nominal charge. It will be administered prior to registration for any eligible student, without an appointment, during office hours. Do not wait until registration to comply with the MMR immunization requirement, as this will delay the process.

In addition to the MMR requirement, international students are required to undergo tuberculosis screening prior to registration. Based on screening, a tuberculosis (Mantoux) skin test or (IGRA) blood test may be performed, and, if positive, a chest x-ray obtained with consultation with a Student Health Service physician. The student is responsible for the costs incurred for these tests.

Campus Safety

The University of Wyoming Police Department (UWPD) provides comprehensive law enforcement and security services to all components of the University including the academic campus, and other properties owned or controlled by the University. The University Police Officers are commissioned under Wyoming State Statute and have the full range of police authorities granted any peace officer including power to arrest, on property owned by or under the control of the University of Wyoming, including adjacent public streets and sidewalks. University Security Officers work closely with our police officers in constantly patrolling University properties and assisting employees and visitors in accessing University facilities. The UWPD operates 24 hours a day, 365 days a year, and is located at 1426 East Flint, Laramie, Wyoming 82071.

Campus safety is the responsibility of all members of the university community. Faculty/staff, students, and guests are encouraged to report crimes and other concerning behavior or observations promptly. The Dean of Students Office, Student Conduct, The STOP Violence Program, and the Office of Diversity and Employment Practices are available to provide further information.

A full description of campus safety, crime statistics, and educational programs designed to increase safety on campus is available in the 2014 Annual Security and Fire Safety Report of the University of Wyoming. To access the report, go to www.uwyo.edu/uwpd/_files/2015uwsecurityreport.pdf.

Degree Programs

College of Agriculture, Life Science and Natural Resources

151 Agriculture Building

Barbara Rasco, Dean

Phone: (307)766-4135 Fax: (307)766-4030

Web site: www.uwyo.edu/uwag

The College of Agriculture and Natural Resources offers a wide variety of course work in agriculture, natural resources, molecular biology, and family and consumer sciences. The curriculum provides a sound background in basic sciences and the choice of a number of fields in which to specialize. Students are trained in principles which apply throughout the world, with special emphasis on agriculture and natural resources found in the Rocky Mountain region.

Laboratory work and other experiential learning opportunities are stressed in all programs. Students receive excellent training from case studies and practical experience provided at research and extension centers. Other facilities include modern laboratories and classrooms, an abattoir, meat processing rooms, livestock and crop farms and greenhouses.

In addition to the academic departments, the college includes the Agricultural Experiment Station and the UW Extension. Materials and techniques resulting from this effective triple combination benefit students in the never-ending search for problem-solving information. The close relationship between teachers, researchers, and extension educators creates a learning atmosphere that encourages the development of the finest students.

Programs of Study

Undergraduate Degrees

Bachelor of Science

Agricultural business
Agricultural communications
Animal and veterinary science
Microbiology
Molecular biology

Plant Production and Protection
Rangeland ecology and watershed management

Bachelor of Science in Family and Consumer Sciences

Graduate Degrees

Master of Arts

Molecular biology

Master of Science

Agricultural and applied economics
Agricultural economics/water resources
Animal and veterinary sciences
Entomology
Entomology/water resources
Family and consumer sciences
Food science and human nutrition
Molecular biology
Plant sciences
Rangeland ecology and watershed management
Rangeland ecology and watershed management/water resources
Reproductive biology
Soil science
Soil science/water resources

Doctor of Philosophy

Animal and veterinary science

Biomedical Sciences
Entomology
Molecular and cellular life sciences
Molecular biology
Plant sciences
Rangeland ecology and watershed management
Reproductive biology
Soil science

The following certificates and/or degrees in the College of Agriculture and Natural Resources are available through Distance Education:

Certificate: Early Childhood Program Director

Online bachelor's degrees: Family and Consumer Sciences (Professional Child Development Option)

For more information, contact the College of Agriculture and Natural Resources Office of Academic and Student Programs. Phone: (307)-766-4135

The College of Agriculture and Natural Resources also offers a graduate certificate in reclamation and restoration ecology. For more information, contact the Department of Ecosystem Science and Management.

Basic Education Core

All undergraduates in the College of Agriculture and Natural Resources curriculums are required to follow the basic education core as noted below.

Core Components (USP 2015).....Hrs.

First-Year Seminar (FYS).....	3
Quantitative Reasoning (Q)	3
Communication 1 (COM1).....	3
Communication 2 (COM2).....	3
Communication 3 (COM3).....	3
Human Culture (H)	6
Physical & Natural World (PN).....	6
U.S. and Wyoming Constitutions (V).....	3
Subtotal (min. core requirements)	30
Hours for major, support areas and electives as determined by division...	90-98
Total Hours	120-128

Core Components (USP 2003)

Core Components (USP 2003) Hrs.

Intellectual Community (I)	1-3
Writing 1 (WA)	3
Oral Communication (O).....	3
Quantitative Reasoning 1 (QA)*.....	3
Quantitative Reasoning 2 (QB).....	3
Science (S, SB, SP, SE).....	4-8
Cultural Context (C, CH, CS, CA).....	9

U.S. and Wyoming Constitutions (V).....3

Physical Activity and Health (P).....1

Subtotal (min. core requirements) 30-36 Hours for major, support areas and electives as determined by division....79-91

Total Hours 120-128

*Core Components are mutually exclusive of each other; hence, two core components may not be fulfilled by the same course. Except for the QA, core courses may have topics from the embeddable components list included in their curriculum, where appropriate.

Courses taken for S/U

A maximum of 20 elective hours with a grade of S (satisfactory) may be included as part of the total credit requirements for graduation; but no S/U hours may be used to satisfy university, major requirements or required electives, unless the course is offered for S/U grading only.

Minors in Agriculture and Natural Resources

Minors provide a formalized recognition of concentrated study in a specific subject area. A minor offers recognition for academic achievement outside of the students' major course curriculum and gives students a focus of work in the chosen minor area. A minors program can enable students to enhance and expand career opportunities. A minor will also improve the possibility of admission to graduate programs in any chosen major, minor, or related field of study.

Minors Available in the College of Agriculture and Natural Resources Include:

Agricultural business

Animal and veterinary science

Apparel design

Agroecology

Agronomy

Equine

Farm and ranch management

Forest resources

General agricultural economics

Horticulture

Human development and family sciences

Human nutrition

Insect biology

Interior design

International agricultural economics

Molecular biology

Natural resource economics
 Plant Protection
 Rangeland ecology and watershed management
 Reclamation and restoration ecology
 Soil science

Agricultural Communications Major

A wide variety of courses in agriculture, communications, and journalism provides students with basic preparation for positions as broadcasters, editors or writers for farm and home organizations, state and federal agencies, magazines, newspapers, radio and television stations, and commercial businesses. Communication skills are also distinct assets in agricultural sales, research, service and teaching. Students enrolled in agricultural courses acquire up-to-date and knowledgeable backgrounds of the subject matter. Courses in communication and journalism develop proficiencies demanded by employers of communication professionals.

Minimum Requirements for Agricultural Communications Majors (B.S.)

Hrs.

University Studies Program requirements..... 30

Communications/journalism core..... 24

COJO 1000, 1040, 2010, 2100 and minimum of 12 hours of communication/journalism elective. (Minimum grade of C required)

Agriculture core requirements..... 42

At least 18 hours must be lower division (Ag 1000-2000) elective courses, and at least 24 hours must be upper division (Ag 3000-4000) elective courses and include AGRI 4975.

Supporting course requirement4

STAT 2050 or 2070

Additional hours for major and electives 20

Total Hrs: 120

Students wishing to pursue an agricultural communications degree are encouraged to also select a minor. The college currently offers a variety of minors, and any of these can help to better prepare students for employment or graduate work. Agricultural communications majors may also complete an internship in their field. A variety of opportunities are available and students can work with their advisor to determine an appropriate internship for their area of emphasis.

Bachelor of Applied Science

160 Agriculture Building

Awarded by the College of Agriculture and Natural Resources

Phone: (307)766-4034 Fax: (307)766-4030; Web site: www.uwyo.edu/basa/

Organizations need leaders at all levels who can effectively understand the environment and society in which they operate; analyze situations and solve problems; supervise and manage, interact and communicate appropriately within and outside the organization; anticipate changes; and plan for the future. The Bachelor of Applied Science degree (B.A.S.) is designed for individuals with a completed Associate of Applied Science, Associate of Science, Associate of Business or an Associate of Arts degree at a Wyoming Community College (or an equivalent degree at another accredited institution) and who need or desire the additional breadth in skills, knowledge and professional expertise to enhance their capabilities in their own careers and in the organizations in which they work.

The fundamental philosophy of the B.A.S. degree is that the student must complete the general education (University Studies Program - USP) requirements expected of all UW bachelor's degrees and must engage in upperdivision coursework sufficient to provide focus and depth of learning. Following this philosophy, the B.A.S. has four basic components. These components are university studies, career specialty, professional concentration, and electives. The fundamental elements of the baccalaureate degree are provided by the general education core (USP) and the upper division professional concentration. At the end of the program, students are expected to meet the following Student Learning Outcomes:

1. to develop proficiency in accessing, evaluating and utilizing information, ideas, and data;
2. to develop proficiency in communicating information and ideas effectively and responsibly;
3. to gain an appreciation for leadership development as a tool for individual, organization and community problem solving;
4. to demonstrate an understanding of organizational design, behavior, ethical practices, and effective managerial and supervisory practices;
5. to gain an understanding of social, cultural, economic and environmental contexts essential for effective leadership and the management of change.

The University Studies Program (USP 2015) consists of a minimum of 27 credit hours as adopted by the UW faculty, and the Articulation Agreement between UW and the Wyoming Community Colleges. Students with an Associate of Applied Science degree from a Wyoming community college will normally matriculate with 15-20 hours of credit that count toward this component. The remainder may be required as part of a UW student's coursework, including the Professional Concentration or Electives coursework.

The Career Specialty Component is fulfilled with the Associate of Applied Science, the Associate of Science, or Associate of Arts degrees. This component will consist of a minimum of 40 credit hours in the major.

The Professional Concentration Component is the advanced component of the program and the courses are selected by the student and the advisor. All students are required to take a range of courses from the prescribed set of areas of concentration within this component in order to provide them with the breadth and depth of learning necessary for a baccalaureate degree. This component will consist of 36-40 upper division or articulated equivalent credit hours. Note: Within the Professional Concentration, students have a choice between two Organizational Leadership areas. Option A focuses on Community Leadership; Option B focuses on Business Leadership.

The Elective Component will consist of the number of credit hours needed (after completing the other three components) to complete the degree components. A minimum of 120 hours is required for the B.A.S.

All University of Wyoming Students must earn a total of 42 upper division hours (at least 30 hours taken from UW), to earn their degree. Students in the B.A.S. program must earn a "C" in all courses on the B.A.S. checklist. Failure to do so will require repeating the course. Per university regulations, students may only attempt a course three times; an "F" or "W" count as attempts.

Application Process

All students must apply to the Bachelor of Applied Science program, including those who would like to change their major to the B.A.S. in Organizational Leadership. Students cannot just fill out a change of major form and have Admissions change their status. These are the steps for application:

1. Apply to the University of Wyoming through Admissions, declaring the Bachelor of Applied Science in Organizational Leadership.
2. Have official transcripts from all institutions attended sent to Admissions.
3. Email BAS@uwyo.edu when you have received your acceptance to UW. Include your W# in the message. We can then track your files to evaluate them for the BAS program.
4. Students will receive a letter telling the application decision. If a student is denied admission to the BAS, an explanation for the denial will be provided. If accepted, the student will be given information for how to work with the program advisor, Rosalind Grenfell (rgrenfel@uwyo.edu), to enroll in classes.

Major

Agricultural Business, Agribusiness Management Option, B.S.

Prepare for careers across agribusiness and business sectors. Agricultural economics is supplemented with business and agricultural science courses to prepare you for a wide range of careers in the agricultural supply chain.

Minimum Course Requirements

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW1

- First-Year Seminar Credits: 3 (FYS)
- Science Credits: 6 ³ (PN)
- Human Culture Credits: 6 ⁴ (H)
- U.S. & Wyoming Constitutions Credits: 3 (V)
- Supporting Agriculture Credits: 9 (AG College hours other than Agricultural Economics)
- Statistics Credits: 4
- Computers Credits: 3 ⁶
- Electives Credits: 25

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Writing: 9 Hours

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA
USP 2015 Code U5C1

- Communication II (COM2)

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

OR

AGEC4970 - Technical Communication for Agribusiness

Credits: 3

This course is the senior capstone for agribusiness majors. Students will use written, oral, and digital communication appropriate for the discipline to complete a technical report and oral presentation on a complex topic affecting agriculture or natural resources.

USP 2003-2014 Code U5C3

Quantitative (Q): 7 Hours

(Required for Major)

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

Agricultural Economics: 24 Hours

⁵24 credit hours in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.

OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 and MATH 1400.

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

OR

AGEC4830 - Agricultural Commodities and Futures Markets

Credits: 3

Economics of price determination for agricultural commodities and development of pricing strategies in cash and futures markets.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or equivalent.

OR

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

OR

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

- 3 hours of AGECElectives

Supporting Economics: 6 Hours

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Business: 15 Hours

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

- 9 hours of 3000-4000 level business courses

Total Hours: 120

² Recommend or equivalent COM1 course.

³ Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits.

⁴ H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended.

⁶ COSC 1200 recommended, or IMGT 2400.

Agricultural Business, B.S.

The Department of Agricultural and Applied Economics offers three options within the agricultural business bachelor of science degree program. They are agribusiness management, farm and ranch management, and livestock business management. All three options focus on the development of critical thinking, research, and communication skills for students interested in

1. agricultural operations,
2. small rural businesses
3. community economics,
4. financial institutions,
5. agricultural and natural resources development, and
6. other pursuits where applied economic tools will be useful.

The agricultural business curriculum is designed to enable our students to:

1. communicate effectively economic, agricultural, business decision-making and natural resource concepts,
2. fit into a business, agency, or academic environment and use economic concepts to quantify and analyze relevant issues, and
3. be familiar with issues related to agriculture, natural resources, and rural communities.

Options

A brief description of minimum course requirements for each of the four options in agricultural business is given below. In addition, professional advisers will work with students to tailor a curriculum to individual interests and goals.

- Agricultural Business, Agribusiness Management Option, B.S.
- Agricultural Business, Farm and Ranch Management Option, B.S.
- Agricultural Business, Livestock Business Management Option, B.S.

Environment and Natural Resources

Students interested in natural resource or environmental issues or careers may complete any of the four options within agricultural business offered by the department with an environment and natural resource emphasis. Inquiries about environment and natural resource concentrations in agricultural business should be directed to the Department of Agricultural and Applied Economics.

Agricultural Business, Farm and Ranch Management Option, B.S.

Combine courses in farm and ranch management, finance and marketing with crop, range, veterinary and animal sciences to prepare for a career managing farms, ranches, or feedlots.

Minimum Course Requirements

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW.

- First-Year Seminar Credits: 3 (FYS)
- Human Culture Credits: 6 ⁴ (H)
- U.S. & Wyoming Constitutions Credits: 3 (V)
- Statistics Credits: 4
- Computers Credits: 3 ⁶
- Electives Credits: 29

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Writing: 9 Hours

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA
USP 2015 Code U5C1

- Communication II (COM2)

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

OR

AGEC4970 - Technical Communication for Agribusiness

Credits: 3

This course is the senior capstone for agribusiness majors. Students will use written, oral, and digital communication appropriate for the discipline to complete a technical report and oral presentation on a complex topic affecting agriculture or natural resources.

USP 2003-2014 Code U5C3

Quantitative (Q): 7 Hours

(Required for Major)

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

Science (PN):

³Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

OR

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

- One additional PN course Credits: 3

Agricultural Economics: 28 Hours

⁵24 credits in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)
USP 2003-2014 Code U3WB
Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)
Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

- 12 hours AGEC electives

Supporting Agriculture: 12 Hours

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

- 8 AG College hours other than Agricultural Economics

Supporting Economics: 6 Hours

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Business: 3 Hours

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the

recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

Total Hours: 120

² Recommend or equivalent COM1 course.

⁴ H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended.

⁶ COSC 1200 recommended, or IMGT 2400.

Agricultural Business, Livestock Business Management Option, B.S.

Build skills to work in any sector of the livestock and meat industry, from input suppliers to meat processing, by combining courses in farm and ranch management, finance and marketing, with animal, range and food science, biology, and data analysis.

Minimum Course Requirements

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW.

- First-Year Seminar Credits: 3 ² (FYS)
- Human Culture Credits: 6 ³ (H)
- U.S. & Wyoming Constitutions Credits: 3 (V)
- Electives Credits: 3-4

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Writing - Communication: 9 Hours

²Must earn a "C" or better.

- COM1 ²
- COM2 ²

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGEC 2020, or AGEC 4500, or AGEC 4060, or FIN 2100.

OR

AGEC4970 - Technical Communication for Agribusiness

Credits: 3

This course is the senior capstone for agribusiness majors. Students will use written, oral, and digital communication appropriate for the discipline to complete a technical report and oral presentation on a complex topic affecting agriculture or natural resources.

USP 2003-2014 Code U5C3

Quantitative (Q): 7 Hours

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus

course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

Science (PN): 8 Hours

³PN and H may not be fulfilled by AGECE or ECON courses.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Agricultural Economics: 31 Hours

⁴31 credits in Ag Econ beyond those earned to satisfy University Studies requirements; 21 of these 31 credit hours must be earned at the 3000-4000 level.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

OR

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGECEC 1020 and MATH 1400.

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGECEC 1020 or ECON 1020 and MATH 1400.

OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

AGEC4830 - Agricultural Commodities and Futures Markets

Credits: 3

Economics of price determination for agricultural commodities and development of pricing strategies in cash and futures markets.

When Offered (Normally offered fall semester)

Prerequisite: AGECE 1020 or equivalent.

OR

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

OR

AGEC4280 - International Food and Farm Cultures

Credits: 3

Study-tour course in western France of lectures, fieldtrips, and other cultural activities are integrated into a curriculum to study sustainable food cultures and farming systems. Students live with host families and learn about current policies, belief systems and cultural practices that guide food production, consumption and marketing in Europe.

USP 2003-2014 Code U3G

Prerequisite: completion of WA/COM1 and I/FYS.

OR

ECON4720 - International Trade

Credits: 3

The gains from specialization and trade are studied, as are explanations of trade patterns among countries, policies affecting trade such as tariffs, quotas, tax breaks, subsidies, cartels and price stabilization plans. Topics on labor migration and multinational corporations are covered.

When Offered (Normally offered fall semester)

Prerequisite: ECON 3020 and Junior class standing.

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

Additional Quantitative Skills: 10 Hours

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC1200 - Computer Information Systems

Credits: 3

Introduces computers and information processing, computer systems and hardware, computer software, information processing systems, information systems and information resource management. Uses word processing, data base language and electronic spreadsheet program in hands-on exercises.

Prerequisite: passing of Mathematics Placement Examination at Level 2 or equivalent.

OR

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

OR

- AGRI 1010 ⁶

AGEC4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 4230

Dual Listed AGEC 5230

When Offered (Normally offered spring semester)

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

OR

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

OR

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

OR

- IMGT2400 - Introduction to Information Management Credits: 3

OR

MATH2355 - Mathematical Applications for Business

Credits: 4

Primarily for students in the College of Business. Includes the mathematics of finance; systems of linear equations and matrices; linear programming; sets, counting, and probability. Students will learn to use Excel spreadsheets to solve business application problems in a computer lab that meets one day per week.

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

OR

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

OR

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

Biology of Livestock: 17 Hours

- LIFE 2020

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

FDSC2040 - Principles of Meat Animal Evaluation

Credits: 3

Live animal and carcass evaluation of beef, sheep and swine. Slaughter, meat inspection and anatomy are discussed.

When Offered (Normally offered spring semester)

FDSC3060 - Principles of Meat Science and Muscle Biology

Credits: 3

Principles of muscle, adipose, and connective tissue growth, structure and metabolism; conversion of muscle into meat; fresh meat properties and quality; chemical properties of meat; meat microbiology, preservation and storage; meat by-products; HACCP.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000 and LIFE 1010.

ANSC4540 - Principles of Animal Breeding

Credits: 3

Discusses genetic principles underlying animal improvement; introductory population genetics; heritability; systems of mating; and selection.

Dual Listed ANSC 5540.

When Offered (Normally offered fall semester)

Prerequisite: STAT 2050 or STAT 2070.

Additional Biology of Livestock

For Animal Science minor: 19 Hours

⁷Must earn a "C" or better in all courses required in the minor to earn the minor.

ANSC2010 - Domestic Animal Metabolism

Credits: 3

Integrates cellular and whole-animal metabolism through introduction to metabolic regulation. Introduces students to the nomenclature, structures and functions of cellular metabolites and vitamins. Knowledge of chemical structure will be applied to cellular reactions in various tissues of domestic animals. Ruminants and non-ruminants will be contrasted.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

OR

ANSC4220 - Advanced Beef Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in beef production management schemes. Emphasizes analysis and decision making. Consists of two hours of lecture and two hours of lab, with approximately one-half of labs meeting at Animal Science Livestock Center.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120 , ANSC 4540 .

OR

ANSC4230 - Advanced Sheep Production & Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in sheep production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120, ANSC 4540.

OR

ANSC4240 - Advanced Swine Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in swine production management schemes. Consists of two hours of lecture and two hours of lab, with at least one-half of labs meeting at Animal Science Livestock Center.

Former Course Number [3330]

Prerequisite: ANSC 3100, ANSC 4120, or ANSC 4540.

For Non-minor: 20 Hours

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

ANSC4050 - Animal Growth and Development

Credits: 3

Explores aspects of animal growth and development, with a focus on skeletal muscle, adipose, soft connective tissues, and bone. Addresses genetic, endocrine, nutritional, and environmental impacts on tissue development and growth.

Dual Listed ANSC 5050.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2022.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking

rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

OR

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

Supporting Economics: 3 Hours

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Total: 120 Hours

²Must earn a "C" or better.

⁵AGEC 4840 may not be double-counted towards both Agricultural Economics and Quantitative Skills.

⁶Suggest COSC 1200 for most, or IMGT 2400 (for advanced users).

⁷Must earn a "C" or better in all courses required in the minor to earn the minor.

Agricultural Communications, B.S.

Courses in agriculture, communications, and journalism prepare students for careers as broadcasters, editors or writers for farm and home organizations, state and federal agencies, magazines, newspapers, radio, television, and commercial businesses.

Minimum Requirements

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Communications/Journalism Core: 36 Hours

COMM1000 - Intro to Mass Media

Credits: 3
An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

AND

3 hours COJO/COMM Elective - ANY LEVEL

AND

12 hours COJO Electives - UPPER DIVISION

Agriculture Core Requirements: 36 Hours

At least 18 hours must be lower division (Ag 1000-2000) elective courses, and at least 12 hours must be upper division (Ag 3000-4000) elective courses and include

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences

between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FDSC1410 - Scientific Study of Food

Credits: 3

Scientific Study of Food is an introductory course in the science of food, which includes selection, preparation, to meet physical, psychological, and social needs. This course fulfills the Physical and Natural World USP.

When Offered (Normally offered fall semester)

USP 2003-2014 Code PN

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

OR

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

FDSC2040 - Principles of Meat Animal Evaluation

Credits: 3

Live animal and carcass evaluation of beef, sheep and swine. Slaughter, meat inspection and anatomy are discussed.

When Offered (Normally offered spring semester)

OR

PLNT2200 - Field Crop Production

Credits: 3

Provides students with a fundamental understanding of production cropping systems. Students will gain basic knowledge of major food crops, tillage systems, crop rotations, fertilization, irrigation, crop development, pest management, and other topics related to field crops.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 1000 or concurrent enrollment

OR

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

AND

12 hours of UPPER DIVISION Electives from AECL, AGECL, AGRI, ANSC, ENTO, FCSC, FDSC, MICR, MOLB, PATB, PLNT, REWM, SOIL

AGRI4975 - Agricultural Communications Senior Project

Credits: 1

A baccalaureate degree capstone experience incorporating self assessments of student learning, reflective writings, and an analysis, synthesis and evaluation of the agricultural communications curriculum. Students develop and present a personalized, comprehensive, professional portfolio.

Prerequisite: agricultural communication major with senior standing and WB.

Supporting Course Requirement: 4 Hours

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces

statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Additional Hours for Major and Electives: 14 Hours

8 hours of General Electives ANY DIVISION

6 hours of General Electives UPPER DIVISION

Total Hours: 120

Additional Requirements

Agricultural communication majors will also complete an internship in their field. A variety of opportunities are available, and students can work with their advisor to determine an appropriate internship for their area of emphasis.

Students wishing to pursue an area of emphasis in the agricultural communications option are encouraged to also select a minor. The college currently offers a variety of minors, and any of these can help to better prepare students for employment or graduate work.

Animal and Veterinary Science, B.S.

The Depts of Animal Science and Veterinary Sciences jointly offer the B.S. degree in Animal and Veterinary Science. Courses in animal science, food science, and pathobiology form eight degree options tailored to the student's interests/career goals.

Options

- Animal and Veterinary Science, Production Option, B.S.
- Animal and Veterinary Science, Range Livestock Option, B.S.
- Animal and Veterinary Science, Business Option, B.S.
- Animal and Veterinary Science, Communication Option, B.S.
- Animal and Veterinary Science, Animal Biology Option, B.S.
- Animal and Veterinary Science, Meat Science and Food Technology Option, B.S.
- Animal and Veterinary Science, Pre-Veterinary Medicine Option, B.S.
- Animal and Veterinary Science, Equine Science Option, B.S.

Additional Information

Agriculture, in its broadest definition, is the nation's largest industry. Livestock production is Wyoming's largest agricultural enterprise. Animal agriculture and its associated industries offer many opportunities for the interested student. Whether a student is interested in production livestock, allied fields such as meat science, business or animal health, or wants to apply to a college of veterinary medicine or graduate school, the degree tracks offered will form the

basis for a challenging career in animal agriculture/biology. The various options provide maximum flexibility to meet the changing needs of students and their employers. For students interested in pursuing advanced research, M.S. and Ph.D. degrees are offered.

A grade of C or better must be earned in the following courses when the courses are required in the individual option for completion of the degree: ANSC 3010, ANSC 3100, ANSC 4120, ANSC 4540, ANSC 4630; FDSC 3060, PATB 4110, PATB 4111, LIFE 1010, LIFE 2022.

Students are encouraged to participate in activities related to their degree option. The university has competitive livestock, horse, wool, and meat judging teams that travel to and participate in at least one major exposition a year. Laboratories and field trips, as practical teaching aids in many classes, are scheduled throughout the year. Internships are available to gain practical experience. Student organizations such as the Block and Bridle Club, Food Science Club, Pre-vet Club, Wyoming Collegiate Cattlemens Association, Microbiology Club, Range Club, and the Ranch Horse Team provide additional educational and recreational opportunities.

Design, Merchandising, and Textiles: Apparel Design and Product Development Career Track

The Apparel Design and Product Development career track in Design, Merchandising and Textiles allows students to develop the technical and creative skills necessary for the development of apparel and textile products from concept to finished product.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

**Meets FCSC Core Elective in Human Nutrition and Food. Grade C or above required.*

***Meets FCSC Core Elective in Human Development and Family Sciences. Grade C or above required.*

****Grade C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC1185 - Introduction to Design, Merchandising and Textile Industry

Credits: 3

Introduction to the functions of the design, merchandising and textiles industry. This course will give a base of knowledge of the industry including textile and garment production and manufacturing, design processes for apparel and interiors, and retailing. Students will also be introduced to potential career paths within the industry.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2175 - Fashion Illustration

Credits: 3

Introduces the fashion figure, light and dark contrasts, color, fabric and texture sketching techniques. Computer applications for layout of the design are also covered.

When Offered (Offered alternate fall semesters)

Prerequisite: FCSC 1180 or ART 1110; FCSC 1175.

FCSC2185 - Trend Forecasting and Analysis

Credits: 3

This course introduces concepts and techniques for color, textile, interior and fashion trend forecasting. Students will learn how to recognize current trends in lifestyle and ready-to-wear as well as signals for predicting forthcoming trends which impact retail merchandising and marketing decisions.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC2210 - Fashion Show Event Planning

Credits: 2

Provides students with a real-world, integrative experience with planning a large-scale special event, specifically, a fashion show. Opportunities include garment and model acquisition and organization, production (music planning, scheduling judges, MCs and guest speakers), promotion, budgeting and stage/runway design. Students experience the entire process of planning, setup and execution.

FCSC2270 - Advanced Apparel Construction

Credits: 3

Development of advanced apparel construction and tailoring techniques. Continued development of decision-making skills in selection, use and evaluation of materials.

Former Course Number [3170]

Prerequisite: FCSC 1170.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC3173 - Visual Merchandising and Promotion

Credits: 3

Principles of visual merchandising, consumer behavior for effective promotions, and selling techniques are discussed. Topics include brand development, advertising, visual display, publicity, fashion shows, special events, store space planning and layout. Students will have hands-on experience with several techniques.

When Offered (Offered alternating fall semesters, odd years)

Former Course Number [4173]

Prerequisite: FCSC 1180 and FCSC 2188.

FCSC3174 - Flat Pattern Design

Credits: 3

Principles and instructions for drafting and hand grading patterns using slopers through standard or individual measurements. Techniques of garment design are learned to create three-dimensional designs using the flat pattern method.

When Offered (Offered alternate spring semesters)

Former Course Number [4170]

Prerequisite: FCSC 2175 and FCSC 2270.

FCSC3175 - Apparel Design Through Draping

Credits: 3

Draping garment patterns through fabric manipulation, molding, and shaping to create three-dimensional form utilizing couture construction techniques.

Prerequisite: FCSC 2270

FCSC3185 - Product Development Through Design Thinking

Credits: 3

Students will expand their understanding of design and the strategies utilized to bring desirable and human-centered products to market. Techniques and skills for developing textile, interior and apparel products will be discussed. Students will gain understanding and recognition of the elements of design through product analysis.

Prerequisite: FCSC 1180.

FCSC4171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and

application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 5171.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4172.

FCSC4172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 5172.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4171.

FCSC4176 - Historic Clothing

Credits: 3

Surveys history of clothing in the Western World. Includes information from approximately 3000 B.C. through the 20th century. Dual listed with FCSC 5176.

Cross Listed FCSC 5176

When Offered (offered alternate spring semesters, odd years)

Prerequisite: FCSC 2165

FCSC4178 - Fiber Arts

Credits: 3

Max Credit (Max. 6)

Development and enhancement of technical and creative apparel design skills with a focus on embellishment techniques and creative pattern-making culminating in the creation of a distinctive piece of wearable art.

Dual Listed FCSC 5178.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

FCSC4182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 5182.

When Offered (Offered alternate spring semesters)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: completion of USP WB/COM2 requirement.

FCSC4185 - Product Development and Technology

Credits: 3

This course introduces students to various technologies used to bring products to market. 3-D body scanning, computer apparel pattern digitizing, grading, marker making and repeats for digitally-printed, knit and woven fabrics will be discussed. Students will complete product technical packages based on product specifications.

Prerequisite: FCSC 3185, FCSC 4171, and FCSC 4172.

FCSC4190 - Apparel Collection Development

Credits: 3

Students will utilize their pattern-making and apparel construction skills and continue to expand their knowledge of fit on live models through creation of their own apparel collection. They will be responsible for the creation of the collection from inspiration to final product. Collections will be showcased through a real-world fashion show.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4960 - International Study Tour FCS

Credits: 3

Max Credit (Max. 6)

Designed to provide students with an opportunity to learn more about food, design, and human services in international settings. Students will visit locations relevant to the Family and Consumer Science discipline.

When Offered (Offered based on sufficient demand and resources every other spring/summer term, odd years; international destinations vary)

Prerequisite: consent of instructor.

OR

FCSC4970 - Design and Merchandising Internship

Credits: 3

Max Credit (Max. 6)

Provides practical experience in retail, interior design or apparel design settings.

Prerequisite: junior standing or consent of instructor.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

All Design, Merchandising, and Textiles majors are required to complete a three-credit-hour internship, international study tour, or study abroad program.

Design, Merchandising, and Textiles: Interior Design Career Track

The Interior Design career track in Design, Merchandising, and Textiles prepares students to creatively, effectively, and sustainably solve design problems for professional practice in residential and commercial interior design.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

**Meets FCSC Core Elective in Human Nutrition and Food. Grade C or above required.*

***Meets FCSC Core Elective in Human Development and Family Sciences. Grade C or above required*

****Grade C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC1185 - Introduction to Design, Merchandising and Textile Industry

Credits: 3

Introduction to the functions of the design, merchandising and textiles industry. This course will give a base of knowledge of the industry including textile and garment production and manufacturing, design processes for apparel and interiors, and retailing. Students will also be introduced to potential career paths within the industry.

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC2185 - Trend Forecasting and Analysis

Credits: 3

This course introduces concepts and techniques for color, textile, interior and fashion trend forecasting. Students will learn how to recognize current trends in lifestyle and ready-to-wear as well as signals for predicting forthcoming trends which impact retail merchandising and marketing decisions.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC2210 - Fashion Show Event Planning

Credits: 2

Provides students with a real-world, integrative experience with planning a large-scale special event, specifically, a fashion show. Opportunities include garment and model acquisition and organization, production (music planning, scheduling judges, MCs and guest speakers), promotion, budgeting and stage/runway design. Students experience the entire process of planning, setup and execution.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/finishing of textile materials.

Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC3173 - Visual Merchandising and Promotion

Credits: 3

Principles of visual merchandising, consumer behavior for effective promotions, and selling techniques are discussed. Topics include brand development, advertising, visual display, publicity, fashion shows, special events, store space planning and layout. Students will have hands-on experience with several techniques.

When Offered (Offered alternating fall semesters, odd years)

Former Course Number [4173]

Prerequisite: FCSC 1180 and FCSC 2188.

FCSC3180 - Contract Design I

Credits: 3

Interior design course focused on designing sustainable contract spaces primarily for the hospitality industry. As needed, other public space design may be explored. Design development and communication through advanced design and rendering software will be utilized. Students will learn to write specifications and practice design development through evidence based design.

Prerequisite: FCSC 2188 and FCSC 3288 or concurrent enrollment, or consent of instructor.

FCSC3185 - Product Development Through Design Thinking

Credits: 3

Students will expand their understanding of design and the strategies utilized to bring desirable and human-centered products to market. Techniques and skills for developing textile, interior and apparel products will be discussed. Students will gain understanding and recognition of the elements of design through product analysis.

Prerequisite: FCSC 1180.

FCSC3188 - Interior Design Studio II

Credits: 3

Building upon skills developed in ID Studio 1, students will gain advanced knowledge of lighting, building codes and systems, specifications, materials, and space planning through more complex residential design problems. Design thinking and human centered design are emphasized. Explores design development and communication through CAD based and hand rendering techniques.

Prerequisite: FCSC 2188.

FCSC3288 - Environmental Psychology and Inclusive Design

Credits: 1

Online design primer focused on preparing students for the contract interior design series. Explores how humans interact with, experience, and behave in public spaces. Advances understanding of design inclusivity by interpreting and applying ADA regulations, along with considerations for diverse ages, circumstances, and abilities.

Prerequisite: FCSC 2180 , FCSC 2188 , or concurrent enrollment in 2188

FCSC4171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 5171.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4172.

FCSC4172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 5172.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4171.

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

FCSC4182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 5182.

When Offered (Offered alternate spring semesters)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: completion of USP WB/COM2 requirement.

FCSC4188 - Contract Design II

Credits: 3

Explores space planning and design as applied to contract interiors. Focused on healthcare and corporate design, but may survey other public spaces as appropriate. Advanced design, rendering, and visualization software used to conceptualize and present design solutions. Sustainable, accessible and functional design is highlighted.

Dual Listed FCSC 5188.

Prerequisite: FCSC 2188 and FCSC 3288 (or concurrent enrollment), or consent of instructor.

FCSC4288 - Professional Practice and Advanced Interiors Studio

Credits: 4

Explores standards of practice, project management, contract documents, portfolio development, and professional ethics and conduct in interior design. Studio based projects are focused on creating residential or contract designs through collaboration and integrated practice with interdisciplinary teams, and/or designs created for clients through service based learning.

Dual Listed FCSC 5288.

Prerequisite: FCSC 3180 or FCSC 4188.

FCSC4960 - International Study Tour FCS

Credits: 3

Max Credit (Max. 6)

Designed to provide students with an opportunity to learn more about food, design, and human services in international settings. Students will visit locations relevant to the Family and Consumer Science discipline.

When Offered (Offered based on sufficient demand and resources every other spring/summer term, odd years; international destinations vary)

Prerequisite: consent of instructor.

OR

FCSC4970 - Design and Merchandising Internship

Credits: 3

Max Credit (Max. 6)

Provides practical experience in retail, interior design or apparel design settings.

Prerequisite: junior standing or consent of instructor.

ARE1600 - Architectural Design Studio I

Credits: 3

Freshman-level architectural design in a project-based learning environment. Introduction to Building Information Modeling (BIM); architectural presentation drawings; freehand sketching; essentials of architectural design and building code compliance.

Former Course Number [ARE 2100]

ARE2410 - Fundamentals of Building Performance

Credits: 3

Introduction to building performance measures that embrace a global notion of environmental stewardship. Emphasis on passive heating and cooling systems and daylighting strategies to manage the thermal and luminous environments over the facility life cycle.

Prerequisite: PHYS 1210.

ARE2600 - Architectural Design Studio II

Credits: 3

Sophomore-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 1600, with a new emphasis on building materials and construction methods.

Former Course Number [ARE 2200]

Prerequisite: ARE 1600.

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

OR

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior,

design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

All Design, Merchandising, and Textiles majors are required to complete a three-credit-hour internship, international study tour, or study abroad program.

Design, Merchandising, and Textiles: Merchandising Career Track

The Merchandising career track in Design, Merchandising and Textiles offers knowledge and application of business principles within the fashion and interior industries; including retailing, sourcing, and marketing for apparel and interior products.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

**Meets FCSC Core Elective in Human Nutrition and Food. Grade C or above required.*

***Meets FCSC Core Elective in Human Development and Family Sciences. Grade C or above required.*

****Grade C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC1185 - Introduction to Design, Merchandising and Textile Industry

Credits: 3

Introduction to the functions of the design, merchandising and textiles industry. This course will give a base of knowledge of the industry including textile and garment production and manufacturing, design processes for apparel and interiors, and retailing. Students will also be introduced to potential career paths within the industry.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2185 - Trend Forecasting and Analysis

Credits: 3

This course introduces concepts and techniques for color, textile, interior and fashion trend forecasting. Students will learn how to recognize current trends in lifestyle and ready-to-wear as well as signals for predicting forthcoming trends which impact retail merchandising and marketing decisions.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and

innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC2210 - Fashion Show Event Planning

Credits: 2

Provides students with a real-world, integrative experience with planning a large-scale special event, specifically, a fashion show. Opportunities include garment and model acquisition and organization, production (music planning, scheduling judges, MCs and guest speakers), promotion, budgeting and stage/runway design. Students experience the entire process of planning, setup and execution.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3160 - Merchandise Retailing and Buying

Credits: 3

Provides students with the knowledge involved in the buying function of the merchandising and retailing process, including merchandise planning and retail math. Gives students the necessary skills to pursue a career in retail buying.

Prerequisite: FCSC 2185 and MATH 1000 or MATH 1400.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC3173 - Visual Merchandising and Promotion

Credits: 3

Principles of visual merchandising, consumer behavior for effective promotions, and selling techniques are discussed. Topics include brand development, advertising, visual display, publicity, fashion shows, special events, store space planning and layout. Students will have hands-on experience with several techniques.

When Offered (Offered alternating fall semesters, odd years)

Former Course Number [4173]

Prerequisite: FCSC 1180 and FCSC 2188.

FCSC3185 - Product Development Through Design Thinking

Credits: 3

Students will expand their understanding of design and the strategies utilized to bring desirable and human-centered products to market. Techniques and skills for developing textile, interior and apparel products will be discussed. Students will gain understanding and recognition of the elements of design through product analysis.

Prerequisite: FCSC 1180.

FCSC4160 - Merchandising Strategies and Technology

Credits: 3

Students will be exposed to advanced merchandising strategies for retail buying and planning. Technologies used for gathering pertinent retail data, such as foot traffic and inventory management software, will be introduced. Course will expand on concepts introduced in prerequisite coursework.

Prerequisite: FCSC 3160.

FCSC4171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 5171.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4172.

FCSC4172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 5172.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4171.

FCSC4176 - Historic Clothing

Credits: 3

Surveys history of clothing in the Western World. Includes information from approximately 3000 B.C. through the 20th century. Dual listed with FCSC 5176.

Cross Listed FCSC 5176

When Offered (offered alternate spring semesters, odd years)

Prerequisite: FCSC 2165

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

FCSC4182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 5182.

When Offered (Offered alternate spring semesters)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: completion of USP WB/COM2 requirement.

FCSC4960 - International Study Tour FCS

Credits: 3

Max Credit (Max. 6)

Designed to provide students with an opportunity to learn more about food, design, and human services in international settings. Students will visit locations relevant to the Family and Consumer Science discipline.

When Offered (Offered based on sufficient demand and resources every other spring/summer term, odd years; international destinations vary)

Prerequisite: consent of instructor.

OR

FCSC4970 - Design and Merchandising Internship

Credits: 3

Max Credit (Max. 6)

Provides practical experience in retail, interior design or apparel design settings.

Prerequisite: junior standing or consent of instructor.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior,

design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

All Design, Merchandising, and Textiles majors are required to complete a three-credit-hour internship, international study tour, or study abroad program.

A minor in Entrepreneurship or Professional and Technical Selling through the College of Business is recommended for students in this career track.

Dietetics

The nationally accredited Didactic Program in Nutrition and Dietetics provides the required coursework to pursue an approved post-graduation supervised practice experience (dietetic internship) to become a Registered Dietitian Nutritionist (RDN).

Program Introduction

The UW Didactic Program in Nutrition and Dietetics (DPND) is nationally accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics. Entrance into the DPND is made only through an application process. Each prospective DPND student will initially enter the Human Nutrition and Food concentration. It is recommended that students apply to the DPND in the spring semester of their sophomore year. The academic requirements and supervised practice experience must be completed before the student is eligible for the Registration Examination for Dietitians administered by the Commission on Dietetic Registration (CDR), the credentialing agency for the Academy.

University Studies Requirements

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an

opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Before Admission to Program

Students must complete the following courses with a minimum 3.0 grade point average (gpa) prior to DPND application.

**Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3
This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3
Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2141 - Nutrition Controversies

Credits: 2
This course expands upon nutrition concepts covered in FCSC 1141 by exploring current nutrition-related controversies. Skills related to the interpretation of research literature will be emphasized.

Prerequisite: FCSC 1141.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3
An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

After Admission to Program

In addition to USP and upper division requirements, students must complete the following courses after admission to the DPND while maintaining an overall grade point average of 3.000. Failure to maintain a grade point average of 3.000 could result in program probation and/or suspension.

**Grade of C or above required*

FCSC3142 - Geriatric Nutrition

Credits: 2

Studies nutrition requirements in elderly as effected by physiological changes with aging and the impact of nutrition and healthy lifestyle on prevention and treatment of age related conditions, diseases and social issues.

Former Course Number [4142]

Prerequisite: FCSC 1141; LIFE 1010.

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

FCSC3150 - Intermediate Foods

Credits: 2

Examines food management concepts in regards to the service of safe food, modified menu development, and understanding of federal food regulations for food and nutrition labelling.

Prerequisite: FCSC 1150; CHEM 1020; MOLB 2021; junior standing and FCSC majors and minors.

FCSC3152 - Food Systems Production

Credits: 3

Quantity food purchasing and production, along with institutional food services experience.

Former Course Number [4152]

Prerequisite: FCSC 3150 and LIFE 1010.

FCSC4044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 5044.

Former Course Number [3140]

Prerequisite: FCSC 1141; LIFE 1010; ZOO 3115.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4150 - Experimental Foods

Credits: 3

Studies physical and chemical properties of raw and processed food materials and tests for evaluation of food quality. Students develop ability to use and interpret recent research findings, as well as skills in planning, conducting and reporting food experiments.

Prerequisite: FCSC 1150, CHEM 2300, STAT 2020, ENGL 4010, FCSC major.

FCSC4210 - Therapeutic Nutrition I: Nutrition Assessment and Diagnosis

Credits: 4

Nutrition assessment and diagnosis as part of the nutrition care process; experience in dietary and nutrient assessment of the apparently healthy and sick individual with discussion of case studies.

Dual Listed FCSC 5210.

Prerequisite: ZOO 3115, MOLB 3610, and FCSC 4145 or concurrent enrollment.

FCSC4220 - Therapeutic Nutrition II

Credits: 4

Rationale for dietary modifications in pathological conditions; experience with learning and applying the nutrition care process to develop nutrition care plans for individuals with various medical conditions with discussion of case studies.

Dual Listed FCSC 5220.

Prerequisite: MOLB 4100.

FCSC4230 - Therapeutic Nutrition Counseling

Credits: 2

Course is designed to help students develop basic nutrition counseling and communication skills. Students will learn how to apply the concepts learned during lecture through interactive classroom experiences with peers and outside of the classroom experiences with an assigned client.

Dual Listed FCSC 5230

A&S College Core 2015 Dietetics students only.

Prerequisite: FCSC 4220 or concurrent enrollment.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical

theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics

and international management.

Prerequisite: COM1, sophomore class standing.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

FCSC Core Elective in Design, Merchandising and Textiles

Complete one of the following with a grade of C or above:

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC Core Elective in Human Development and Family Sciences

Complete one of the following with a grade of C or above:

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

HDFS Career Track for Family and Consumer Sciences Teacher Certification

A career track leading to certification/licensure to teach family and consumer sciences (FCS) in secondary schools.

Program Information

This program is made possible through a partnership agreement with UW Family and Consumer Sciences, Colorado State University (CSU) Family and Consumer Sciences program and the CSU Center for Educator Preparation. While meeting the requirements for the Human Development and Family Sciences concentration, students will use electives from other FCS concentrations to prepare them to teach family and consumer sciences in middle or secondary schools. By participating in this partnership, students earn dual bachelor's degrees - one from UW and one from CSU. Students must earn a minimum of 154 credit hours between the two programs (minimum of 120 at UW and a minimum of 34 at CSU) in order to be awarded a degree from each institution. Additional semesters will be necessary to fulfill the requirements of both degrees.

Students must meet all entry requirements at UW and CSU. The CSU licensure program requires students to earn a C or above in all content courses and teacher licensing courses, and a passing score on the appropriate licensing exam. Therefore, a grade of C or above must be earned in all UW courses and an overall 2.750 GPA be maintained for transfer to CSU to fulfill their program requirements. Upon completion of the UW portion, students will then take the remaining courses needed to meet Wyoming and Colorado certification/ licensure requirements at CSU in Ft. Collins, Colorado. In their last semester, if they so choose, Wyoming students may complete their student teaching requirements in a Wyoming FCS school classroom with supervision by a licensed FCS teacher educator. In addition to earning dual degrees, students meet the requirements to apply for certification/licensure in Wyoming and in Colorado. Both licenses are reciprocal in many other states.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

Required Courses

*** *Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

OR

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3160 - Merchandise Retailing and Buying

Credits: 3

Provides students with the knowledge involved in the buying function of the merchandising and retailing process, including merchandise planning and retail math. Gives students the necessary skills to pursue a career in retail buying.

Prerequisite: FCSC 2185 and MATH 1000 or MATH 1400.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC4113 - Consumer Issues

Credits: 3

Provides research/ applied understanding of consumer rights/ responsibilities, government/business roles, legislation, advocacy, and redress. Emphasizes introductory consumer law/legal research, critical thinking, self-reflection, and cultural examination. Ethical theories and issues examined within an interdependent world. Meets requirements for certification in family and consumer sciences education. Internship opportunities possible upon successful completion. Companion web site used.

Prerequisite: ECON 1000 or SOC 1000 or PSYC 1000; WB/COM2.

FCSC4118 - Family Policy

Credits: 3

Explores the relationships between public programs/policies/laws and family functioning. The roles of family professionals in advocacy and education regarding policies will be discussed. Attention will be paid to current events relevant to family policy issues and the policy process at the state level.

Dual Listed FCSC 5118.

Prerequisite: FCSC 2131; junior standing.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4125 - Professional Practices in Human Development and Family Sciences

Credits: 3

Explores key professional and ethical issues related to professional practice in Human Development and Family Sciences. Reviews Family Life Education history, purpose, and methodology. Emphasizes skills and knowledge needed to work in various settings with individuals and families across the lifespan. This class is a prerequisite for HDFS student internships (FCSC 4130; FCSC 4131; FCSC 4132).

When Offered (Offered fall semester only)

Prerequisite: FCSC 2110, FCSC 3119, FCSC 3122, FCSC 3220 AND FCSC 2131.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

COMM1030 - Interpersonal Communication

Credits: 3

Focuses on interpersonal communication settings or face-to-face interaction. Basic unit of study is, therefore, the dyad. Also includes some work in small group settings.

USP 2015 Code U5H

Former Course Number COJO 1030

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

OR

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to

develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

OR

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

LIFE1002 - Discovering Science

Credits: 3

Integrates Biology, Chemistry, Physics, and Earth Science and is intended for non-science majors. Fundamental concepts from each discipline are discussed through lectures and in-class activities, and students learn how to understand science and its importance in larger societal issues. There is no laboratory component of this course. Meets the S requirement in USP 2003 and the PN requirement in USP 2015.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Former Course Number [BIOL 1002]

OR

LIFE1003 - Current Issues in Biology

Credits: 4

Emphasizes central themes of biology - cell biology, genetics, evolution, ecology - and scientific methodology by focusing on current issues in biology. Fundamental concepts are addressed through classroom and laboratory activities and discussions. This course is intended for non-science majors. Students cannot receive duplicate credit for LIFE 1010 or LIFE 1020.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1003]

OR

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences.

Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Additional Concurrent and CSU Coursework

After completion of UW coursework, three additional semesters are required for completion of this teacher certification option. The first semester will require concurrent enrollment at UW and CSU. Required UW course FCSC 4117 (online - 3 credit hours) will be taken while enrolled at CSU to preserve WEU eligibility. Four additional credit hours must be transferred to UW from the second and third semesters' coursework at CSU to meet UW's 120 credit hour graduation requirement.

First Semester

Concurrent Fall Semester UW/CSU

- EDUC 331 - Educational Technology Credits: 2
- EDUC 340 - Literacy and the Learner - Phase I - RL Credits: 3 (Not included in WUE tuition)
- EDUC 350 - Instruction I: Individualization/Mgt - Phase II - TL Credits: 3
- EDUC 386 - Practicum - Instruction I - Phase II - TL 1
- EDCT 451 - Methods, FCS Education Credits: 4

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

Second Semester

Spring Semester at CSU

- EDUC 450 - Instruction II: Standards/ Assessment - Phase III - T Credits: 4
- EDUC 486 - Practicum - Instruction II - Phase III - TL 1
- FACS 479 - Colloquium - FCS Credits: 2

Complete one of the following and transfer it to UW:

- A course from Art/Humanities (Choose one: E140 - The Study of Literature, PHIL100 - The Appreciation of Philosophy, or TH141 - Introduction to Theater) Credits: 3
OR
- HES 145 Health and Wellness Credits: 3

Final Semester

Fall Semester at CSU

- EDCT 485 - Student Teaching - Phase IV - TL Credits: 11
- ECDT 492 Seminar - Professional Relations - Phase IV - TL Credits: 1 (Transfer to UW)

Total UW Degree Minimum: 120 Hours

Total CSU Degree Minimum: 34 Hours

Total for Both Degrees: 154 Hours

Additional Requirements

Upon declaring this career track, students must satisfactorily complete a mandatory security screen (background check). Advising will provide careful attention to the uniqueness of individual student situations and academic choices.

Human Development and Family Sciences

Prepares students to work in a variety of critical fields that serve individuals and families across the lifespan, including: children, youth, senior and family support programs, community and governmental agencies, and higher education.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

** Grade of C or above required.*

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural

communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

FCSC4118 - Family Policy

Credits: 3

Explores the relationships between public programs/policies/laws and family functioning. The roles of family professionals in advocacy and education regarding policies will be discussed. Attention will be paid to current events relevant to family policy issues and the policy process at the state level.

Dual Listed FCSC 5118.

Prerequisite: FCSC 2131; junior standing.

FCSC4125 - Professional Practices in Human Development and Family Sciences

Credits: 3

Explores key professional and ethical issues related to professional practice in Human Development and Family Sciences. Reviews Family Life Education history, purpose, and methodology. Emphasizes skills and knowledge needed to work in various settings with individuals and families across the lifespan. This class is a prerequisite for HDFS student internships (FCSC 4130; FCSC 4131; FCSC 4132).

When Offered (Offered fall semester only)

Prerequisite: FCSC 2110, FCSC 3119, FCSC 3122, FCSC 3220 AND FCSC 2131.

FCSC4132 - Internship in Human Development and Family Sciences

Credits: 4-6

Max Credit 6

Students will acquire skills and gain familiarity in direct services, policy development, or program planning in a human services agency/organization. Opportunities to apply theories and knowledge gained in classroom settings to professional practice will be provided. Offered spring or summer semesters.

When Offered (Offered spring and summer semesters only)

Prerequisite: FCSC 4125

OR

FCSC4130 - Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early childhood education majors with an in-depth experience working

with children from birth to age five. Students gain experience including planning lessons, teaching, assessing children and conducting parent conferences.

Prerequisite: FCSC 2121; EDEC 3000; EDEC 3220; senior standing.

OR

FCSC4131 - Administration Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early education majors with an in-depth experience working with families and staff. Students gain experience in observing and assessing early childhood programs, planning and presenting staff trainings/professional workshops, staff supervision, writing newsletters, and other professional documents and professional activities.

Prerequisite: FCSC 2121; FCSC 4127; senior standing.

FCSC4135 - Program Evaluation

Credits: 3

Explores techniques for evaluating programs in the public and/or private sectors. Includes determining need, identifying/communicating with stakeholders, developing program theory/logic models, implementation, evaluation methods/instruments, and interpreting/reporting evaluation results.

Dual Listed FCSC 5135.

Prerequisite: Junior standing.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

OR

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

FCSC Core Elective in Human Nutrition and Food

Complete one of the following with a grade of C or above:

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC Core Elective in Design, Merchandising and Textiles

Complete one of the following with a grade of C or above:

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

Upon declaring this major, students must satisfactorily complete a mandatory security screen (background check).

Human Nutrition and Food

The Human Nutrition and Food concentration prepares students for careers in human nutrition and the food industry, and serves as a degree plan for pre-health (including the Didactic Program in Nutrition and Dietetics) or graduate school.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

** Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2141 - Nutrition Controversies

Credits: 2

This course expands upon nutrition concepts covered in FCSC 1141 by exploring current nutrition-related controversies. Skills related to the interpretation of research literature will be emphasized.

Prerequisite: FCSC 1141.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3142 - Geriatric Nutrition

Credits: 2

Studies nutrition requirements in elderly as effected by physiological changes with aging and the impact of nutrition and healthy lifestyle on prevention and treatment of age related conditions, diseases and social issues.

Former Course Number [4142]

Prerequisite: FCSC 1141; LIFE 1010.

FCSC4044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 5044.

Former Course Number [3140]

Prerequisite: FCSC 1141; LIFE 1010; ZOO 3115.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4150 - Experimental Foods

Credits: 3

Studies physical and chemical properties of raw and processed food materials and tests for evaluation of food quality. Students develop ability to use and interpret recent research findings, as well as skills in planning, conducting and reporting food experiments.

Prerequisite: FCSC 1150, CHEM 2300, STAT 2020, ENGL 4010, FCSC major.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language.

May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

Human Nutrition and Food Elective

Complete one of the following with a grade of C or above:

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

FCSC3150 - Intermediate Foods

Credits: 2

Examines food management concepts in regards to the service of safe food, modified menu development, and understanding of federal food regulations for food and nutrition labelling.

Prerequisite: FCSC 1150; CHEM 1020; MOLB 2021; junior standing and FCSC majors and minors.

FCSC3152 - Food Systems Production

Credits: 3

Quantity food purchasing and production, along with institutional food services experience.

Former Course Number [4152]

Prerequisite: FCSC 3150 and LIFE 1010.

FCSC Core Elective in Design, Merchandising and Textiles

Complete one of the following with a grade of C or above:

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC Core Elective in Human Development and Family Sciences

Complete one of the following with a grade of C or above:

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicultural development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Microbiology, B.S.

This interdepartmental program is comprised of core and elective courses in the basic sciences, general microbiology, genomics/proteomics, medical, and environmental microbiology. Students may also participate in faculty-mentored research projects.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Information

The curriculum is designed to prepare graduates for the future by combining a firm foundation in the basic sciences with a central core of microbiology classes, followed by the opportunity for students to specialize in areas of microbiology suiting their individual interests via the selection of electives.

Prior to graduation, microbiology majors must complete the basic requirements and all microbiology core course requirements as listed below. Finally, to assure breadth of exposure in microbiology, students must complete 6 semester hours of microbiology electives. The microbiology curriculum is organized to provide students with the maximum flexibility in meeting their university studies program requirements.

Students pursuing the B.S. degree in microbiology who wish to pursue a dual major in both microbiology and molecular biology must satisfy the basic science/math and core/elective requirements in microbiology as well as those specified for the B.S. degree in molecular biology PLUS an additional 9 credits of electives in microbiology and/or molecular biology at the 4000/5000 level.

Basic Course Requirements for Microbiology Majors

- Total credit hours: 121 hours
- 3000-level or above credits (university requirements): 42 hours
- Completion of University Studies 2015 Program Requirements: 30-36 hours

Basic Sciences and Quantitative Reasoning

MATH1450 - Algebra and Trigonometry

Credits: 5
Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and

their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

OR

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

AND

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: PHYS 1110.

Microbiology Core Course Requirements

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

PATB2220 - Pathogenic Microbiology

Credits: 3

This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed MICR 2220

When Offered (Offered spring semester)

Prerequisite: MICR 2210

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

PATB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed MOLB 4400

Dual Listed PATB 5400

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

OR

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4460 - Microbial Physiology and Metabolism

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MICR 4460.

Dual Listed MOLB 5460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710
Dual Listed PATB 5710
When Offered (Normally offered fall semester)
Prerequisite: MOLB 2240

MICR4321 - Microbiology Capstone

Credits: 4

Using a problem-based student learning model, students conceptualize, propose, perform and present a microbiology research study to address a real community problem. Students maintain a lab notebook, write an NSF-style research proposal, formulate hypotheses, engage in hands-on laboratory hypothesis testing and design and present a scientific poster.

USP 2015 Code U5C3

Prerequisite: MICR majors with junior or senior standing.

Take 2 credits total of any combination of the following 1-credit seminar courses:

PATB4150 - Seminar

Credits: 1

Max Credit (Max. 4)

Preparation and oral presentation of papers on veterinary sciences topics.

Prerequisite: 8 hours of biology and consent of instructor.

OR

MOLB4050 - Student Seminar: Topics in ____

Credits: 1

Max Credit 4

Exposes students to current topics in molecular biosciences and examines primary journal literature with oral presentations and class discussions.

Prerequisite: MOLB 3000 or MOLB 3610 or CHEM 4400

OR

MOLB4051 - Departmental Seminar

Credits: 1

Max Credit 15

Attend a series of weekly seminars on a diverse set of research topics presented by visiting faculty or research scientists and will participate in a discussion following the seminar.

Dual Listed MOLB 5051.
Former Course Number [4050]

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600.
OR

MOLB4052 - Summer Seminar

Credits: 1
Max Credit 5

Consists of one week of lectures, presented by a renowned scientist from either academics or industry. The material presented is taken from the research program of the speaker.

Dual Listed MOLB 5052.
Former Course Number [4050]

- MICR Elective Credits: 6

Microbiology Electives

In addition to completing the required microbiology courses listed above, students must complete 6 hours of microbiology electives from any of the following lists.

Medical Microbiology

PATB3400 - Host Defenses Against Infect.

Credits: 3
Max Credit 3

Topics will include the history of immunology in the context of infectious diseases, different infectious pathogens and their interactions with higher order life forms, and introduction to the immune system relevant to protection against invasive microorganisms.

Prerequisite: MOLB/MICR 2021 and PATB/MICR 2220

PATB4001 - Epidemiology (Diseases in Population)

Credits: 3
Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed MICR 4001
Dual Listed PATB 5001
Prerequisite: STAT 2050 or STAT 2070

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

PATB4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed MICR 4130

Dual Listed PATB 5130

When Offered (Normally offered spring semester)

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

PATB4140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action and their effects on various organisms including man and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 5140

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: 9 hours of biological science (e.g., physiology), 4 hours chemistry, 3 hours biochemistry.

PATB4170 - Diseases of Wildlife

Credits: 3

Introduction to wildlife diseases of the Rocky Mountain region and North America. Emphasis on infectious, parasitic, traumatic, toxic, and other disease agents with coverage of mechanisms of disease, epidemiology, and disease impacts on wildlife populations and species. Significant discussion of zoonotic diseases and diseases at the wildlife/domestic animal interface.

Dual Listed PATB 5170

When Offered (Offered spring semester of even numbered years)

A&S College Core 2015 12 hours of biological or zoological sciences.

Former Course Number [4120]

MICR4200 - Diagnostic Bacteriology

Credits: 1

Practical training with emphasis on diagnostic procedures used in a clinical microbiology laboratory. Students identify bacterial pathogens of animals and humans. Taught in a clinical setting utilizing selected clinical material. Techniques employed in the processing and identification of clinically significant bacteria are used and discussed. Safe laboratory practices for working with biohazards are presented.

Cross Listed PATB 4200.

Prerequisite: junior standing and a MICR course which included a laboratory.

PATB4220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scoped objective is to assist students in gaining an understanding of principles and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/ discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principles and concepts through knowledge of experimental approaches.

Cross Listed MICR 4220

Dual Listed PATB 5220

Prerequisite: PATB 2220/MICR 2220 and statistics (or epidemiology).

PATB4240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed ENR 4240

Dual Listed PATB 5240

Prerequisite: LIFE 2022 or LIFE 2023 and STAT 2050 or STAT 2070

MICR4360 - Medical Entomology and Parasitology

Credits: 4

Emphasis on medically important arthropods, protozoa, and worms; clinical effects of infection epidemiology avoidance/control and identification/diagnosis.

Prerequisite: 8 hours of biological science

PATB4500 - Veterinary Parasitology

Credits: 4

Biology, importance, diagnosis and control of helminth and protozoan parasites of wild and domestic animals. Arthropod vectors and/or intermediate hosts of helminth & protozoan parasites are included. Diagnostic procedures and identification familiarity with agents are emphasized in lab.

When Offered (Offered fall semester of even-numbered years)

Prerequisite: 8 hours of biological science.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

Molecular and Cell Biology

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021, and MOLB 3610 or MOLB 3000

Environmental and Applied Microbiology

MICR3021 - Eukaryotic Microbes

Credits: 3

Max Credit 3

This course will address the biology and ecology of lower eukaryotic life-forms. Topics include: marine phyto- and zooplankton, terrestrial and fresh water aquatic micro-algae, protists, the evolution of multicellularity, and a phylogenetic survey of microscopic multi-cellular life.

Cross Listed PATB 3021

Prerequisite: MOLB/MICR-2021, General Microbiology

MICR4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540 and SOIL 4540.

Dual Listed MOLB 5540 and SOIL 5540 and ECOL 5540.

Prerequisite: MOLB 2021 or MICR 2021.

OR

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MICR4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed SOIL 4140.

Dual Listed MICR 5140.

Prerequisite: SOIL 2010.

BOT4200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 5200.

Prerequisite: LIFE 1010 and LIFE 2021.

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

FDSC4090 - Food Microbiology

Credits: 3

Discusses microorganisms and theory of their growth and survival in relation to spoilage and preservation of foods and health hazards in foods.

Cross Listed MICR 4090.

Dual Listed FDSC 5090.

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021 or MICR 2021.

FDSC4100 - Laboratory Techniques in Food Microbiology

Credits: 1

Lab techniques used in food microbiology.

Cross Listed MICR 4100.

Dual Listed FDSC 5100.

When Offered (Normally offered spring semester)

Former Course Number [610]

Prerequisite: FDSC 4090 or FDSC 5090, taken concurrently.

Molecular Biology, B.S.

The Molecular Biology B.S. degree program builds on basic sciences with courses focusing on molecular, cellular, genetic and microbiological principles. Research opportunities prepare students for postgraduate studies in research and health sciences.

Molecular Biology, B.S. Additional Information

The Molecular Biology B.S. degree program includes molecular biology, biochemistry, microbiology, genetics, and cell biology courses. Research opportunities also develop skillsets for graduate school, biotechnology employment and professional health programs.

To obtain a B.S. degree in molecular biology, a student, with the aid of a molecular biology adviser, designs a program of study that includes courses from the Molecular Biology General Science Core and Elective Requirements listed below. Additional course lists are provided as an aid in developing an individualized program of study in key Emphasis Areas such as Cell Biology and Molecular Genetics, Microbiology, and Preprofessional Health Sciences. Courses listed under the Emphasis Areas are optional, and the student and adviser will design a unique curriculum suited to the student's personal interests. Flexibility in course selection also permits students to fulfill various requirements for postgraduate and professional schools. In order to fulfill course prerequisites in a timely manner, a recommended sequence of courses is available from the student's molecular biology adviser. Completion of a B.S. in Molecular Biology provides a student with the tools needed to open the door to exciting futures in science, medicine and agriculture.

We expect that our graduating students will have a strong foundation in basic science, biochemistry and molecular biology that will enable them to:

1. understand the basis of multiple molecular mechanisms central to gene expression;
2. utilize molecular and microbiological laboratory techniques in future jobs or programs and trouble-shoot experimental challenges;
3. apply for graduate programs in molecular biology, microbiology or other life sciences;
4. begin employment as a laboratory research assistant in academia or the medical or agricultural biotechnology industries;
5. utilize a background in biochemistry and cell and molecular biology to promote success in the basic science curriculum in medical or other health professional schools;
6. integrate a background in biochemistry and cell and molecular biology into career development in professions such as law, genetic counseling, or public health policy;
7. employ evidence-based scientific reasoning skills in evaluating the use of molecular genetics in the prevention, diagnosis and treatment of medical disorders.

Requirements for Molecular Biology Majors

General Requirements

- Total credits (college requirement): 120
- 3000-level or above credits (university requirement): 42
- Fulfillment of University Studies Program (consult adviser)
- Fulfillment of molecular biology general science, core and elective requirements listed below

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

MOLB 1101

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

MOLB 4053

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

MOLB Requirements

General Science Requirement

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and

organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot

receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Total: 36 Credits

*The alternative math courses MATH 1450 or MATH 1400 and MATH 1405 may be substituted with adviser approval.

MOLB Core Requirement

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3320 - Molecular Biological Methods

Credits: 4

Integrated discussion and hands-on experience with modern bioinformatic and wet lab-based molecular, genetic and biochemical methods. Completion of the course should provide students with enhanced theoretical understanding and practical knowledge of many crucial modern computational and molecular biological techniques.

When Offered Spring

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

OR

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

MOLB4053 - Communications in Molecular Biology

Credits: 3

Students will explore current topics in molecular biosciences and their applications in biotechnology and medicine. The course will develop student's abilities to read and discuss scientific literatures and present the topics in different oral/written for public, research proposals and research-based business plans.

When Offered Spring

USP 2015 Code U5C3

Prerequisite: MOLB 4600 and LIFE 3050 or MOLB 3000

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

OR

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4051 - Departmental Seminar

Credits: 1

Max Credit 15

Attend a series of weekly seminars on a diverse set of research topics presented by visiting faculty or research scientists and will participate in a discussion following the seminar.

Dual Listed MOLB 5051.

Former Course Number [4050]

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600.

OR

MOLB4052 - Summer Seminar

Credits: 1

Max Credit 5

Consists of one week of lectures, presented by a renowned scientist from either academics or industry. The material presented is taken from the research program of the speaker.

Dual Listed MOLB 5052.

Former Course Number [4050]

Total: 28-29 Credits

MOLB Elective Requirement (6 credits)

Courses from the following list that were not used to fulfill the MOLB Core Requirement may be applied to the MOLB Elective Requirement; a maximum of 3 credits of MOLB 4010 may be counted toward the MOLB Elective Requirement.

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3
Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4440 - Microbial Genetics

Credits: 3
Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4460 - Microbial Physiology and Metabolism

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MICR 4460.

Dual Listed MOLB 5460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021 , and MOLB 3610 or MOLB 3000

Total: 6 Credits

Molecular Biology Emphasis Areas

After discussing individual interests with a molecular biology adviser, a student should enroll in additional courses that will enhance preparation for a chosen career objective. Listed below are recommended courses that are not required but will further develop a student's skills and understanding in three Emphasis Areas.

Cell Biology and Molecular Genetics

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 5610

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021, and MOLB 3610 or MOLB 3000

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g., sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

Microbiology

MICR2220 - Pathogenic Microbiology

Credits: 3

This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed PATB 2220.

Prerequisite: MOLB 2021 or MICR 2021.

MICR4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed PATB 4130.

Dual Listed MICR 5130.

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

MICR4220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scoped objective is to assist students in gaining an understanding of principles and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principles and concepts through knowledge of experimental approaches.

Cross Listed PATB 4220

Dual Listed MICR 5220.

Prerequisite: PATB 2220 or MICR 2220, and statistics (or epidemiology).

MICR4360 - Medical Entomology and Parasitology

Credits: 4

Emphasis on medically important arthropods, protozoa, and worms; clinical effects of infection epidemiology avoidance/control and identification/diagnosis.

Prerequisite: 8 hours of biological science

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4460 - Microbial Physiology and Metabolism

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MICR 4460.

Dual Listed MOLB 5460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021, and MOLB 3610 or MOLB 3000

MICR4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed PATB 4710.

Prerequisite: MICR 2220 or PATB 2220 or MOLB 2240 or MICR 2240.

Preprofessional Health Sciences

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3
Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4100 - Clinical Biochemistry

Credits: 4
Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring
Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4400 - Immunology

Credits: 4
Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4450 - Cell and Developmental Genetics

Credits: 3
Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 5610

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600

MICR2220 - Pathogenic Microbiology

Credits: 3

This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed PATB 2220.

Prerequisite: MOLB 2021 or MICR 2021.

MICR4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed PATB 4710.

Prerequisite: MICR 2220 or PATB 2220 or MOLB 2240 or MICR 2240.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

PSYC2340 - Abnormal Psychology

Credits: 3

Provides a general overview of abnormal behavior, emphasizing types, etiology and treatment methods.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: A grade of C or better in PSYC 1000.

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

Plant Production and Protection, B.S.

The Plant Production and Protection degree prepares students for careers in agriculture, natural resources, environmental and life sciences, and advanced graduate studies in the plant sciences.

Program Information

The Department of Plant Sciences offers a Bachelor of Science degree in Plant Production and Protection, with four optional concentrations and four minors. Optional concentrations for Plant Production and Protection majors are:

- Agronomy
- Horticulture
- Integrated Pest Management
- Agroecology and Evolution

Minors available for students pursuing other majors at UW are: Agronomy, Agroecology, Horticulture, and Plant Protection. These minors allow students within many bachelors programs to obtain an added emphasis in areas that enjoy strong employment opportunities.

A B.S. degree in Plant Production and Protection prepares students for careers in agriculture, natural resources, environmental and life sciences and for advanced graduate studies in specific subdisciplines within these areas. It is a broad, interdisciplinary, undergraduate curriculum that combines and integrates courses in the crop, horticulture, disease, weeds, soil, and insect sciences and is supported by a science-based curriculum and general education. Flexibility is built into the curriculum to readily accommodate students seeking to pursue an emphasis or obtain a minor in a specific discipline. To that end the breadth of the curriculum is balanced with greater depth in biology, chemistry, crop science, entomology, environmental studies, natural resource management, soil science, plant pathology, weed science, horticulture, turf management, pre-veterinary medicine, rangeland ecology and watershed management, animal science, microbiology, and molecular biology. A liberal number of electives permits design of a program that best meets individual career and educational objectives. The Plant Production and Protection program is well suited for students who possess a strong interest in, and an aptitude for, science, agriculture, the environment, life sciences, or natural resources.

The core curriculum is comprised of freshman- through senior-level courses that illustrate dynamic and complex interactions of plants, soils, and plant pests (diseases, insects, weeds) with the environment. Academic training is enhanced with experiential learning through research apprenticeships, internships, field studies, and a special Plant Sciences Capstone course. Special emphasis is given to development of critical thinking and communication skills, problem solving, and application of science. It is an interdisciplinary and highly practical degree program designed to prepare students for "real world" situations.

Plant Production and Protection B.S. degree recipients are prepared for careers with private and public institutions and agencies in such areas as: agricultural consulting, production or sales, research, product development, education, extension education, international programs, and scientific and technological support. These careers include but are not limited to: soil scientist, conservationist, entomologist, consultant, plant scientist, integrated pest management specialist, ecologist, research associate or technician, agronomist, biotechnician, and agroecologist. Degree recipients are also prepared for graduate education in biological and environmental sciences.

The combined Plant Sciences, B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. Please see additional information under the Plant Sciences Graduate Study section or online at <http://www.uwyo.edu/plantsciences/>.

Course Requirements

Core Requirements (required of ALL degree recipients): 50 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Choose one from ANSC 1010, ENTO 1000, or ENTO 1001 (ENTO 1001 preferred if available):

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

ENTO1000 - Insect Biology

Credits: 3

Introduces insects and related arthropods. Introduces aspects of insect biology, behavior, life history and diversity, as well as many ways that insects affect humans.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENTO1001 - Insect Biology

Credits: 4

Covers same lecture material as ENTO 1000, but includes a laboratory.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

Choose one from STAT 2050 or LIFE 2100:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Choose one from PLNT 3000, SOIL 4140, or SOIL 4160:

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

PLNT4990 - Plant Sciences Capstone

Credits: 3

Capstone course for final integration of courses required for the Plant Production and Protection degree. Provides overall synthesis of plant sciences academic subjects following completion of a prescribed senior experience course, PLNT 4920 or PLNT 4930.

When Offered (Offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code UC3

Practical Experience (must take 6 credit hours from the following): 6 Hours

PLNT4820 - Plant Sciences Seminar

Credits: 1
Max Credit 1

Discussion in production, physiology, breeding and weed science. Undergraduates in PLNT 4820 will attend graduate seminar PLNT 5820 and participate in discussions of the current topics.

Dual Listed PLNT 5820

Prerequisite: Senior standing, PLNT 1000.

PLNT4920 - Research Apprenticeship

Credits: 1-2
Max Credit (Max. 4)

Laboratory and/or field research apprenticeship. Emphasizes individual student-faculty interactions on current topics in plant sciences.

Former Course Number [CROP 4600]

Prerequisite: Junior standing and PLNT 1000, STAT 2050.

PLNT4930 - Internship in Plant Sciences

Credits: 1-3
Max Credit (Max. 6)

Provides students with realistic views of crop science, entomology or soil science through practical, as well as work-related, experiences. Provides positive educational experience to supplement formal academic course work.

Former Course Number [CROP/ENTO/SOIL 4903]

Prerequisite: Sophomore standing or higher; 2.50 GPA

PLNT4960 - Plant Sciences Field Studies

Credits: 2

Various facets of the agroecosystem are covered by visits to agricultural research stations, agri-businesses, private farms, national monuments, historical sites and Federal Parks. Students are exposed to ongoing sustainable research projects and innovative sustainable farming operations where a variety of cropping systems are utilized. Students are usually exposed to archaeological remains of ancient American Indian farming systems. An 8-day trip.

When Offered (Offered as needed)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 1000

PLNT4900 - Undergraduate Teaching Practicum

Credits: 1-2
Max Credit (Max. 4)

Supervised participation of undergraduates in the teaching of laboratory sections offered by the Department of Plant Sciences. Provides opportunity for students to gain teaching experience in agroecology, horticulture, or life science.

Prerequisite: PLNT 1000 and junior or senior standing

AGRI4520 - Field Practicum: Extension Work

Credits: 1-4
Max Credit (Max. 8)

Provides practical experiences to those wanting to pursue a career with Cooperative Extension Service. Interns are matched with county-based personnel for hands-on learning experiences across the state. Develop working knowledge of CES's mission to provide the citizens of Wyoming with education and applied research.

Dual Listed AGRI 5520.

Prerequisite: must pass volunteer screening process.

Plant Sciences Electives: 15 Hours

(Select 15 credit hours from PLNT courses, at least 12 of which are upper division)

Supporting Electives: 9 Hours

Select 9 hours of upper division courses from those with the following course prefixes:

- AGEC (Agricultural Economics)
- ANSC (Animal Science)
- BIOL (Biology)
- BOT (Botany)
- ENR (Environment and Natural Resources)
- ENTO (Entomology)
- FDSC (Food Science)
- GIST (Geospatial Information Science and Technology)
- LIFE (Life Sciences)
- MICR (Microbiology)
- MOLB (Molecular Biology)
- REWM (Rangeland Ecology and Watershed Management)
- SOIL (Soil Science)

Additional University Studies: 15 Hours

- First-Year Seminar (FY): 3

- U.S. and Wyoming Constitutions (V): 3
- Communications 1 (C1): 3
- Communications 2 (C2): 3
- Human Culture (H): 3

Free Electives: 25 Hours

Total Required: 120 Hours

Optional Concentrations

Although not required, students may choose to specialize in any of the four optional concentrations below as part of their B.S. in Plant Production and Protection. In order for the concentration to be official, students must "opt in" and add the desired concentration to their degree evaluation.

Agronomy Concentration: 24 Hours

The Agronomy concentration focuses on the intricacies of agronomic crop production along with pest management, genetics, soil science, and other related topics. This is a broad area of study that can be tailored to the student's particular interests. Careers in production, consulting, and pest management abound in the public and private sectors of agriculture. Students learn the ultimate goal of promoting more efficient and sustainable agronomic crop production practices. Skills learned include written and oral communication; sciences such as ecology, chemistry, and genetics; and practical applications such as computer technologies, geographic information systems, soil and water analyses, plant health diagnostics, and general best management practices.

Required: 16 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4700 - Forage Crop Science

Credits: 3

The course focuses on major aspects of forage crop production and biology. Cultural practices, adaptation, sustainable agriculture and alternative use, seed production, harvest, livestock utilization and storage of forages. This course will have in-depth emphasis on characteristics of important grasses and legumes and utilization of forages for livestock production.

Dual Listed PLNT 5700

Former Course Number [CROP 2200, 3200; PLNT 3200]

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

PLNT2200 - Field Crop Production

Credits: 3

Provides students with a fundamental understanding of production cropping systems. Students will gain basic knowledge of major food crops, tillage systems, crop rotations, fertilization, irrigation, crop development, pest management, and other topics related to field crops.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 1000 or concurrent enrollment

OR

PLNT4220 - Crop Yield Physiology

Credits: 3

Physiological processes underlying crop growth and development. The effect of crop management practices on physiology and yield will also be discussed.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 1000, CHEM 1000

At least 8 additional credit hours from the following: 8 Hours

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT3300 - Horticultural Plant Propagation

Credits: 3

Emphasis on sexual and asexual propagation of various plants including herbaceous and woody crops. Seed propagation discussions include anatomy, physiology, dormancy, and enhancing seed viability and germination. Asexual propagation discussions center on anatomy and physiology of cuttings, adventitious root formation, budding, grafting, and tissue culture.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 2025

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics

include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

PLNT4180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 5180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGECE 1020 or ECON 1020 and MATH 1400.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGECE 1020 and MATH 1400.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

Horticulture Concentration: 21 Hours

Students in the Horticulture concentration learn about the various horticultural commodities and growing operations. Choose from classes including greenhouse crop production, plant propagation, seed technology, organic food production, plant breeding, and allied subjects such as irrigation technology and pest management including plant pathology and weed science. Students may be surprised at the number of career opportunities available in horticulture! These include vegetable and small fruit production, greenhouse management, controlled environment crop production, landscape plants and management, new variety breeding and production, and urban tree care, among many others.

Required: 15 Hours

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Prerequisite: PLNT 1000 or LIFE 1010

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT3300 - Horticultural Plant Propagation

Credits: 3

Emphasis on sexual and asexual propagation of various plants including herbaceous and woody crops. Seed propagation discussions include anatomy, physiology, dormancy, and enhancing seed viability and germination. Asexual propagation discussions center on anatomy and physiology of cuttings, adventitious root formation, budding, grafting, and tissue culture.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 2025

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 5180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

OR

PLNT4200 - Greenhouse Design and Management

Credits: 3

Emphasis on greenhouse structural and functional design concepts of economy, efficiency and energy conservation. Primary emphasis is on the limitations and advantages of greenhouses in the Rocky Mountain region, including alternative energy concepts. The management and operational concerns associated with private, commercial, educational and public greenhouses will be included.

Dual Listed PLNT 5200

Prerequisite: PLNT 2025 and a USP Q course

At least 6 additional credit hours from the following: 6 Hours

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

Prerequisite: PLNT 1000 or LIFE 1010.

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

Integrated Pest Management Concentration: 25 Hours

IPM as it is commonly known, melds all aspects of plant pest management under one umbrella. It uses the sciences of plant pathology, entomology, and weed science under the broader plant diagnostics field. The IPM concentration emphasizes understanding pest biology and ecology of the ecosystem as the foundation for making pest management decisions that minimize negative impacts on health and the environment. Students in the IPM concentration will find careers in private consulting, field diagnostics, research and demonstration, and product sales, as well as public sector work in invasive species management.

Required: 16 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

Choose at least one of the following:

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

BOT4680 - Taxonomy of Vascular Plants

Credits: 4

A study of classification principles, nomenclature rules and systematic botany literature. Plants of the Rocky Mountain region are used primarily as examples, but the course gives a comprehensive view of the characteristics and relationships of the principal plants families.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2023.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

REWM4300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 5300.

When Offered (Normally offered spring semester)

Former Course Number [3320]

Prerequisite: REWM 2500 or LIFE 2023.

At least 9 additional credit hours from the following: 9 Hours

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems,

current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

ENTO4884 - Insect Behavior

Credits: 3

Examines the behavior of insects, including foraging, mating and social behavior. The course focuses on the applied as well as the fundamental aspects of behaviors, and both the strategic and physiological bases of behavior.

Dual Listed ENTO 5884.

Prerequisite: ENTO 1000.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

Agroecology & Evolution Concentration: 21 Hours

Students in this concentration are trained in the ways plants and associated organisms evolve in response to human-impacted environments, and how agroecosystems may change as a result of plant management. Courses include genetics, plant breeding, agroecology, and crop production along with ecology, soil sciences, and others. This concentration provides excellent preparation for graduate school in plant sciences, and also prepares students for careers in conservation, sustainable agriculture, and crop production.

Required: 13 Hours

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

At least 8 additional credit hours from the following: 8 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-

environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

Plant Production and Protection/Environment and Natural Resources Program, B.S.

Students interested in the environment and natural resources may choose to pursue the B.S. in Plant Production and Protection/ENR. This degree is offered in conjunction with the Haub School of Environment and Natural Resources.

Additional Information

See the ENR Information and Advising Guide for details.

Professional Child Development

Professional Child Development prepares students for teaching and administrative positions in early childhood development and care.

Program Information

Entry into Professional Child Development must be approved by the department and advisor. Applicants must also satisfactorily complete a mandatory security screen (background check).

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses Before Entry

EDEC1020 - Introduction to Early Childhood Education

Credits: 3
Introduces students to the field of early childhood education through lecture, discussion, observation and participation. The student will be exposed to different programs currently in operation in the community and region. Special emphasis will be placed on evaluating early childhood education as a career.

Former Course Number [EDCI 1020]

PSYC1000 - General Psychology

Credits: 3
Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3
Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

ENGL1010 - College Composition and Rhetoric

Credits: 3
A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

Required Courses After Entry

**Meets FCSC Core Elective in Human Nutrition and Food. Grade of C or above required.*

***Meets FCSC Core Elective in Design, Merchandising and Textiles. Grade of C or above required.*

**** Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

OR

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC2050 - Safety, Nutrition and Health in Early Childhood Programs

Credits: 2

Designed to enrich students' understanding of practices which support children's health development. Issues to be explored include record keeping related to child care health and safety, use of health consultants, accident and injury prevention, immunizations, nutrition and food safety in child care settings.

When Offered (Offered alternate summers.)

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

OR

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4127 - Directing Preschool and Daycare Programs

Credits: 3

Effective methods for establishing and operating preschool and day-care programs for children under six years of age. Includes programming, classroom management, parent involvement and administration of food and nutrition programs.

USP 2003-2014 Code U3WC

Prerequisite: FCSC 2121, EDEC 1020 or 3210; junior standing.

FCSC4130 - Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early childhood education majors with an in-depth experience working with children from birth to age five. Students gain experience including planning lessons, teaching, assessing children and conducting parent conferences.

Prerequisite: FCSC 2121; EDEC 3000; EDEC 3220; senior standing.

OR

FCSC4131 - Administration Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early education majors with an in-depth experience working with families and staff. Students gain experience in observing and assessing early childhood programs, planning and presenting staff trainings/professional workshops, staff supervision, writing newsletters, and other professional documents and professional activities.

Prerequisite: FCSC 2121; FCSC 4127; senior standing.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

EDEC3000 - Observing Young Children

Credits: 3

The general goal of the course is to introduce students to observation and recording techniques appropriate for assessing the growth and development of young children in the school setting. A secondary goal is to understand how observation and recording techniques can facilitate curriculum planning and parent-teacher conferences.

Prerequisite: EDEC 1020 and FCSC 2121.

EDEC3220 - Curriculum and Learning Environments in Early Childhood Education

Credits: 3

Early childhood curriculum and instructional practices will be reviewed, developed, and integrated with a focus on the role of learning environments, materials and play in supporting the teaching and learning process. Students have the opportunity to design meaningful learning experiences through practicum.

Former Course Number [EDCI 3220]

Prerequisite: EDEC 1020 and FCSC 2121 (or both PSYC 2300 and FCSC 2122).

EDEC4320 - Oral and Written Language Acquisition

Credits: 3

Introduces the student to the nature of language development as it pertains to oral and written communication in education. Recent research in the areas of oral and written language acquisition is compared and contrasted. Implications for facilitating the development of all language modes in educational settings is emphasized.

Former Course Number [EDCI 4320]

Prerequisite: EDST 3480 or equivalent, junior standing and declared Elementary Education or Family and Consumer Sciences major.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

OR

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

PSYC4310 - Developmental Psychopathology

Credits: 3

Provides basic understanding of developmental psychopathology. Examines characteristics, etiology, assessment and treatment of psychological disorders in children including autism, mental retardation, anxiety, depression, attention, learning, and conduct problems.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or FCSC 2121 or EDST 2450.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Rangeland Ecology and Watershed Management, B.S.

Rangeland Ecology and Watershed Management provides you with knowledge, skills, and abilities to understand and manage wildlands. You will explore rangeland ecology, watershed management, soil science, and a diversity of landscapes.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Course Requirements

- First-Year Seminar Credits: 3
- US and WY Government Credits: 3
- Electives Credits: 28-29

REWM Courses: 37 Hours

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Prerequisite: LIFE 2022 or LIFE 2023.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

Resource Management: 14-15 Hours

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGECE 1020 or equivalent.

Choose One From

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

- BOT 4111 *
- BOT 3150 *

Physical and Natural World: 8 Hours

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

Biological Sciences: 7 Hours

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Communication Skills: 6 Hours

Quantitative Reasoning: 7 Hours

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Human Culture: 6 Hours

- Human Culture

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Total Hours: 120

*Course must be completed with a C or better.

Minor

Agricultural Business Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are

poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.

OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 and MATH 1400.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

- 6 additional hours in upper-level agricultural economics courses;
- 6 hours in supporting agriculture courses.

Agroecology Minor

The Agroecology minor is ideal for students interested in how plant production systems interact with the surrounding ecosystem. This minor complements many majors related to land management and ecology.

Minimum Requirements: 20 Hours

Required: 11 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

Choose two from PLNT 3030, LIFE 2023, or SOIL 2010:

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

9 additional credit hours from the following: 9 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

Agronomy Minor

The Agronomy minor trains students for careers in crop production and management, consulting, sales, and other areas of modern agriculture. Courses include crop & soil management, weed, insect, and disease management, among others.

Minimum Requirements: 19 Hours

Required: 11 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

8 additional credit hours from the following: 8 Hours

PLNT2200 - Field Crop Production

Credits: 3

Provides students with a fundamental understanding of production cropping systems. Students will gain basic knowledge of major food crops, tillage systems, crop rotations, fertilization, irrigation, crop development, pest management, and other topics related to field crops.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 1000 or concurrent enrollment

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4220 - Crop Yield Physiology

Credits: 3

Physiological processes underlying crop growth and development. The effect of crop management practices on physiology and yield will also be discussed.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 1000, CHEM 1000

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

PLNT4700 - Forage Crop Science

Credits: 3

The course focuses on major aspects of forage crop production and biology. Cultural practices, adaptation, sustainable agriculture and alternative use, seed production, harvest, livestock utilization and storage of forages. This course will have in-depth emphasis on characteristics of important grasses and legumes and utilization of forages for livestock production.

Dual Listed PLNT 5700

Former Course Number [CROP 2200, 3200; PLNT 3200]

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

Animal and Veterinary Science, Animal and Veterinary Science Minor

This minor provides a foundational background in animal and veterinary science for students interested in livestock and equine production, but with a primary degree program outside of ANVS.

Courses Required:

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4540 - Principles of Animal Breeding

Credits: 3

Discusses genetic principles underlying animal improvement; introductory population genetics; heritability; systems of mating; and selection.

Dual Listed ANSC 5540.

When Offered (Normally offered fall semester)

Prerequisite: STAT 2050 or STAT 2070.

FDSC3060 - Principles of Meat Science and Muscle Biology

Credits: 3

Principles of muscle, adipose, and connective tissue growth, structure and metabolism; conversion of muscle into meat; fresh meat properties and quality; chemical properties of meat; meat microbiology, preservation and storage; meat by-products; HACCP.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000 and LIFE 1010.

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

At Least One of the Following:

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

ANSC4220 - Advanced Beef Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in beef production management schemes. Emphasizes analysis and decision making. Consists of two hours of lecture and two hours of lab, with approximately one-half of labs meeting at Animal Science Livestock Center.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120 , ANSC 4540 .

ANSC4230 - Advanced Sheep Production & Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in sheep production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120, ANSC 4540.

ANSC4250 - Advanced Equine Production and Management

Credits: 3

A capstone course for students wanting to pursue a career in the equine industry with main focus on equine management. Business applications, health, facilities, and management will be explored in depth. Integrates equine breeding, nutrition, and reproductive physiology in equine production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3100 , ANSC 4120, and ANSC 4540 .

Animal and Veterinary Science, Equine Science Minor

This minor provides a foundational background in equine science and its application to equine production and management for students interested in the horse industry, but with a primary degree program outside of Equine Science.

Core Courses

12 total credit hours

ANSC1030 - Equine Management

Credits: 3

An overview of the horse industry and proper way to manage horses.

When Offered (Normally offered spring semester)

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

ANSC3250 - Equine Behavior and Welfare

Credits: 3

To familiarize students with an equine interest about behavior, learning, and welfare issues associated with management and training of equine.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 1030, ANSC 3150.

ANSC4111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed PATB 4111.

Dual Listed ANSC 5111.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3150.

OR

PATB4111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed ANSC 4111

Dual Listed PATB 5111

Prerequisite: ANSC 1030

Electives

Must choose 3 courses minimum (minimum of 8 credits) - 8 to 10 total credit hours

*Maximum of 3 credits allowed in ANSC 3560

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

ANSC3555 - Equine Evaluation and Selection

Credits: 3

Objectively evaluate equine for performance and breeding purposes according to breed standards and or discipline. Emphasis will be placed on learning how conformation relates to overall function and longevity of equine. Competitive

horse judging team criteria will be used to build organizational skills, equine terminology, and communication skills.

Prerequisite: ANSC 1010 and ANSC 1030.

ANSC3560 - Advanced Equine Evaluation and Selection

Credits: 1-2
Max Credit (Max. 3)

Objectively evaluate equine for halter and performance according to breed standards and or discipline. Competitive horse judging team criteria will be used to build organizational skills, equine terminology, and communication skills. Students will compete as members of the Collegiate Horse Judging Team and represent University of Wyoming at national horse judging competitions.

Prerequisite: ANSC 3555.

ANSC4132 - Equine Reproduction

Credits: 2
Introduces methods of manipulating reproduction within equine management systems. Includes artificial insemination, diagnosis of pregnancy, induction and control of estrus and ovulation, parturition, embryo transfer, and control and prevention of equine reproductive diseases.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 4120 and ANSC 1030

ANSC4250 - Advanced Equine Production and Management

Credits: 3
A capstone course for students wanting to pursue a career in the equine industry with main focus on equine management. Business applications, health, facilities, and management will be explored in depth. Integrates equine breeding, nutrition, and reproductive physiology in equine production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3100 , ANSC 4120, and ANSC 4540 .

Apparel Design Minor

A minor in Apparel Design enables students to gain competency in areas expected of apparel designers; combining technical and creative skills with industry knowledge for the design and creation of fashionable and functional clothing.

Required Courses

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC2175 - Fashion Illustration

Credits: 3

Introduces the fashion figure, light and dark contrasts, color, fabric and texture sketching techniques. Computer applications for layout of the design are also covered.

When Offered (Offered alternate fall semesters)

Prerequisite: FCSC 1180 or ART 1110; FCSC 1175.

FCSC2270 - Advanced Apparel Construction

Credits: 3

Development of advanced apparel construction and tailoring techniques. Continued development of decision-making skills in selection, use and evaluation of materials.

Former Course Number [3170]

Prerequisite: FCSC 1170.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

Plus one of the following

FCSC3174 - Flat Pattern Design

Credits: 3

Principles and instructions for drafting and hand grading patterns using slopers through standard or individual measurements. Techniques of garment design are learned to create three-dimensional designs using the flat pattern method.

When Offered (Offered alternate spring semesters)

Former Course Number [4170]

Prerequisite: FCSC 2175 and FCSC 2270.

FCSC3175 - Apparel Design Through Draping

Credits: 3

Draping garment patterns through fabric manipulation, molding, and shaping to create three-dimensional form utilizing couture construction techniques.

Prerequisite: FCSC 2270

Plus one of the following

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

Plus one of the following

FCSC4178 - Fiber Arts

Credits: 3

Max Credit (Max. 6)

Development and enhancement of technical and creative apparel design skills with a focus on embellishment techniques and creative pattern-making culminating in the creation of a distinctive piece of wearable art.

Dual Listed FCSC 5178.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4190 - Apparel Collection Development

Credits: 3

Students will utilize their pattern-making and apparel construction skills and continue to expand their knowledge of fit on live models through creation of their own apparel collection. They will be responsible for the creation of the collection from inspiration to final product. Collections will be showcased through a real-world fashion show.

Prerequisite: FCSC 3174 or FCSC 3175.

Minor Total: 24 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Applied Economics Minor

Graduate standing.

Committee selection for the student's major thesis or dissertation committee should include at least one faculty member from AGECE.

Courses Required

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGECE 1020, AGECE 2020 and MATH 1400.

AGEC5310 - Theory of Producer Behavior

Credits: 3

Economic models of optimization as they apply to firm-level production decisions. Topics include the properties of production functions, theories of linear and non-linear optimization, firm decision making under perfect and imperfect competition and firm decision making under uncertainty.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

OR

AGEC5740 - Consumer Behavior and Prices Analysis

Credits: 3

Focuses on microeconomic consumer theory and its application. Topics include utility theory, market demand theory, expected utility theory, and econometric applications.

Prerequisite: ECON 3020, MATH 2350 and STAT 2050.

AGEC5320 - Quantitative Methods in Agricultural Economics

Credits: 3

Covers mathematical programming and simulation techniques for solving applied problems in agricultural economics. Emphasizes the formulation of economic research problems in quantitative terms and the use of computer software packages to derive solutions.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

OR

AGEC5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variables, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 5230.

Dual Listed AGEC 4230.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

- 6 additional credits of approved courses.

Farm and Ranch Management Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

- 9 additional hours in upper-level agricultural economics courses;
- 6 hours in supporting agriculture courses.

Forest Resources Minor

In Forest Resources, you will develop a working knowledge of the processes that influence forest ecology, sustainability, and provision of the key products derived from forests.

Minimum Requirements: 20 Hours

RNEW2100 - Forest Management

Credits: 3

Principles of forest management. Topics include the laws affecting forest management, methods of harvesting wood from forests, fire and insect management, the effects of disturbances on stream flow and nutrient cycling, and the challenges of developing management plans for forests.

Cross Listed ENR 2100.

Prerequisite: LIFE 1101 or LIFE 1010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

RNEW4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed BOT 4775.

Prerequisite: LIFE 3400.

REWM4540 - Problems

Credits: 1-4

Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

Choose One From

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

- GEOG 4420

Choose One From

REWM4103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of public and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Students prepare public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 5103.

When Offered (Normally offered spring semester)

Former Course Number [3103]

Prerequisite: C or better in REWM 2000 and CS course.

Choose One From

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

RNEW3000 - Tropical Ecology

Credits: 3

Examines the characteristics of tropical ecosystems, how they evolved, their value to humans, their present status, and current issues relating to biodiversity, deforestation, extinction, and conservation.

Prerequisite: LIFE 1101 or LIFE 1010.

GEOG4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG/GEOL 4470/5470

Former Course Number [G&R 4470]

Prerequisite: Some basic knowledge of Earth processes GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

General Agricultural Economics Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

- 15 additional hours in agricultural economics courses with 12 hours at the upper-level;
- 6 hours in supporting agriculture courses.

Horticulture Minor

Students in the Horticulture minor learn landscaping, plant materials, propagation, organic food production, and crop production in greenhouses and controlled environments. Students who want to get their hands dirty are welcome.

Minimum Requirements: 20 Hours

Required: 8 Hours

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Prerequisite: PLNT 1000 or LIFE 1010

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

Prerequisite: PLNT 1000 or LIFE 1010.

Choose one from PLNT 1000 or LIFE 1010:

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

12 additional credit hours from the following: 12 Hours

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT3300 - Horticultural Plant Propagation

Credits: 3

Emphasis on sexual and asexual propagation of various plants including herbaceous and woody crops. Seed propagation discussions include anatomy, physiology, dormancy, and enhancing seed viability and germination. Asexual propagation discussions center on anatomy and physiology of cuttings, adventitious root formation, budding, grafting, and tissue culture.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 2025

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 5180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

PLNT4200 - Greenhouse Design and Management

Credits: 3

Emphasis on greenhouse structural and functional design concepts of economy, efficiency and energy conservation. Primary emphasis is on the limitations and advantages of greenhouses in the Rocky Mountain region, including alternative energy concepts. The management and operational concerns associated with private, commercial, educational and public greenhouses will be included.

Dual Listed PLNT 5200

Prerequisite: PLNT 2025 and a USP Q course

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

Human Development and Family Sciences Minor

Provides students with a foundation in the basic principles and knowledge of human development and family sciences across the lifespan that can enrich and complement their primary area of study.

Required Courses

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

Plus 12 credit hours from the following:

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicultural development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC4113 - Consumer Issues

Credits: 3

Provides research/ applied understanding of consumer rights/ responsibilities, government/business roles, legislation, advocacy, and redress. Emphasizes introductory consumer law/legal research, critical thinking, self-reflection, and cultural examination. Ethical theories and issues examined within an interdependent world. Meets requirements for certification in family and consumer sciences education. Internship opportunities possible upon successful completion. Companion web site used.

Prerequisite: ECON 1000 or SOC 1000 or PSYC 1000; WB/COM2.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4127 - Directing Preschool and Daycare Programs

Credits: 3

Effective methods for establishing and operating preschool and day-care programs for children under six years of age. Includes programming, classroom management, parent involvement and administration of food and nutrition programs.

USP 2003-2014 Code U3WC

Prerequisite: FCSC 2121, EDEC 1020 or 3210; junior standing.

FCSC4118 - Family Policy

Credits: 3

Explores the relationships between public programs/policies/laws and family functioning. The roles of family professionals in advocacy and education regarding policies will be discussed. Attention will be paid to current events relevant to family policy issues and the policy process at the state level.

Dual Listed FCSC 5118.

Prerequisite: FCSC 2131; junior standing.

FCSC4135 - Program Evaluation

Credits: 3

Explores techniques for evaluating programs in the public and/or private sectors. Includes determining need, identifying/communicating with stakeholders, developing program theory/logic models, implementation, evaluation methods/instruments, and interpreting/reporting evaluation results.

Dual Listed FCSC 5135.

Prerequisite: Junior standing.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

Minor Total: 22 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Human Nutrition Minor

A minor in Human Nutrition and Food enhances degrees in kinesiology and health, food science, nursing, and related fields. Students learn how food choices influence health. *Does not prepare students to provide nutrition therapy or counseling.*

Required Courses

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

Plus one of the following

** Course can be used to fulfill only one category.*

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

Plus three of the following

** Course can be used to fulfill only one category.*

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2141 - Nutrition Controversies

Credits: 2

This course expands upon nutrition concepts covered in FCSC 1141 by exploring current nutrition-related controversies. Skills related to the interpretation of research literature will be emphasized.

Prerequisite: FCSC 1141.

FCSC3142 - Geriatric Nutrition

Credits: 2

Studies nutrition requirements in elderly as effected by physiological changes with aging and the impact of nutrition and healthy lifestyle on prevention and treatment of age related conditions, diseases and social issues.

Former Course Number [4142]

Prerequisite: FCSC 1141; LIFE 1010.

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

FCSC4044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 5044.

Former Course Number [3140]

Prerequisite: FCSC 1141; LIFE 1010; ZOO 3115.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

Minor Total: 23-25 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Insect Biology Minor

In Insect Biology, you will learn in-depth information about insects including their basic biology, ecology, and evolution.

Minimum Requirements: 13 Hours

Choose One From

ENTO1000 - Insect Biology

Credits: 3

Introduces insects and related arthropods. Introduces aspects of insect biology, behavior, life history and diversity, as well as many ways that insects affect humans.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

OR

ENTO1001 - Insect Biology

Credits: 4

Covers same lecture material as ENTO 1000, but includes a laboratory.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Choose From

Then choose from the list below to meet the minimum 13 credit hour requirement.

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

ENTO4682 - Insect Anatomy and Physiology

Credits: 5

Studies structure and function of the insect body, particularly emphasizing the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 5682.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: ENTO 1000.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

ENTO4686 - Problems in Entomology

Credits: 1-3

Max Credit (Max. 6)

Individual library, laboratory or field study of insects.

Prerequisite: 4 hours of biological science and 3 hours of entomology.

ENTO4687 - Insect Evolution

Credits: 3

Examines major events of insect evolution including origins, fossils, wings and flight, metamorphosis, extinct orders, diversification patterns of modern orders, climate change, plate tectonics, coevolution with plants, parasitism, social behavior, and origin of modern faunas.

Dual Listed ENTO 5687.

Prerequisite: ENTO 4684 required; ENTO 4670, ENTO 4682 recommended.

ENTO4884 - Insect Behavior

Credits: 3

Examines the behavior of insects, including foraging, mating and social behavior. The course focuses on the applied as well as the fundamental aspects of behaviors, and both the strategic and physiological bases of behavior.

Dual Listed ENTO 5884.

Prerequisite: ENTO 1000.

Insect Biology/Entomology Graduate Study Minor

This minor is designed to complement a related graduate degree with an understanding of insect biology and entomology. Understanding the biology, ecology and classification of insects is crucial to understanding the widespread effects they have on agriculture, human health, and ecosystems.

Interior Design Minor

A minor in Interior Design enables students with career interests in this field to gain experience in the competency areas expected of interior designers.

Required Courses

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC3288 - Environmental Psychology and Inclusive Design

Credits: 1

Online design primer focused on preparing students for the contract interior design series. Explores how humans interact with, experience, and behave in public spaces. Advances understanding of design inclusivity by interpreting and applying ADA regulations, along with considerations for diverse ages, circumstances, and abilities.

Prerequisite: FCSC 2180 , FCSC 2188 , or concurrent enrollment in 2188

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

ARE1600 - Architectural Design Studio I

Credits: 3

Freshman-level architectural design in a project-based learning environment. Introduction to Building Information Modeling (BIM); architectural presentation drawings; freehand sketching; essentials of architectural design and building code compliance.

Former Course Number [ARE 2100]

ARE2600 - Architectural Design Studio II

Credits: 3

Sophomore-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 1600, with a new emphasis on building materials and construction methods.

Former Course Number [ARE 2200]

Prerequisite: ARE 1600.

Plus one of the following

FCSC3180 - Contract Design I

Credits: 3

Interior design course focused on designing sustainable contract spaces primarily for the hospitality industry. As needed, other public space design may be explored. Design development and communication through advanced design and rendering software will be utilized. Students will learn to write specifications and practice design development through evidence based design.

Prerequisite: FCSC 2188 and FCSC 3288 or concurrent enrollment, or consent of instructor.

FCSC4188 - Contract Design II

Credits: 3

Explores space planning and design as applied to contract interiors. Focused on healthcare and corporate design, but may survey other public spaces as appropriate. Advanced design, rendering, and visualization software used to conceptualize and present design solutions. Sustainable, accessible and functional design is highlighted.

Dual Listed FCSC 5188.

Prerequisite: FCSC 2188 and FCSC 3288 (or concurrent enrollment), or consent of instructor.

Plus one of the following

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ARE3600 - Architectural Design Studio III

Credits: 3

Junior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). This course builds upon skills learned in ARE 2600, with a new emphasis on the complexities that accompany mid-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 2410 and ARE 2600.

Plus one of the following

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Minor Total: 21 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Additional Requirements

The Interior Design minor is sponsored jointly by the Departments of Family and Consumer Sciences and Civil and Architectural Engineering. Students who hope to use this minor to prepare for professional certification examination following graduation should consult the sponsoring departments to receive an advisor for the minor.

International Agricultural Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC3860 - World Food, Ag, & Development

Credits: 3

Explores economic approaches to improving nutrition, agriculture production, and the environment in developing regions of the world. Students gain understanding of complex conditions surrounding food security; institutions involved with food policy, aid, and production; environmental factors influencing agricultural production; inequality; and international cultural and societal food disparities.

Cross Listed INST 3860.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3G

USP 2015 Code U5H

Former Course Number [4860]

Prerequisite: AGEC 1010/ECON 1010 or AGEC 1020.

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

- 6 additional hours in upper-level agricultural economics courses;
- 3 hours in foreign culture or language;
- 6 hours in supporting agriculture courses.

Molecular Biology Minor

A Molecular Biology minor includes courses in basic sciences, molecular biology, biochemistry, microbiology, genetics and upper level electives and research opportunities, preparing students for postgraduate studies in research and health sciences.

Molecular Biology Minor Additional Information

Students wishing to minor in molecular biology should discuss their plans with an adviser. Formal declaration of molecular biology as a minor requires 1) submission of a form approved by the Department of Molecular Biology and the College of Agriculture and Natural Resources Dean's Office, 2) appointment of an adviser for the Department of Molecular Biology.

To receive a minor in molecular biology, a student must complete courses listed in the following areas:

General Science Requirement

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

OR

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

AND

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is

designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MOLB Core and Elective Requirement

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3320 - Molecular Biological Methods

Credits: 4

Integrated discussion and hands-on experience with modern bioinformatic and wet lab-based molecular, genetic and biochemical methods. Completion of the course should provide students with enhanced theoretical understanding and practical knowledge of many crucial modern computational and molecular biological techniques.

When Offered Spring

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021

OR 3 credits of

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

OR

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

- **MOLB elective requirement:** 6 credits of 4000-level MOLB courses, excluding MOLB 4010, MOLB 4050, MOLB 4051, MOLB 4052, MOLB 4850

Natural Resource Economics Minor

Courses Required

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.
Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)
Prerequisite: AGEC 1020 or equivalent.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

Choose 9 Additional Hours From:

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

AGEC4600 - Community Economic Analysis

Credits: 3

Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic analysis, fiscal impact analysis and benefit cost analysis.

Dual Listed AGEC 5600.

USP 2015 Code U5H

Prerequisite: ECON 3010, ECON 3020, and MATH 1400.

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and

liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4520 - Public Economics

Credits: 3

Studies the role of government within a market economy. The focus is on how governments fund and provide non-market goods demanded by society, e. g. , health care, military, education. Examines public goods, taxation, environmental challenges, affects on economic growth and stability, benefit-cost analysis, and state/local finance.

Prerequisite: ECON 3010, ECON 3020.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

Plant Protection Minor

A combination of weed science, plant pathology, and entomology, the Plant Protection minor provides training for many careers in invasive species management, plant diagnostics, horticulture, and agronomy, among others.

Minimum Requirements: 19 Hours

Required: 19 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

Choose one from ENTO 1000 or ENTO 1001 (ENTO 1001 preferred if available):

ENTO1000 - Insect Biology

Credits: 3

Introduces insects and related arthropods. Introduces aspects of insect biology, behavior, life history and diversity, as well as many ways that insects affect humans.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENTO1001 - Insect Biology

Credits: 4

Covers same lecture material as ENTO 1000, but includes a laboratory.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Choose one from PLNT 4070 or PLNT 4400:

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

Choose one from the following:

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

Rangeland Ecology and Watershed Management Minor

Rangeland Ecology and Watershed Management provides you with an introduction to knowledge, skills and abilities to understand and manage wildlands. You will explore rangeland ecology, watershed management, soil science and a diversity of landscapes.

Required Courses

The required courses for the minor are:

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

- REWM 2500 Credits: 2

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

- 6 hrs. selected from other REWM upper-division (3000 or 4000 level) courses.

Additional Requirements

The number of hours required is 22.

Reclamation and Restoration Ecology Minor

This program covers the use of basic and applied ecological concepts to rehabilitate and restore processes and functions to disturbed ecosystems.

Required Courses: 14 Hours

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

REWM4990 - Undergraduate Teaching Practicum

Credits: 1

Max Credit (Max. 2)

Teaching experience in classroom or laboratory assisting faculty instructor.

When Offered (Offered based on sufficient demand and resources)

Planning and Policy: 3 Hours

(choose one)

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making. Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

- GEOG 4750

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.
USP 2003-2014 Code U3WC
Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.
Prerequisite: POLS 1000.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)
USP 2003-2014 Code U3WC
USP 2015 Code U5C3
Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

Below-Ground Processes: 3-4 Hours

(choose one)

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

- CE 4820

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

Above-Ground Processes: 2-4 Hours

(choose one)

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

- BOT 4111

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

- ENTO 4685

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4540 - Problems

Credits: 1-4

Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

- ZOO 4550

Total: 22-25

Soil Science Minor

This program is designed to enhance soil expertise for students majoring in agricultural, natural resources, and environmental sciences degree programs.

Course Requirements: 15 Credit Hours

Course requirements (15 credit hours) for a Soil Science minor are:

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

- plus 11 credits of upper-division soil science courses for a total of 15 credits.

Additional Requirements

Undergraduate students minoring in Soil Science will enhance their job prospects with federal land management or conservation agencies (e.g., Forest Service, Bureau of Land Management, Natural Resources Conservation Society), state and federal regulatory agencies (e.g., Wyoming Department of Environmental Quality), mining and oil companies, environmental consulting companies, or scientific research organizations.

Graduate

Agricultural Economics, M.S.

Degree Requirements

The following courses constitute the M.S. in Agricultural Economics core requirements and are required of all Plan A candidates (22 hours).

Economic Theory

AGEC5310 - Theory of Producer Behavior

Credits: 3

Economic models of optimization as they apply to firm-level production decisions. Topics include the properties of production functions, theories of linear and non-linear optimization, firm decision making under perfect and imperfect competition and firm decision making under uncertainty.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

AGEC5710 - Advanced Agricultural Market Theory

Credits: 3

Theoretical foundations of the study of agricultural markets and how business is conducted in those markets. Topics include pure competition, industrial organization concepts related to imperfect competition including game theory, principal-agent theory, transaction costs economics, intermediary theory, and welfare implications of alternative agricultural market structures.

Prerequisite: ECON 3020 and MATH 2350.

AGEC5740 - Consumer Behavior and Prices Analysis

Credits: 3

Focuses on microeconomic consumer theory and its application. Topics include utility theory, market demand theory, expected utility theory, and econometric applications.

Prerequisite: ECON 3020, MATH 2350 and STAT 2050.

Quantitative Methods

AGEC5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variables, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 5230.

Dual Listed AGEC 4230.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5320 - Quantitative Methods in Agricultural Economics

Credits: 3

Covers mathematical programming and simulation techniques for solving applied problems in agricultural economics. Emphasizes the formulation of economic research problems in quantitative terms and the use of computer software packages to derive solutions.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

Research

AGEC5650 - Communicating Research

Credits: 3

Focuses on the broad methods, and written and oral communication of research in applied economics. Topics include formulating a research question, organizing a manuscript, editing for clarity and conciseness, building effective figures and tables, finding and citing literature, developing and delivering effective presentations, and upholding research ethics.

Prerequisite: graduate standing.

AGEC5880 - Advanced Seminar

Credits: 1-2

Max Credit (Max. 2)

Involves reporting to the seminar group on research methods and results obtained in the investigation of a topic or question relevant to the field of agricultural economics.

Prerequisite: 9 credits in AGEC and/or ECON.

Plan A (Thesis):

Minimum of 30 credit hours including AGEC M.S. core requirements, thesis hours and electives.

No more than three hours of AGEC coursework numbered below 5000-level count toward the 30 hour requirement.

Achieve a cumulative 3.000 GPA in the AGEC M.S. core requirements.

The student's graduate committee, nominated by the major professor, the student, and the department head determine the final program of study and thesis research topic.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Plan B (Non-thesis):

Minimum of 32 hours of coursework;

Non-thesis business analysis paper accepted by the student's graduate committee.

Minimum of 13 credit hours of agricultural economics coursework numbered at the 5000-level are required, including:

AGEC5310 - Theory of Producer Behavior

Credits: 3

Economic models of optimization as they apply to firm-level production decisions. Topics include the properties of production functions, theories of linear and non-linear optimization, firm decision making under perfect and imperfect competition and firm decision making under uncertainty.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5740 - Consumer Behavior and Prices Analysis

Credits: 3

Focuses on microeconomic consumer theory and its application. Topics include utility theory, market demand theory, expected utility theory, and econometric applications.

Prerequisite: ECON 3020, MATH 2350 and STAT 2050.

AGEC5880 - Advanced Seminar

Credits: 1-2

Max Credit (Max. 2)

Involves reporting to the seminar group on research methods and results obtained in the investigation of a topic or question relevant to the field of agricultural economics.

Prerequisite: 9 credits in AGEC and/or ECON.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

OR

AGEC5710 - Advanced Agricultural Market Theory

Credits: 3

Theoretical foundations of the study of agricultural markets and how business is conducted in those markets. Topics include pure competition, industrial organization concepts related to imperfect competition including game theory, principal-agent theory, transaction costs economics, intermediary theory, and welfare implications of alternative agricultural market structures.

Prerequisite: ECON 3020 and MATH 2350.

AGEC5320 - Quantitative Methods in Agricultural Economics

Credits: 3

Covers mathematical programming and simulation techniques for solving applied problems in agricultural economics. Emphasizes the formulation of economic research problems in quantitative terms and the use of computer software packages to derive solutions.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

OR

AGEC5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variables, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 5230.

Dual Listed AGEC 4230.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

In Addition:

Students are required to complete 3 credit hours from each of the following three areas:

Management:

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 and MATH 1400.

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

OR

- AGEC 5460

OR

- MGT 4410
- MGT 4420
- MGT 4440

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

OR

- MGT 4520

Marketing:

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.

AGEC4830 - Agricultural Commodities and Futures Markets

Credits: 3

Economics of price determination for agricultural commodities and development of pricing strategies in cash and futures markets.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

OR

AGEC5710 - Advanced Agricultural Market Theory

Credits: 3

Theoretical foundations of the study of agricultural markets and how business is conducted in those markets. Topics include pure competition, industrial organization concepts related to imperfect competition including game theory, principal-agent theory, transaction costs economics, intermediary theory, and welfare implications of alternative agricultural market structures.

Prerequisite: ECON 3020 and MATH 2350.

OR

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4430 - Marketing Management

Credits: 3

Analysis of policy-making and operating decisions of the marketing manager and the tools available to aid in solving

marketing problems.

Prerequisite: MKT 2100, MGT 2100, STAT 2050 or equivalent.

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

OR

MKT4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed INST 4540.

Prerequisite: MKT 2100 and junior class standing.

Finance:

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

OR

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

- FIN 4520

- FIN 4610

FIN4810 - Real Estate Investment

Credits: 3

Covers advance real estate investment topics such as investments risk and valuation sensitivity analysis, futures and real options, liquid real estate investments, analysis of development projects, and commercial mortgage backed securities. While the theory the topics will be presented, the course focus is on the application of the material.

Prerequisite: FIN 2100 and advanced business standing
OR

ECON4740 - International Economics and Policy

Credits: 3

The focus is on foreign exchange markets, balance of payments analysis and effects of international trade and capital flows on the domestic economy. Policies to correct payment deficits, gold, international liquidity and international financial institutions are studied.

Prerequisite: ECON 3010 and ECON 3020; QA.

Remaining Credit Hours

Remaining credit hours will be filled with electives.

The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic.

Presentation of the business analysis paper at a formal public seminar.

An internship experience is strongly encouraged as part of the agricultural business option (AGEC 5990).

Agricultural Economics/Environment and Natural Resources, M.S.

Plan A (Thesis)

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 15 credit hours in environment and natural resources, as approved by the student's committee and the ENR academic adviser.

Achieve a cumulative 3.000 GPA in the AGEC M.S. core requirements.

The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the area of environment and natural resources.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Agricultural Economics/Water Resources, M.S.

The objective of this program is to provide students with specialized study in water,resources and to signify this specialization by the designation of the water resources interdisciplinary major on the transcript.

Coursework and Thesis

Students must complete the 24 credit hour agricultural and applied economics including M.S. core requirements plus 4 thesis hours and 9 credit hours in water resources approved courses.

Achieve a cumulative 3.000 GPA in the AGECE M.S. core requirements.

The candidate's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and thesis research topic, which must be in the water resources area.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the graduate committee.

Oral Exam Requirement

In addition to coursework and a Plan A Thesis, students must pass a final oral examination. The student's committee may also require a written examination.

Interdisciplinary Component

nine hours (see Water Resources degree requirements)

Plan A (Thesis)

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 10 credit hours in water resources approved courses.

Please refer to Water Resources Degree program in this *Catalog* for updated degree requirements.

Achieve a cumulative 3.000 GPA in the AGECE M.S. core requirements.

The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the water resources area.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Animal and Veterinary Science, M.S.

Both Plan A (Thesis) and Plan B (Non-thesis) options are available.

Plan A (Thesis)

The student, major professor, and graduate committee determine the program of study and research project, which meets the needs of the individual student. The candidate's graduate committee should be established and functioning by the time the student has completed 12 semester hours of formal coursework. The master of science program should be approved and filed by the end of the student's second semester of graduate study in animal science. This committee shall also determine if the student is making satisfactory progress to be advanced to a candidate for a master's degree or continued in a doctoral program by the end of the student's third semester following matriculation.

The student can specialize in breeding, food science and human nutrition, nutrition, physiology, meat science, reproduction or wool for coursework and thesis/dissertation project. In addition, supporting coursework is available in agricultural economics, biochemistry, microbiology, range management, genetics, statistics, and other areas of interest to the individual. In certain cases it is possible to develop a joint research project between animal science and another department.

Students may use the research facilities and herds of beef cattle, sheep, and swine at the university livestock center near the university or at one of the university research and extension centers in the state. Research laboratories are located on campus and include a modern meat processing facility.

The Thesis program is a 30 hour program, 26 hours of coursework and 4 hours of thesis research.

Plan B (Non-thesis)

The Non-thesis program requires a coursework-intensive, non-thesis master of science program for those students whose career paths may not require a thesis research program.

The program requires 32 hours of coursework in addition to an acceptable non-thesis research paper as defined by the student's graduate committee.

Options

Program Specific Degree Requirements

A minimum of 30 credit hours including 4 thesis hours must be earned in 4000-5999 level courses.

The program of study is arranged with the student's graduate committee.

Animal and Veterinary Science, Ph.D.

A 72 hour program.

Students must meet the university minimum requirements.

Ecosystem Science and Management/Applied Economics, Ph.D.

The course requirements for this program are highly flexible to accommodate a wide variety of student backgrounds and interests. Students can major in any PhD program within ESM including Rangeland Ecology and Watershed Management, Soil Science, and Entomology.

Additional Requirements

A minimum of 72 credit hours of coursework. The credit hour requirement can include:

Up to 48 credit hours transferred from approved graduate courses earned while pursuing an M.S. degree (no more than 4 credit hours of thesis);

A minimum of 12 credit hours of approved ESM (REWM, SOIL, ENTO) courses;

A minimum of 18 credit hours of approved AGECE or ECON courses, with at least 12 credit hours at the 5000-level.

At least 42 of the 72 credit hour requirement must be earned in formal coursework.

No more than 12 credit hours of 4000-level courses can count towards the 72 credit hour requirement.

Entomology, M.S.

The M.S. program is geared toward teaching graduate students the tools necessary to conduct robust scientific research. Entomology graduate students study a variety of scientific issues related to insects across the globe.

Plan A (Thesis)

The master of science degree normally is offered under Plan A which requires at least the university minimum degree requirements and an oral examination.

Plan B (Non-thesis)

Requires 30 hours of graduate credit to include 9 hours of required courses, 11 hours of required electives, and 10 hours of other electives.

Plan B project - follows format of Plan A thesis.

A Plan B master of science will be a terminal degree program in the Department of Ecosystem Science and Management. Students completing this option will not qualify for a subsequent Ph.D. program in Department of Ecosystem Science and Management at the University of Wyoming.

Additional Requirements

This program requires 30 credit hours (at least 12 from Entomology) approved by the student's graduate advisory committee and an approved research plan.

Entomology, Ph.D.

The Ph.D. program allows graduate students to use the research-oriented tools learned during a master's program to conduct research on a major question surrounding entomology. Entomology graduate students study a variety of scientific issues related to insects across the globe.

Additional Requirements

This program requires 72 credit hours (at least 12 from Entomology) that include credits earned during a master's degree that are approved by the student's graduate advisory committee and an approved research plan.

Candidates must complete the minimum requirements for the doctor of philosophy degree, plus a preliminary examination (written and oral) covering knowledge related to the discipline (taken after most coursework complete) and an oral final examination.

Entomology/Water Resources, M.S.

The purpose of this program is to enhance the cross-disciplinary linkage between entomology and water resources and to provide students with an entomology degree program that emphasizes the important issues in water resources.

Coursework and Thesis

Each student must complete a minimum of 26 credit hours of graduate level coursework and 4 thesis credit hours of ENTO 5960 to qualify for a master of science degree in entomology/water resources. Specific coursework will be determined by the student's graduate committee; however, each student is required to enhance his/her background and expertise in the water resources area through specialized coursework and a seminar as shown below.

- A. ENTO 5678 Aquatic Entomology (3)
- B. Interdisciplinary component 9 hours (see Water Resources degree requirements)

Plan A Thesis Requirement

Only Plan A thesis students are eligible for the master of science in entomology/water resources. In addition to coursework and a Plan A thesis, students must pass a final written and oral examination. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee to help ensure adherence to the master of science in entomology/water resources degree requirements and that research efforts are in the water area.

Family and Consumer Sciences - Master of Science

The master's program in family and consumer sciences offers three specialized and very different areas of emphasis for a variety of pathways and careers.

General Requirements

All emphasis areas listed below require a minimum of 30 credit hours of coursework at the 4000/5000 level. Only nine credit hours of 4000-level courses are allowed in this master's program. The student may be required to complete more than the minimum credit hours to satisfy prerequisites or because the student's committee determines additional coursework is required for the student to reach their professional objective.

The student is responsible for meeting all deadlines, submitting all required forms, and for fulfilling all requirements for the degree.

Design, Merchandising and Textiles

This program offers the study of textiles, merchandising of textile and apparel products, various aspects of apparel design and product development including creative and functional design options, and various aspects of interior design.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

14 credit hours of Family and Consumer Sciences courses

6 credit hours of supporting courses from arts, humanities, natural or social sciences

6 credit hours of supporting research courses

4 credit hours of FCSC 5960 Thesis Research

Human Development and Family Sciences

This program is designed for professionals who are currently working in human services fields and would like to further their education. This is an entirely online degree program that allows students to progress at their own pace.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

FCSC 5122 Developmental Contexts Across the Lifespan

FCSC 5123 Positive Youth Development

FCSC 5135 Program Evaluation

EDRE 5530 Introduction to Research or EDRE 5550 Action Research

14 credit hours of supporting courses

4 credit hours of FCSC 5960 Thesis Research

Human Nutrition and Food

This program increases the understanding of food and nutritional science and how to apply that knowledge to disease prevention and enhancement of human potential.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

18 credit hours of courses from food and nutritional sciences, biological, natural and social sciences

6 credit hours of supporting research courses

2 credit hours of graduate research seminars

4 credit hours of FCSC 5960 Thesis Research

Application and Admission Requirements

Admission to this graduate program and selection for department-funded assistantships is highly competitive. Faculty review the applications for their program area. Priority consideration is given to applicants who meet or exceed admission requirements and possess research interests that parallel those of the faculty. We do not offer conditional admission.

The application must include the following:

- A bachelor's degree based on a four year curriculum from an accredited institution with a grade point average of 3.0 or higher (on a 4.0 scale). Transcripts from all institutions attended must be submitted.
- Graduate Record Exam (GRE) score. In the past, successful applicants have typically had scores at or above the 50th percentile on two of the three subtests (verbal, quantitative, and analytical writing). Official scores must be submitted.
- Letters of recommendation -- Applicants must submit names and contact information for at least 3 people who will provide letters of recommendation and evaluation of the applicant's preparedness and/or qualifications for the desired graduate degree program.
- A statement of purpose (letter of intent) that includes applicant's preparation for the desired degree, research interests, future goals related to the program of interest, and if they wish to be considered for a graduate assistantship.
- A current professional resume or curriculum vitae.
- For international students, a minimum TOEFL score of 540 (76 iBT), IELTS score of 6.5, or Duolingo score of 105 average of the Conversation and Production sections. Official scores must be submitted.
- International students must also provide evidence of adequate financial resources.

To ensure full review for fall semester admission, applications must be received no later than March 1. Notification of application decisions will be made by May 1. Applications received at other times of year will be reviewed only if space in the desired program area is available.

Final approval of program entry for an international graduate student receiving an assistantship is contingent upon demonstrated English language oral proficiency.

Financial Support

Financial support is never guaranteed.

Graduate assistantships are awarded after applicants are selected for program entry.

Graduate assistantships require teaching and/or research. Students awarded an assistantship involving any type of teaching responsibility including labs, lectures, paper grading and interpretation to students are required to successfully complete the mandatory Graduate Teaching and Learning Symposium prior to assuming their duties. The department will define teaching responsibilities prior to the student attending the teaching symposium.

A full-time assistantship provides a stipend, health insurance, and a tuition/fee reduction.

- The stipend is payable in installments over an academic year (September through May).
- Health insurance will be paid for the calendar year. **Student medical insurance is mandatory for international students.**
- The tuition/fee reduction will cover up to 9 graduate credit hours of tuition per semester and most mandatory fees. Some incidental fees are the responsibility of the student. Anyone receiving a full-time graduate assistantship must be registered as a full-time student in 9 credit hours per semester.
- If a student is awarded less than a full-time assistantship, the stipend, and tuition and fee reduction will be adjusted to the percentage rate of the assistantship.
- Graduate students who receive a full assistantship are required to work an average of 20 hours per week for the stipend.

Renewal of a graduate assistantship is contingent on acceptable progress towards degree completion and maintenance of a grade point average of 3.0 or above.

Financial support is not given for more than two academic years.

Food Science and Human Nutrition Interdisciplinary Master of Science

An interdisciplinary program where students gain expertise in theory as well as combined research in the areas of human nutrition and metabolism, food product development, community nutrition, food microbiology, meat science and food chemistry.

General Information

You can earn your master's degree in food science and human nutrition through the Department of Animal Science or Family and Consumer Sciences.

Applicants indicate the research experience they prefer and faculty member they are interested in working with. In this highly competitive graduate degree program, students gain direct experience with data collection, analysis, writing and publication through laboratory and classroom learning experiences. Program faculty are actively conducting research in the areas of eating behaviors, indigenous/traditional diets, micronutrient needs and deficiencies, food product development, sensory characteristics of food products, health and physical performance of active individuals, nutrition and disease, brain-reward pathway in animals, microbial diagnostics, rumen microbiome, nitrogen/protein metabolism, lipid analysis and alternative feed/forages.

General Requirements

A minimum of 30 credit hours of coursework at the 4000/5000 level is required. Only nine credit hours of 4000-level courses are allowed in this master's program. The student may be required to complete more than the minimum credit hours to satisfy prerequisites or because the student's committee determines additional coursework is required for the student to reach their professional objective.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

18 credit hours of courses from food and nutritional sciences, biological, natural and social sciences

6 credit hours of supporting research courses

2 credit hours of graduate research seminars

4 credit hours of FCSC 5960 Thesis Research

The student is responsible for meeting all deadlines, submitting all required forms, and for fulfilling all requirements for the degree.

Recommended Prerequisites

The following are recommended for students applying to the program:

- One semester of organic chemistry
- Human or animal nutrition, anatomy and physiology
- Introductory statistics

Application and Admission Requirements

Admission to this graduate program and selection for department-funded assistantships is highly competitive. Faculty review the applications for their program area. Priority consideration is given to applicants who meet or exceed admission requirements and possess research interests that parallel those of the faculty. We do not offer conditional admission.

The application must include the following:

- A bachelor's degree from an accredited institution with a grade point average of 3.0 or higher (on a 4.0 scale). Transcripts from all institutions attended must be submitted.
- Graduate Record Exam (GRE) score. In the past, successful applicants have typically had scores at or above the 50th percentile on two of the three subtests (verbal, quantitative, and analytical writing). Official scores must be submitted.
- Letters of recommendation -- Applicants must submit names and contact information for at least 3 people who will provide letters of recommendation and evaluation of the applicant's preparedness and/or qualifications for the desired graduate degree program.

- A statement of purpose (letter of intent) that includes applicant's preparation for the desired degree, research interests, future goals related to the program of interest, and if they wish to be considered for a graduate assistantship.
- A current professional resume or curriculum vitae.
- For international students, a minimum TOEFL score of 540 (76 iBT), IELTS score of 6.5, or Duolingo score of 105 average of the Conversation and Production sections. Official scores must be submitted.
- International students must also provide evidence of adequate financial resources.

To ensure full review for fall semester admission, applications must be received no later than March 1. Notification of application decisions will be made by May 1. Applications received at other times of year will be reviewed only if space in the desired program area is available.

Final approval of program entry for an international graduate student receiving an assistantship is contingent upon demonstrated English language oral proficiency.

Financial Support

Financial support is never guaranteed.

Graduate assistantships are awarded after applicants are selected for program entry.

Graduate assistantships require teaching and/or research. Students awarded an assistantship involving any type of teaching responsibility including labs, lectures, paper grading and interpretation to students are required to successfully complete the mandatory Graduate Teaching and Learning Symposium prior to assuming their duties. The department will define teaching responsibilities prior to the student attending the teaching symposium.

A full-time assistantship provides a stipend, health insurance, and a tuition/fee reduction.

- The stipend is payable in installments over an academic year (September through May).
- Health insurance will be paid for the calendar year. **Student medical insurance is mandatory for international students.**
- The tuition/fee reduction will cover up to 9 graduate credit hours of tuition per semester and most mandatory fees. Some incidental fees are the responsibility of the student. Anyone receiving a full-time graduate assistantship must be registered as a full-time student in 9 credit hours per semester.
- If a student is awarded less than a full-time assistantship, the stipend, and tuition and fee reduction will be adjusted to the percentage rate of the assistantship.
- Graduate students who receive a full assistantship are required to work an average of 20 hours per week for the stipend.

Renewal of a graduate assistantship is contingent on acceptable progress towards degree completion and maintenance of a grade point average of 3.0 or above.

Financial support is not given for more than two academic years.

Hydrology, Ph.D.

Join a cutting-edge PhD program to gain expertise in technical, philosophical, and methodological aspects of hydrology related to above- and below-ground systems. We foster research and learning on critical water-related science and social topics.

Additional Information

Hydrologic Sciences (WRESE), Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/wrese>
E-mail: wrese@uwyo.edu

Program Director: Andrew D. Parsekian, Ph.D.

Degree Offered

Ph.D. in Hydrologic Sciences

The Water Resources/Environmental Science and Engineering (WRESE) program facilitates Ph.D. level course offerings in water-related disciplines, and coordinates offerings of these courses. Furthermore, the WRESE program serves as a focal-point for water-related graduate research and education at the University of Wyoming.

This interdisciplinary degree program encourages cross-department and inter-college coordination for research and education in hydrology and water resources.

The WRESE Program grants a PhD in Hydrological Sciences.

Program Specific Admission Requirements

Ph.D. in Hydrologic Sciences

The WRESE Program only admits students seeking a doctoral degree.

Those interested in graduate study in this program, are encouraged to contact the WRESE program (wrese@uwyo.edu) for more information and guidance regarding applying. In order to apply, please submit an application to the program via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>). Prospective students applying to the WRESE program must satisfy the minimum criteria for admission of their advisor's home department (i.e., number of reference letters required; minimum GRE scores, if requested; other supporting documents, if requested; etc.). Similarly, applicants should adhere to the submission deadline indicated by their advisor's home department.

Minimum criteria for admission to the WRESE Program are:

- Minimum undergraduate GPA of 3.000
- Agreement by a faculty member affiliated with the WRESE program to sponsor the student
- Admission to a home department at the University of Wyoming

Typically, students admitted into the program will have previously obtained a Masters-level degree. Under certain circumstance, students may be admitted directly after an undergraduate degree if they show exceptional promise and commitment. Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the WRESE program.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Program Specific Degree Requirements

Students in the WRESE Program are expected to create their graduate committee within the first year of study. The committee should be composed of three faculty members within the PhD program in Hydrology and 2 should be from the student's departmental home. A committee shall be composed of no fewer than 5 members, of which only one may be from outside the University. Additional committee members may be added to support the student's learning and objectives on the discretion of the committee and WRESE Program chair.

Program of Study

Students enrolled in the Program should complete their Program of Study within the first 3 semesters. The student shall work with his/her research advisor and committee to determine the appropriate course of study relative to the student's research agenda. Students are expected to complete a rigorous course of study in quantitative hydrological sciences. Minimum requirements for the PhD include:

- Coursework credits: 42 hours (26 can be from an MS)
- Total credits: 72 hours
- Math expectations: students are encouraged to pursue a high level of math proficiency, with typical students progressing through differential equations. Individual math expectations will be determined by the committee and program chair.

A dissertation proposal should be approved by the end of the 4th semester. Students shall submit their proposal to their committee for review two weeks prior to a holding a committee meeting where the student (a) presents their proposal in a public presentation and (b) defends the proposal to the committee in a closed meeting. After the meeting, the student shall amend the proposal as required by the committee within a timely manner.

Admission to Candidacy / Preliminary Examination

Advance to candidacy is attained by passing preliminary exams within 3 years of initiating a degree program. Students should complete their preliminary exams as close to the end of their primary coursework as possible. Preliminary exams consist of two parts. The first part is a written examination wherein committee members shall submit written questions to the student. Once the student has passed their written exams, they will be administered an oral examination.

The written exam shall be administered by the student's research adviser, who will coordinate the questions so as to obtain a comprehensive review of the student's knowledge of the materials the student has learned in the classroom and needs to complete his/her research topic. Written questions should cover both conceptual and theoretical underpinnings in hydrological sciences and technical questions related to the student's research area.

The written exam will consist of a series of questions as decided upon by the committee and should take no more than two weeks to complete.

Each committee member shall grade their portion of the exam as pass/fail. The student shall be viewed as passing the written exam if no more than one person grades their portion of the exam as failing.

The oral examination will be held no sooner than two weeks after the written exams, and only after the student has passed their written examinations. The oral exam should be no less than 90 minutes long and no longer than 3 hours.

Following the exam, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Dissertation

The student will prepare a dissertation and make the document available to the committee at least two weeks in advance of an oral defense of the document. The oral defense must be at least 15 weeks after the student has been advanced to candidacy. Students shall present a public defense to the university community that is expected to be approximately 45 minutes long, with a public question-and-answer period after the presentation. If the committee determines that the student has presented a suitable oral presentation of his/her research findings, a closed session meeting will be held in which the student defends their research to the committee. At the conclusion of the defense,

each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Other information:

Students in the WRESE Program may participate from any college, with the expectation that their program of study and dissertation will focus on quantitative issues of hydrology and water resources. The Program welcomes academic diversity, and students in WRESE have entered into the Program from a wide range of academic backgrounds and have hailed from numerous home departments, including Ecosystem Science and Management, Civil and Architectural Engineering, Botany, Zoology and Physiology, and Geology and Geophysics.

Water Resources/Environmental Science and Engineering is an Interdisciplinary program that fulfills an important need by organizing a rigorous Ph.D.- level curriculum, with sufficient numbers of relevant courses to serve the needs of Ph.D. students affiliated with the program faculty.

Molecular Biology, M.A.

The Molecular Biology M.A. program includes advanced courses in molecular sciences with a focus on a research project, preparing students for a Ph.D. program, biotechnology research or other professional postgraduate program.

Molecular Biology, M.A. Additional Information

An applicant for the M.A. degree in Molecular Biology is generally expected to have an equivalent of a B.S. degree in a field related to Molecular Biology. Prior to admission to the program, an applicant needs to contact the Molecular Biology department professor directly to determine if they may be interested in serving as the student's potential adviser. Once a future graduate adviser agrees to accept a student into their lab, an applicant can apply to the Molecular Biology Graduate program. Admissions to the program are allowed in the Fall, Spring and Summer semesters.

Additional information on graduate student regulations and policies, including transfer credit and credit reserved from undergraduate courses, is located here: https://www.uwyo.edu/registrar/graduate_students/resources.html

The pursuit of an M.A. degree in Molecular Biology is suitable for students interested in obtaining a master's degree that does not necessarily include laboratory work. Students who intend to pursue education in medical, dental, veterinary or law schools may choose to pursue an M.A. in Molecular Biology before continuing their education. An appropriate research project is selected in consultation with the M.A. degree candidate and their graduate adviser. Student performance is monitored by a thesis committee that will evaluate a student's written thesis, public seminar, and oral thesis defense. A student pursuing an M.A. degree should not have expectations of financial support. Students pursuing the M.A. degree in Molecular Biology usually complete their program in two academic semesters plus two summer semesters.

Requirements for M.A. degree in Molecular Biology

An M.A. degree student, in consultation with their graduate committee, must design a Program of Study that includes a minimum of 30 hours of graduate credit. Specific requirements for the M.A. Program in Molecular Biology are listed below.

- 3 credits of Advanced Biochemistry MOLB 5600 with a minimum grade of B.
 - This requirement may be fulfilled if a student has already received a minimum grade of B in MOLB 4600, MOLB 5600, or transfer credits for an equivalent biochemistry course taken at another university (equivalency is determined by the student's graduate committee).
- 6 credits minimum of a 5000-level MOLB course from the following list: MOLB 5400, MOLB 5440, MOLB 5450, MOLB 5460, MOLB 5610, MOLB 5670, MOLB 5680.

- 4 credits of the seminar presentation course MOLB 5050 (2 credits of MOLB 5050 must be taken the first semester a student enrolls in the graduate program)
- Students are required to enroll in the departmental seminar course each semester: MOLB 5051 during the academic year; MOLB 5052 in the summer semester
- Other credits as determined by the student in consultation with their graduate committee

Molecular Biology, M.S.

The M.S. in Molecular Biology program provides training with advanced courses in molecular sciences and conducting a research project, with the goal of providing a foundation for pursuing a Ph.D. program, employment or other postgrad program.

Molecular Biology, M.S. Additional Information

The M.S. is a research-intensive degree. An applicant is generally expected to have an equivalent of a B.S. degree in a field related to Molecular Biology. Prior to admission to the program, an applicant must contact the Molecular Biology department professor directly to determine if they may be interested in serving as the student's potential adviser. Once a future graduate adviser agrees to accept a student into their lab, an applicant can start an application to the Molecular Biology Graduate program. Admissions to the program are allowed in the Fall, Spring and Summer semesters. An M.S. candidate will conduct a research project as well as present at the departmental seminars and at scientific meetings. Student performance is monitored by a thesis committee that evaluates a student's research proposal, seminar presentations, written thesis, final public seminar, and final oral defense of the thesis. In consultation with the faculty research adviser, a student may elect to serve as a teaching assistant. Graduate assistantships for M.S. degree students are at the discretion of their graduate adviser. Students pursuing the M.S. degree in Molecular Biology usually complete their program in two to three years.

Additional information on graduate student regulations and policies, including transfer credit and credit reserved from undergraduate courses, is located here: https://www.uwyo.edu/registrar/graduate_students/resources.html

Requirements for M.S. degree in Molecular Biology

An M.S. degree student, in consultation with their graduate committee, must design a Program of Study that includes a minimum of 30 hours of graduate credit, including 26 credits of formal coursework and 4 credits of thesis research MOLB 5960 . Specific requirements for the M.S. degree in Molecular Biology are listed below.

- 3 credits of Advanced Biochemistry MOLB 5600 with a minimum grade of B.
 - This requirement may be fulfilled if a student has already received a minimum grade of B in MOLB 4600 , MOLB 5600 , or transfer credits for an equivalent biochemistry course taken at another university (equivalency is determined by the student's graduate committee).
- 6 credits minimum of a 5000-level MOLB course from the following list: MOLB 5400, MOLB 5440, MOLB 5450, MOLB 5460, MOLB 5610, MOLB 5670, MOLB 5680.
- 4 credits of MOLB 5050 Advanced Student Seminar; 2 credits of MOLB 5050 must be taken the first semester a student enrolls in the graduate program
- Students are required to enroll in the departmental seminar course each semester: MOLB 5051 during the academic year; MOLB 5052 in the summer semester
- Other credits as determined by the student in consultation with their graduate committee
- MOLB 5960 Thesis Research (4 credits)

Molecular Biology, Ph.D.

The Ph.D. program in Molecular Biology provides training for students interested in pursuing advanced courses and conducting an extensive laboratory research project in molecular and cellular biology or microbiological research areas.

Molecular Biology, Ph.D. Additional Information

The Ph.D. in Molecular Biology is a research-intensive degree. Prior to admission to the program, an applicant must contact the Molecular Biology department professor directly to determine if they may be interested in serving as the student's potential adviser. Once a future graduate adviser agrees to accept a student into their lab, an applicant can start an application to the Molecular Biology Graduate program. Admissions to the program are allowed in the Fall, Spring and Summer semesters.

An application to the Ph.D. program should include a curriculum vitae (CV), a 2-page statement of research interests and career plans, contact information for three references, transcripts from previous institutions, and GRE scores. Those students with an M.S. degree may be excluded from the GRE requirement. Following admission, a student will conduct a guided research project in the laboratory into which they have been accepted. The faculty research adviser is responsible for financial support of the student. A research project is expected to result in publications in peer-reviewed journals as well as presentations at the departmental seminars and scientific meetings.

Throughout the degree program, a graduate student is guided and evaluated by their research adviser and graduate committee. A student must develop a Program of Study approved by the student's graduate committee. Student performance is monitored by a dissertation committee that evaluates a student's seminar presentations, research proposal, preliminary exam, written dissertation, final public seminar, and final oral defense of the dissertation. In consultation with the faculty research adviser, a student may elect to serve as a teaching assistant. Students pursuing the Ph.D. degree in Molecular Biology usually complete their program in approximately five years.

Requirements for Ph.D. degree in Molecular Biology

A Program of Study for the Ph.D. in Molecular Biology must include a minimum of 72 semester hours of credit at the 4000 level or above from UW or equivalent levels from another approved university. This 72-hour requirement may include graduate credits earned while working toward the master's degree in the same area, but at least 42 hours (of the 72) must be earned in formal coursework, including the specific requirements for the program detailed below. Additional credits toward the 72-hour requirement may include additional formal course credits, Dissertation Research credits (MOLB 5980), or MOLB 5960 credits or Internship credits (MOLB 5990). The Program of Study must be on file in the Office of the Registrar before the preliminary examination can be scheduled. Additional information on graduate student regulations and policies, including transfer credit and credit reserved from undergraduate courses, is located here: https://www.uwyo.edu/registrar/graduate_students/resources.html

Specific requirements for the Ph.D. degree in Molecular Biology are listed below. The Program of Study is determined in consultation with the student's graduate committee.

- 3 credits of Advanced Biochemistry MOLB 5600 with a minimum grade of B.
 - This requirement may be fulfilled if a student has already received a minimum grade of B in MOLB 4600, MOLB 5600, or transfer credits for an equivalent course taken at another university (equivalency is determined by the student's graduate committee).
- 6 credits minimum of a 5000-level MOLB course from the following list: MOLB 5400, MOLB 5440, MOLB 5450, MOLB 5460, MOLB 5610, MOLB 5670, MOLB 5680.
- 4 credits of MOLB 5050 Advanced Student Seminar; 2 credits of MOLB 5050 must be taken the first semester a student enrolls in the graduate program
- Students are required to enroll in the departmental seminar course each semester: MOLB 5051 during the academic year; MOLB 5052 in the summer semester
- Other course credits as determined by the student in consultation with their graduate committee

- MOLB 5980 Dissertation Research (number of credits to be determined in consultation with the student's graduate committee)

Plant Sciences, M.S.

The Plant Sciences M.S. program emphasizes sustainable management of agronomic, horticultural, and forage crops, plant breeding, and invasive species management. Students are trained for scientific careers in academia, public and private sectors.

Plan A (Thesis)

Requirements for the master of science degree include 26 hours of coursework beyond the bachelor's degree numbered 4000 or above, 4 hours of thesis research, a research proposal, original research, and oral defense of the thesis.

The M.S. degree is typically completed in two years. The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

Plant Sciences, Ph.D.

A Ph.D. in Plant Sciences is a research-based terminal degree focusing on specific areas of plant production and management. Scientific training in plant production and vegetation management for careers in academia, public and private sectors.

Program Information

The requirements for the doctor of philosophy degree include 60 hours of coursework beyond the bachelor's degree numbered 4000 or above, 12 hours of dissertation research, a research proposal, original research, written and oral preliminary exams to be taken when most or all coursework is completed, and an oral defense of the dissertation.

Dissertations may be in a modified journal article format but must meet university formatting requirements.

The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

The student is expected to participate in the usual activities of scientific research such as attending and presenting at research seminars and professional meetings and publishing his/her research.

Rangeland Ecology and Watershed Management, M.S.

The M.S. program is geared toward teaching graduate students the tools necessary to conduct robust scientific research and communicate with the public and potential clients.

Plan A (Thesis)

The master of science degree normally is offered under Plan A which requires at least the university minimum degree requirements and an oral examination.

An oral defense of the thesis is required.

Plan B (Non-thesis)

Plan B is available under special circumstances and requires 30 hours of graduate coursework.

Plan B candidates must also prepare one professional paper (i.e., content and form compatible with publication in a scientific journal) or, if the adviser requests, two professional papers in selected topic areas.

An oral defense of the paper(s) is required.

Additional Requirements

This program requires 30 credit hours (at least 12 from Rangeland Ecology and Watershed Management) approved by the student's graduate advisory committee and an approved research plan.

Rangeland Ecology and Watershed Management, Ph.D.

The Ph.D. program allows graduate students to use the research-oriented tools learned during a master's program to conduct research on a major question surrounding rangeland ecology and watershed management.

Additional Requirements

This program requires 72 credit hours (at least 12 from Rangeland Ecology and Watershed Management) that include credits earned during a master's degree that are approved by the student's graduate advisory committee and an approved research plan. Candidates must complete the minimum requirements for the doctor of philosophy degree, plus a preliminary examination (written and oral) covering knowledge related to the discipline (taken after most coursework is complete) and an oral final examination.

Rangeland Ecology and Watershed Management/Water Resources, M.S.

The purpose of this program is to enhance the cross-disciplinary linkage between range and forest management and water resources and to provide students with a degree program in Rangeland Ecology and Watershed Management, which emphasizes the important issues in water resources.

Coursework and Thesis

- Water Resources requirements Credits: 10 *
- Statistics Credits: 3
- REWM 5620 - Range Management Seminar Credits: 1
- Other recommended graduate courses or substitution courses with adviser consent Credits: 12
- Plan A thesis Credit: 4

Minimum Credits: 30

*Water Resources Requirements

- Interdisciplinary component 9 hours (see Water Resources degree requirements)

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Soil Science, M.S.

The M.S. program is geared toward teaching graduate students the tools necessary to conduct robust scientific research.

Plan A (Thesis)

Plan A requires the university minimum degree requirements and an oral final examination.

Plan B (Non-thesis)

Plan B is available and requires 30 hours of graduate coursework.

An oral defense of the paper(s) is required.

Additional Requirements

This program requires 30 credit hours (at least 12 from Soil Science) approved by the student's graduate advisory committee and an approved research plan.

Soil Science, Ph.D.

The Ph.D. program allows graduate students to use the research-oriented tools learned during a master's program to conduct research on a major question surrounding soil science.

Additional Requirements

This program requires 72 credit hours (at least 12 from Soil Science) that include credits earned during a master's degree that are approved by the student's graduate advisory committee and an approved research plan.

Candidates must complete the minimum requirements for the doctor of philosophy degree, plus a preliminary examination (written and oral) covering knowledge related to the discipline (taken after most coursework is complete) and an oral final examination.

Soil Science/Water Resources, M.S.

The purpose of this program is to enhance the cross-disciplinary linkage between soil science and water resources and to provide students a degree program in Soil Science, which emphasizes the important issues in water resources.

Coursework and Thesis

Each student must complete a minimum of 26 credit hours of graduate level coursework and 4 thesis credit hours of SOIL 5960 to qualify for a master of science degree in soil science/water resources. Specific coursework will be determined by the student's graduate committee; however, each student is required to enhance his/her background and expertise in the water resources area through specialized coursework and a seminar as shown below.

Core Courses

Students must take or have taken equivalent courses in the four soils disciplines: physics, pedology, chemistry, and microbiology.

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

SOIL5140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture, and forestry.

Cross Listed MICR 5140.

Dual Listed SOIL 4140.

Prerequisite: SOIL 2010

Enhancement Courses

Students must take at least one of the following courses:

SOIL5110 - Modeling Water and Chemical Transport in Vasoë Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the

numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

SOIL5160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical and biological aspects of soils which impact fertilizer fate, uptake and plant growth.

Dual Listed SOIL 4160.

Prerequisite: SOIL 2010.

- SOIL 5170 - Analytical Methods for Ecosystems Research

Interdisciplinary Component: 9 Hours

(see Water Resources degree requirements)

Seminar in Water Resources: 1 Hour

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Graduate Seminar in Soil Science: 1 Hour

Plan A Thesis Requirement

Only Plan A thesis students are eligible for the master of science in soil science/water resources. In addition to coursework and a Plan A thesis, students must pass a final oral examination. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee to help ensure adherence to the master of science in soil science/water resources degree requirements and that research efforts are in the water area.

Water Resources, M.A.

The purpose of this program is to provide multidisciplinary training in water resources. Training is to be consistent with the rigor of professional water resources demands.

Program Specific Degree Requirements

The academic program of study undertaken by the candidate must be designed to enhance the student's background and expertise through formal graduate-level coursework in the areas of: (1) technical hydrology, (2) natural resources economics and/or law, and (3) water quality. To ensure a minimum multidisciplinary character, the course program must contain nine hours of coursework with at least 3 hours from each of the aforementioned areas and at least 6 of those credit hours must be from outside the student's sponsoring department, along with a 1 credit hour seminar on water resources organized through the Department of Ecosystem Science and Management. Only Plan A master's degree programs, which require the writing of a thesis in the water resources area, are acceptable for the water resources degree option.

Hydrology (3 Hours)

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

- CE 4820 - Groundwater and Drainage Engineering Credits: 3

CE5810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 4810.

Prerequisite: CE 4800.

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5550 - Numerical Methods in Ground Water Geology I

Credits: 3

Numerical solution of ground water flow equations with emphasis on steady state and elementary time dependent finite difference techniques.

Prerequisite: GEOL 4444 or GEOL 5444, competence in FORTRAN programming.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

SOIL5110 - Modeling Water and Chemical Transport in Vasoe Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

- MATH 5110 - Modelling Flow Transport in Soil and Groundwater Systems Credits: 4

Law/Natural Resource Economics (3 Hours)

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON5400 - Advanced Resource and Environmental Economics

Credits: 3

This course examines how we use economics to sharpen natural resource use and environmental policy. We focus on the behavioral and institutional underpinnings of market success and failures, choice under risk, time, space, conflict,

cooperation, incentive design, non-market valuation, and prosperity.

Prerequisite: ECON 3020, ECON 4400 or consent of instructor.

LAW6660 - Environmental Law

Credits: 3

Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6860 - Water Law and Policy

Credits: 3

Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

Water Quality (3 Hours)

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL5450 - Geochemical Modeling

Credits: 3

Modeling of geochemical processes in fluid-rock systems of the Earth's crust. Emphasizes development and application of conceptual models as well as quantitative numerical models. Reinforces and expands fundamental skills in aqueous and fluid-rock geochemistry to better understand geochemical processes and solve problems in fluid-rock systems.

Prerequisite: GEOL 4777/GEOL 5777 or GEOL 5610 or GEOL 4490.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

One-Hour Seminar in Water Issues

Each student in the water resources interdisciplinary major program will be required to complete this course once during their graduate program. As part of the requirements for the seminar: (a) students will be required to present a seminar on a current water resource issue in Wyoming and to develop an executive summary of their issue to distribute to class participants. Each student is also required to participate in a discussion group following each seminar which stresses the interdisciplinary nature of the issue; (b) during the course of a student's graduate program, he/she will be required to present one seminar for the seminar series (preferably on some aspect of their thesis research). This presentation does not have to occur during the semester that the student is officially signed up for seminar credit.

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Additional Requirements

The master's degree offered through these affiliations is awarded as a major with each of the sponsoring department's graduate programs. The water resources interdisciplinary major will be acknowledged on the graduate transcript and thereby certify to potential employers that the candidate has completed an in-depth multidisciplinary course program in the broad area of water resources.

Water Resources, M.S.

The purpose of the program is to provide multidisciplinary education and to impart a multidisciplinary perspective to candidates. Training is to be consistent with the rigor of professional water resources demands.

Program Specific Degree Requirements

The academic program of study undertaken by the candidate must be designed to enhance the student's background and expertise through formal graduate level coursework in the areas of: (1) technical hydrology, (2) natural resources

economics and/or law, and (3) water quality. To insure a minimum multidisciplinary character, the course program must contain nine hours of coursework with at least 3 hours from each of the aforementioned areas and at least 6 of those credit hours must be from outside the student's sponsoring department, along with a 1 credit hour seminar on water resources organized through the Department of Ecosystem Science and Management. Only Plan A master's degree programs, which require the writing of a thesis in the water resources area, are acceptable for the water resources degree option.

Hydrology (3 Hours)

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

- CE 4820 - Groundwater and Drainage Engineering Credits: 3

CE5810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 4810.

Prerequisite: CE 4800.

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5550 - Numerical Methods in Ground Water Geology I

Credits: 3

Numerical solution of ground water flow equations with emphasis on steady state and elementary time dependent finite difference techniques.

Prerequisite: GEOL 4444 or GEOL 5444, competence in FORTRAN programming.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

SOIL5110 - Modeling Water and Chemical Transport in Vaso Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

- MATH 5110 - Modelling Flow Transport in Soil and Groundwater Systems Credits: 4

Law/Natural Resource Economics (3 Hours)

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGECEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON5400 - Advanced Resource and Environmental Economics

Credits: 3

This course examines how we use economics to sharpen natural resource use and environmental policy. We focus on the behavioral and institutional underpinnings of market success and failures, choice under risk, time, space, conflict, cooperation, incentive design, non-market valuation, and prosperity.

Prerequisite: ECON 3020, ECON 4400 or consent of instructor.

LAW6660 - Environmental Law

Credits: 3

Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various

statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6860 - Water Law and Policy

Credits: 3

Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

Water Quality (3 Hours)

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL5450 - Geochemical Modeling

Credits: 3

Modeling of geochemical processes in fluid-rock systems of the Earth's crust. Emphasizes development and application of conceptual models as well as quantitative numerical models. Reinforces and expands fundamental skills in aqueous and fluid-rock geochemistry to better understand geochemical processes and solve problems in fluid-rock systems.

Prerequisite: GEOL 4777/GEOL 5777 or GEOL 5610 or GEOL 4490.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture

production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

One-Hour Seminar in Water Issues

Each student in the water resources interdisciplinary major program will be required to complete this course once during their graduate program. As part of the requirements for the seminar: (a) students will be required to present a seminar on a current water resource issue in Wyoming and to develop an executive summary of their issue to distribute to class participants. Each student is also required to participate in a discussion group following each seminar which stresses the interdisciplinary nature of the issue; (b) during the course of a student's graduate program, he/she will be required to present one seminar for the seminar series (preferably on some aspect of their thesis research). This presentation does not have to occur during the semester that the student is officially signed up for seminar credit.

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Additional Requirements

The master's degree offered through these affiliations is awarded as a major with each of the sponsoring department's graduate programs. The water resources interdisciplinary major will be acknowledged on the graduate transcript and thereby certify to potential employers that the candidate has completed an in-depth multidisciplinary course program in the broad area of water resources.

Certificate

Reclamation/Restoration Ecology Graduate Certificate

The Reclamation/Restoration Ecology (RRE) graduate certificate prepares the student to use basic and applied ecological concepts to reclaim and/or restore processes and functions to disturbed ecosystems.

Required Certificate Courses:

Reclamation and Restoration Ecology Courses: 6 Hours

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed ECOL 5580.

Dual Listed REWM 4580.

Reclamation Problems: 4 Hours

SOIL5565 - Research in Soil Science

Credits: 1-4

Max Credit (Max. 6)

Library, laboratory, and/or greenhouse investigations on select research topics. Graduate students will be required to give a presentation to the soil science group on their final product/ report.

Dual Listed SOIL 4465.

Prerequisite: Basic training in soil science research. SOIL 5565 reserved for graduate students.

OR

REWM5640 - Investigation

Credits: 1-4

Max Credit (Max. 10)

Research on specialized problems in range management. Investigations offered in the following areas of range management, habitat management, business management, range improvements and monitoring, watershed management, extension and international development.

Prerequisite: graduate standing.

Reclamation Process Course: 3 Hours

(choose one)

BOT5700 - Vegetation Ecology

Credits: 4

The ecology of major vegetation types, with emphasis on patterns of vegetation distribution, vegetation-environment

relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 4700.

Prerequisite: LIFE 3400.

BOT5730 - Plant Physiological Ecology

Credits: 4

Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms. Lecture with inclusive hands-on laboratory.

Cross Listed RNEW 5730.

Dual Listed BOT 4730.

Prerequisite: one course in ecology and one in physiology.

BOT5780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 5780.

Dual Listed BOT 4780.

Prerequisite: Consent of instructor.

PLNT5070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 4070

Prerequisite: PLNT 1000, LIFE 1010

PLNT5470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 4470

Prerequisite: 8 hours of plant biology

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

- REWM 5280

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

RNEW5540 - Shrubland Ecology

Credits: 3

Ecology of shrub-dominated lands and shrub species in grasslands. Location, importance and environmental constraints of shrub distributions. Topics include herbivory, woody plant invasions, competitive interactions, monitoring and population dynamics. Emphasizes familiarity with scientific literature.

Prerequisite: RNEW 3000, BOT 4700.

SOIL5110 - Modeling Water and Chemical Transport in Vasoe Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

- MATH 5110

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

SOIL5140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture, and forestry.

Cross Listed MICR 5140.

Dual Listed SOIL 4140.

Prerequisite: SOIL 2010

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

- ZOO 5550

Planning/Policy Courses: 3 Hours

(Choose One)

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR5900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 4900.

Prerequisite: graduate standing and ENR 5100.

Minimum Total Credits Needed: 16 Hours

Additional Requirements

The graduate certificate will be granted to students who have completed a B.S. in an appropriate science-oriented discipline or are currently enrolled in an M.S. or Ph.D. program.

The graduate certificate will also be available to professionals working in reclamation/restoration oriented fields seeking to upgrade their training in reclamation and restoration ecology. Those interested in the graduate certificate will be required to complete the course work listed below as well as write a synopsis paper with a formal presentation advertised as an open forum seminar.

QuickStart Program

Plant Sciences, B.S./M.S. QuickStart

The Plant Sciences B.S./M.S. QuickStart program enables students to work toward both the B.S. and M.S. degrees simultaneously. Accepted students earn a B.S. in Plant Production and Protection and an M.S. in Plant Sciences.

Program Information

The combined Plant Sciences B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. This program allows for early planning of the M.S. portion of the student's education, along with beginning a thesis research project before the completion of the B.S. degree. It offers increased flexibility in the order in which courses are taken, and more efficient use of what would otherwise be a final semester with a light credit-hour load. As many as 6 credit hours of undergraduate coursework at the 5000 level (or 4000 level for courses in which no 5000-level course is available) may be counted toward both the B.S. and M.S. degree programs. Additionally, students retain the existing right to reserve up to 6 hours of graduate credit that may be taken during their undergraduate degree program. These 6 reserved credits will NOT count toward both the B.S. and M.S. degrees, but only toward the M.S. degree.

Admission to the program

Minimum requirements for admission to the accelerated program are:

1. completion of sophomore year, 60 credit hours,
2. a minimum overall GPA of 3.0,
3. a minimum GPA of 3.0 in PLNT courses,

4. a minimum of three letters of recommendation (at least two must be from faculty at UW),
5. a DPS faculty member willing to serve as M.S. advisor, and
6. a research proposal submitted to, and approved by, the student's M.S. advisor and at least one other Plant Sciences faculty member as a presumptive graduate committee member.

Transfer students must have also completed at least 15 credit hours of coursework at UW to be eligible for admission to this program.

If interested in this program, please visit our website at <http://www.uwyo.edu/plantsciences/> for further information on additional requirements.

College of Arts & Sciences

113 Arts and Sciences Building

Camellia Okpodu, Dean

Phone: (307) 766-4106 FAX: (307) 766-2697

Web site: www.uwyo.edu/as

Aims and Objectives

The College of Arts and Sciences (A&S) is committed to providing a balanced education that matches cultural breadth with disciplinary depth. Students in the College of Arts and Sciences learn to address complex contemporary problems and to place them in their wider social, historical and ethical contexts. To achieve these goals, degree programs require students to develop expertise in a particular field, gain critical understanding of major areas of human knowledge and select from required courses and free electives to prepare for the challenges of the new century.

A successful student in any of the departments and programs in the College of Arts and Sciences will have an excellent foundation for professional success, graduate study, and a passion for lifelong learning.

Through hands-on research and creative projects (either on faculty projects or independently with faculty guidance and mentoring), fieldwork, internships, and study abroad, students integrate and bring coherence to their classroom learning.

Student Responsibilities

To graduate from the College of Arts and Sciences, students must satisfy all university, college, and major requirements for a given degree. These requirements apply whether the work is taken within the college or transferred from anywhere else within or outside the university (please refer to section below "Acceptance of Transfer Credit").

The college holds students responsible for knowing degree and major requirements and for completing the necessary courses. Students are also expected to know the regulations that govern the academic standards needed to continue study at the university. Students should be aware that changing majors and/or colleges may result in delays in meeting degree requirements and that requirements themselves sometimes change (see "Graduation Requirements and Procedures" section of this *Catalog*).

Academic Advising

To help plan a program of study, students are assigned an academic adviser by the department/ program of their major. Students undecided about a major are advised in the UW Advising, Career, and Exploratory Studies office (222 Knight Hall).

Students should consult regularly with their academic adviser not only for course scheduling, but also to discuss educational and career goals. Faculty and professional advisers can connect students to the many college and university resources to assist undergraduate study. Instructors are also willing to discuss concerns students may have regarding specific courses.

Changing/Declaring a Major or Minor

When ready to declare or change a major, minor, or dual/concurrent major in a department or program in the college, the appropriate form is available from the Office of the Registrar (167 Knight Hall) or the Registrar's Web page. Approval is required from the appropriate department heads/program directors. Departments/programs will assign advisors at the time of signing their approval on the form.

Programs of Study

Undergraduate Degrees

A variety of specialized concentrations are offered within many of the following degree programs. Take a look at the department sections in this *Catalog* that follow this section or the departments' Web sites. Additionally, there are several inter-college or interdisciplinary degrees/majors such as Earth System Science and the affiliated major in Environment and Natural Resources that draw courses from several disciplines. See more detailed descriptions in this *Catalog* or the University of Wyoming home page at www.uwyo.edu, click on the A-Z Directory.

Bachelor of Arts

African American and Diaspora Studies
American Studies
Anthropology
Art Education
Art History
Chemistry
Communication
Criminal Justice
English
French
Gender and Women's Studies
Geology and Earth Sciences
German
History
International Studies
Journalism
Music
Native American and Indigenous Studies
Philosophy
Physics
Political Science
Religious Studies
Sociology

Spanish
Studio Art
Theatre and Dance

Bachelor of Science

Astronomy/Astrophysics
Biology
Botany
Chemistry
Chemistry (ACS approved)
Communication
Environmental Geology/Geohydrology
Geography
Geology
Physics
Physiology
Political Science
Psychology
Wildlife and Fisheries Biology and Management
Zoology

Bachelor of Fine Arts

Studio Art
Theatre and
Dance

Visual Communication Design

Bachelor of Music

Music
Education

Music Jazz Performance
Music Performance

Graduate Degrees

Master of Arts

American Studies (*interdisciplinary*)
Anthropology
Communication
English
History
International Studies (*interdisciplinary*)
Political Science
Spanish

Master of Science

Botany
Chemistry
Geology
Geophysics
Natural Science (*interdisciplinary*)
Physics
Psychology
Zoology and Physiology

Master of Fine Arts in Creative Writing

Master of Music (In Performance)

Master of Music Education

Master of Public Administration

Master of Science in Teaching

Natural Science (*interdisciplinary*)
Physics

Doctor of Philosophy

Anthropology
Botany
Chemistry
Geology
Geophysics
Physics
Psychology
Zoology and Physiology

Minors in Arts and Sciences

The College of Arts and Sciences offers all university students systematic studies leading to recognized academic minors. Minors are available in all academic programs in the college and in a number of interdisciplinary areas.

A&S minors have two aims: to encourage students to create a focus for their course work outside their major by coordinating their elective studies; and to enhance chances of employment or graduate admission with a formally recognized field of study.

Minors consist of course requirements ranging from 18-24 credit hours of study, typically including significant work at the junior and senior level. A&S departments and programs offering minors and interdisciplinary degrees may have further conditions and restrictions regarding requirements in the minor. To be counted toward a minor, courses must be completed with a grade of C or better.

Students desiring a minor must notify the department in which the minor is offered. Forms for declaring a minor are available in the Office of the Registrar (167 Knight Hall) or on the Registrar's Web page. The department of the minor will assign an adviser.

For a description of the minors in A&S, see department offices or Web sites.

Minors available in the College of Arts and Sciences include:

African American and Diaspora Studies
American Studies
Anthropology

Biology
Botany
Chemistry

Communication and Journalism Department

Communication
Journalism
Marketing Communication
Public Relations

Creative Writing

Criminal Justice

Criminal Justice
Pre-law

English Department

Literary Studies
Professional Writing

Gender and Women's Studies

Gender and Women's Studies
Queer Studies

Geography
Geology
History

International Studies

Asian Studies
European Studies
International Studies

Latina/o Studies

Modern and Classical Languages Department

Chinese
Classical Civilization
French
German
Japanese
Latin
Spanish

Music
Native American and Indigenous Studies
Paleoenvironmental Studies (*interdisciplinary*)

Philosophy

Environmental Values
Ethics
Philosophy

Physics/Astronomy Department

Astronomy
Physics

Political Science

American Politics
International Relations and Comparative Government
Political Theory
Public Law

Psychology Department

Aging Studies
Psychology

Religious Studies
Remote Sensing
Sociology

Theatre and Dance Department

Dance
Theatre

Visual and Literary Arts Department

Art History
Ceramics

Digital Media

Drawing
Metalsmithing
Museum Studies

Painting
Photography
Printmaking
Sculpture

Zoology and Physiology Department

Human and Animal Physiology
Neuroscience

Wildlife and Fisheries Biology and Management

Zoology

College Degree Requirements- The 2015 A&S Core

Bachelor of Arts or Science Programs

Beginning fall 2015, new university and college general education curricula, the 2015 University Studies Program (USP) and the 2015 A&S Core, were implemented. Refer to the USP section of this *Catalog* for details regarding University Studies requirements.

Students who matriculate for the first time at UW or a Wyoming community college in fall 2015 or after are required to follow both the new USP and A&S Core. Students transferring from a Wyoming community college with an associate's degree and the Wyoming Core completed between May 2013 and fall 2015, may continue to complete the 2003 USP and 2003 A&S Core requirements (if there has been no interruption in their enrollment for a year or more). Students who matriculated at UW or a Wyoming community college prior to fall 2015 and choose the 2015 USP must also complete the 2015 A&S Core requirements. For additional information please refer to the sections in this *Catalog* that describe the university graduation requirements, the 2015 University Studies Program, and the policies for reenrolling at UW after an absence of a year or more.

I. College credit hour requirements

- A. **Minimum total semester hours 120**
- B. **Upper-division credit requirements (42).** Thirty of the 42 hours must be earned from UW. Courses must be taken for a letter grade unless offered for S/U only. This is an all-university requirement for all degree programs and may come from the courses that fulfill the USP, the A&S Core, the major, the minor, and electives.
- C. **Major field of study (30-60).** Credit hours in excess of 60 in the major subject may not be used to satisfy the requirement of 120 hours for graduation. Credits in AS internship, independent study or special topics courses (AS 2400, AS 2490, AS 4400, AS 4500, AS 4510, AS 4900, and AS 4975) may not be used to fulfill these outside the major requirements. At least 30 hours of C grade or better must be earned in the major subject (the major may require more). Courses in the major must be taken for a letter grade unless offered for S/U only.
- D. **A&S Core requirements (6).** Courses must be taken for a letter grade unless offered for S/U only.

All other university and college regulations apply. See "Graduation Requirements and Procedures" section of this *Catalog* for more information. Graduate level "Enrichment" courses do not count toward the requirements for a bachelor's degree.

II. 2015 A&S Core Curriculum

Graduates of the College of Arts and Sciences are expected to be liberally educated, to have the knowledge and skills to deal with the unexpected, and to see opportunities from multiple perspectives. To develop these abilities, the college faculty implemented the A&S Core.

The approved courses for the following requirements are searchable within WyoRecords under the Browse Classes feature.

1. **U.S. Diversity (ASD).** This requirement allows students to explore the complexity of cultural identities in the U.S. and interdependence of the cultures. Students will gain an understanding of the influences of categories such as race, class, ethnicity, gender, disability, sexual orientation, religion, and age on American behaviors, institutions, values, and beliefs.
2. **Global Awareness (ASG).** Because citizens ever more frequently encounter behaviors and practices based on beliefs, conditions, and assumptions different from their own, they need to understand the nature and function of culture. Our students should have an awareness of the multiple links that affect the living conditions and range of action of peoples of the world, including international systems of commerce, art, science, technology, politics, communication, belief, and justice, among other.

College Degree Requirements Prior to Fall 2015 for Continuing and Reenrolling Students

A&S Core requirements for a student continuing a degree program in effect at the time of matriculation at UW are found in the relevant previous *Catalog*. Contact the A&S Advising Center, Ross 6, 766-4013, asadvice@uwyo.edu.

Students who re-enter the university after an absence of a year or more should refer to other sections of this Catalog for university policies and procedures. Unless approved otherwise, reenrolling students, after a year's absence, are required to follow the University Studies and A&S Core requirements in effect the semester of their re-enrollment. However, all majors in A&S who have yet to complete the A&S Core, regardless of their initial enrollment, must refer to the current list of approved courses.

Checksheets and lists of courses that satisfy A&S college core requirements are available on the Web at www.uwyo.edu/as or in the A&S Advising Center, Ross 6, 766-4013, asadvising@uwyo.edu.

Departments and programs in the College of Arts and Sciences may require reenrolling students to complete requirements in the major that meet the current expectations of the discipline.

Transfer Students and Acceptance of Transfer Credit

The College of Arts and Sciences and its departments reserve the right to grant transfer credit toward the bachelor's degree only for those courses where a grade of C or better was earned. Students transferring credits from a university or college outside Wyoming with questions about how courses taken elsewhere fulfill the A&S Core may contact the A&S Advising Center, Ross 6, 766-4013, asadvice@uwyo.edu.

Courses Taken for S/U Credit

Students may include up to 20 semester credit hours in free electives with a grade of S as part of the total hours required by the College of Arts and Sciences for graduation. However, no S/U hours may be used to satisfy university and college core general education requirements or major requirements, including the required 42 upper-division credit hours unless the course is offered for S/U grading only.

Students registering in courses for S/U grades are subject to all general regulations.

Concurrent Majors

Students may pursue two or more majors simultaneously. With careful planning, A&S students may be able to use all or most of the free elective hours for requirements in the other majors. Refer also to the section, "Graduation Requirements and Procedures" in this *Catalog*.

The A&S Core must be met only once by students whose primary major is in the College of Arts and Sciences. Students whose degree programs are in other UW colleges are welcome to earn a concurrent major in A&S. These students do not have to meet the A&S Core requirements. The student earns one degree with one diploma.

Students pursuing a concurrent major must contact both departments involved for assignments to advisers.

Dual Degrees

Students may simultaneously pursue degrees in the same or more than one UW college. In addition to requirements described in the section "Graduation Requirements and Procedures" in this *Catalog*, students in another UW college who wish to earn a degree from A&S must also complete the A&S Core. A&S students working on dual degrees in the A&S College need to meet the A&S Core just once. A diploma is awarded for each degree.

Each additional degree requires 30 more credit hours added to the 120 credits to the primary degree. Of these 30 credits, 12 have to be at the 3XXX-4XXX levels.

Second Bachelor's Degrees

For students seeking a second bachelor's degree in the College of Arts and Sciences whose **first degree is from another university**, the minimum requirements include:

- 30 semester hours earned from the University of Wyoming, 12 of which must be upper division (3XXX-4XXX level) or graduate level (credit by examination does not count as UW hours).
- Completion of the U.S. and Wyoming Constitutions requirement (V courses in the University Studies Program course list in this *Catalog*).
- If the first degree is from an institution where English is not the predominant language, the COM1 and COM2 requirements of the University Studies Program must be completed successfully.
- Students must also meet the 2015 A&S Core requirements.

For students whose **first degree is from UW**:

- The additional required 30 hours (12 of these at the 3XXX-4XXX) are added to the degree requiring the least number of hours. For example, for a first degree A&S requires 120 hours. So the total credits a UW student would have to complete for the second bachelor's degree is a minimum of 150 credits. Since the University requires a total of 42 upper division hours for a degree, for the second degree from A&S, a UW student would need to earn a total of 54 hours at the 3XXX-4XXX level. For more information, please see the Second Bachelor's Degree entry in the section, "Graduation Requirements and Procedures" in this *Catalog*.
- Students whose **first degree is from another UW college** must meet the 2015 A&S Core requirements.
- In situations in which a student is subsequently required to take coursework from another collegiate institution to fulfill major and overall hour requirements for a second degree from the university, the student's department can ask the Office of the Registrar to load selected courses into the student's record.

Concurrent Major in Environment and Natural Resources

A student majoring in any A&S department/program may earn a double major by completing the courses required for the Environment and Natural Resource (ENR) program in addition to the requirements in their A&S major and the College A&S Core. The School of ENR Web site, <http://www.uwyo.edu/enr> has detailed information, or contact the School at (307) 766-5080.

Preprofessional Studies

The College of Arts and Sciences prepares students to enter professional schools through preprofessional programs of study described below.

Prelaw Study. Students usually need a bachelor's degree prior to beginning the study of law. There is no prescribed course of undergraduate study and no restrictions as to the field in which the degree is earned. However, to prepare for this competitive profession, prelaw students are advised to select courses that help to develop those talents and skills essential to the study and practice of law. Logical and critical thinking, conflict evaluation/resolution and effective verbal/nonverbal communication skills are essential. Additionally, students should understand the political, economic, social and cultural institutions and values that characterize human society. Rigorous courses in any discipline increase abilities in these areas. Regardless of the prelaw major, courses in the broad liberal arts--the sciences, social sciences, fine arts and humanities--increase understanding of the public's diverse interests and backgrounds.

Prelaw students do not have to declare a major at the time of first enrollment if they wish to explore options. Students who are undeclared in the College of Arts & Sciences are assigned advisers in the Advising, Career, and Exploratory Studies office until they decide upon a degree program. Please note that a prelaw minor is available.

In addition to an adviser in the major, prelaw students may contact the designated UW prelaw adviser for assistance in developing a program of study, for career counseling and for guidance in applying to law schools. Contact the A&S Advising Center, Ross 6, 766-4013, asadvise@uwyo.edu for information.

Detailed information about applying to law schools, the Law School Admissions Test (LSAT) and preparation materials, and links to other web sites are at www.LSAC.org.

Library Preprofessional Study. Librarians are information professionals who research, organize, and classify materials so the public can access information. Not only do they work with printed materials, but all the technological advances in digital media such as electronic databases and eBooks. Some librarians focus on teaching the public, scholars, and students how to access and use these materials, while others concentrate on collecting and maintaining these diverse resources. Librarianship offers many career opportunities to people of different academic backgrounds, interests, and talents. Most public, academic, and special libraries require a Master's degree in library science (MLS).

The degree programs and minors in the College of Arts and Sciences offer the variety of academic preparation expected by accredited library schools in the country. Most of the graduate schools in library science require a bachelor's degree, a good undergraduate record, and a reading knowledge of a foreign language for admission. The best undergraduate preparation includes a wide range of courses in the sciences, social sciences, and humanities along with a strong concentration in one subject area. The choice of a major will be determined by the student's academic interest and professional objective. The general education that the University Studies and the A&S Core require provide the well-rounded background graduate schools expect of their MLS candidates.

Additional information about library schools, their requirements, and programs as well as career opportunities may be obtained from the reference desk at Coe Library and the Center for Advising and Career Services. The U.S. Bureau of Labor Statistics "Occupational Outlook Handbook" at www.bls.gov/ooh/ has detailed descriptions of the varied work of librarians, working conditions, employment outlook, and sources for additional information.

Pre-Health Study. Students in several A&S majors may be working toward the following careers: athletic training, chiropractic, dentistry, medicine, occupational therapy, optometry, physical therapy, physician assistant, or public health. These professional schools are favorably impressed by a broad educational background, including a substantial number of non-science and science courses; therefore, students are well advised to look beyond the minimum requirements.

Students may select any major in which they are interested to discuss preparation for such careers. In addition to completing all university, college and departmental requirements, students must include in their curriculum the basic professional school requirements, including courses in biology, chemistry, math, and physics. Professional schools have other specific requirements and students should learn about any additional recommendations from those professional schools in which they are interested. We strongly suggest contacting the Pre-Health Advising office [College of Health Sciences, 110 Health Sciences, (307) 766-3878, or hsadvise@uwyo.edu] website: www.uwyo.edu/preprof/.

Common majors in the College of A & S for these preprofessional programs include Chemistry, Biology, Botany, Psychology, and Physiology. However, there are pre-health students in programs as diverse as theatre and dance and anthropology. Students need not declare a major immediately upon first enrollment. Advisers in individual departments can discuss options or if students wish to remain undeclared, they are advised in either the UW Advising, Career, and Exploratory Studies office or the Health Sciences Advising office.

The pre-health advisers in the College of Health Sciences have current information regarding professional school admission requirements, entrance examinations, programs in Western Interstate Commission on Higher Education (WICHE), the Wyoming Medical Contract Program WWAMI (affiliated with the University of Washington School of Medicine) and financial assistance for professional education. The website, <http://www.uwyo.edu/preprof/> includes additional information.

Internships

Many departments in the College of Arts and Sciences offer internships for academic credit, and some provide monetary compensation. Academic internships provide practical, hands-on experience in a professional job setting as a complement to classroom instruction. An internship can provide students with both insight and preparation for future jobs. All internships require a strong background in writing, organizational ability and analytic skills. Junior or senior standing is recommended.

Major

African American and Diaspora Studies, B.A.

African American and Diaspora Studies (AADS) offers undergraduates an opportunity to engage in an interdisciplinary examination of the history, culture, and life of African Americans and the African diaspora from ancient times to the present day.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an

opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

COM1 - Communication 1

Credits: 3
College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

A&S College Core

The College of Arts and Sciences requires:

- D - Diversity (3 credits)
- G - Global (3 credits)

Major Requirements

The B.A. in African American and Diaspora Studies consists of 35 credit hours:

Core Courses

15 credit hours of core course requirements:

AAST1000 - Introduction to African American Studies

Credits: 3

Surveys African presence in America. Selected teachings are designed to give the student a concise understanding of the heritage of African people in America.

USP 2003-2014 Code U3D
A&S College Core 2015 ASD

AAST2240 - Introduction to African Studies

Credits: 3

Confronts African stereotypes by exploring the continent's complex history and current affairs, with the help of different disciplinary perspectives, such as economics, political science, and anthropology. Equipped with the basics,

students will be primed to tackle more advanced courses on Africa.

Cross Listed INST 2240.
USP 2003-2014 Code U3WB
USP 2015 Code U5C2

AAST2360 - African American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed HIST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

AAST3130 - Global Impact of African Cultures

Credits: 3

Examines concepts of culture and value systems as applied to Africa and African-derived cultures and the impact on civilizations around the globe. Using the lens of the Diaspora, this course examines aspects of African culture on the African continent along with the traditions, experiences, socialization, and histories that continue for dispersed peoples of African descent.

USP 2003-2014 Code U3CS, U3G
Prerequisite: AAST 1000 or any AAST 2000-level course.

AAST4975 - Independent Research

Credits: 1-3
Max Credit (Max. 6)

Independent study in African American Studies.

Prerequisite: AAST 1000 and consent of instructor.

Lower Division Course

3 or 6 credit hours of a lower division (1000- or 2000- level) AAST course, excluding core courses. Chose one OR two of the following:

AAST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional

discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities. Enrollment preference will be given to We The People FIG students.

Cross Listed NAIS 1030 /AMST 1030 / WMST 1030/LTST 1030.

USP 2003-2014 Code A3D, U3I

A&S College Core 2015 ASD

or

AAST1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

or

AAST2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed ENGL 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

or

AAST2360 - African American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed HIST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5C2

A&S College Core 2015 ASD

or

AAST2370 - Blues and African American Lit

Credits: 3

Max Credit 3

This course examines scholarship on blues music (the first form of African American popular music) as well as literature that employs blues themes. Specific attention is given to the discourse of authenticity

Cross Listed ENGL 2370

or

AAST2450 - Traditional African Religion

Credits: 3

Surveys traditional religions of Africa, both ancient and contemporary.

Cross Listed RELI 2450.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

or

AAST2990 - Topics:

Credits: 1-3 or 3

Accommodates seminar series and/or course offerings including those by interdisciplinary teams and visiting faculty in African American & Diaspora Studies not covered by program courses.

USP 2003-2014 Code U3D

Upper Division Courses

6 or 9 credit hours of upper division (3000- or 4000-level) AAST courses. Choose two OR three of the following:

AAST3000 - African American Studies in Music

Credits: 3

Surveys African American music from its origins in Africa to current, popular jazz, rock, soul and rap forms.

USP 2015 Code U5H

or

AAST3010 - The African American Aesthetic

Credits: 3

Examines interrelationship of the creative process with cultural and philosophical motifs, as well as the spiritual and the artistic amongst African people on the continent and Diaspora.

Prerequisite: AAST 1000 or any AAST 2000-level course.

or

AAST3130 - Global Impact of African Cultures

Credits: 3

Examines concepts of culture and value systems as applied to Africa and African-derived cultures and the impact on

civilizations around the globe. Using the lens of the Diaspora, this course examines aspects of African culture on the African continent along with the traditions, experiences, socialization, and histories that continue for dispersed peoples of African descent.

USP 2003-2014 Code U3CS, U3G

Prerequisite: AAST 1000 or any AAST 2000-level course.

or

AAST3260 - African Spirits in the New World

Credits: 3

Begins with Yoruba roots in Africa travels with the African Diaspora focusing on spirit possession in Haitian Vodou, Cuban Santeria, Jamaican Revival Zion, Jamaican Rastafarianism, Brazilian Candomblé, and "Black Church" in the United States using ethnography and postcolonial theory of religious studies.

Cross Listed RELI 3260.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: AAST 1000 or any AAST 2000 level course or RELI 1000.

or

AAST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed HIST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/ HIST 2360.

or

AAST3933 - African Philosophy

Credits: 3

Examines the work of philosophers of Africa, of African descent and others who deal with the African diaspora. Topics include the nature of African philosophy and the African American struggle, African colonialism, philosophy, political philosophy and gender, traditional African thought.

Cross Listed INST 3933 /PHIL 3933.

USP 2015 Code U5H

A&S College Core 2015 ASG

Restricted Restricted to junior or senior class standing.

Prerequisite: A prior course in AAST, INST or PHIL.

or

AAST4000 - Black Freedom Movement, AAST 1955- Present

Credits: 3

Presents the struggle of African Americans for self-definition, self-development, and self-determination from the inception of the modern civil rights movements to the contemporary period.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 USD

Prerequisite: 3 hours of AAST courses.

or

AAST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed HIST 4020.

USP 2003-2014 Code U3D, U3CH

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

or

AAST4050 - Development, Africa, and Culture

Credits: 3

Focuses on the complex and checkered relationships between Western-inspired development and African cultures. Striking a balance among ethnographic case studies, theoretical lenses, and practical implications, understand what Euro-American efforts at foreign development, including contemporary globalization, look like from an African perspective. Provides an understanding of African expectations of development and developers.

Cross Listed INST 4050.

Dual Listed AAST 5050.

Prerequisite: junior standing and instructor consultation.

or

AAST4100 - African American Religious Culture

Credits: 3

Mid-level writing-intensive seminar. Comparative study of African American religious celebration, primarily in the context of Afro-Christianity, but touching on Islam, Candomble, "Voodoo," Santeria, and Rastafarianism.

Cross Listed RELI 4100.

USP 2003-2014 Code WC, D
USP 2015 Code COM3
A&S College Core 2015 ASD

Prerequisite: WB and one of the following: AAST 1000 or any AAST 2000-level course or RELI 1000.
or

AAST4160 - African American Rhetoric

Credits: 3

African American discourse and its relationship to equality and participation. Through examination of various media, music, speeches, and art this course uses the struggle of African Americans as an instructive exemplar, to come to terms with the philosophical concepts, political issues, moral complexities, and discursive characteristics of African American Rhetoric.

Cross Listed COJO 4160.

Dual Listed AAST 5160.

USP 2003-2014 Code U3D, U3CH

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 9 credit hours in AAST or COJO.
or

AAST4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society. Cross-listed with COJO 4233 and GWST 4233; dual-listed with AAST 5233.

USP 2003-2014 Code U3WC
USP 2015 Code U5WC, U5C3
A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.
or

AAST4250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U. S. , including Africa and the Caribbean.

Cross Listed AMST 4200.

Dual Listed AMST 5250.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Former Course Number [AAST 4200]

Prerequisite: AAST 1000, AMST 2010, AMST 2110, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

or

AAST4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed COJO 4260.

Dual Listed AAST 5260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [AAST 4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

or

AAST4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed Cross list with ENGL 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

or

AAST4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed ENGL 4455.

Dual Listed AAST 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

or

AAST4675 - USWomen of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed LTST 4675 /GWST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: junior standing and/or a combination of

or

AAST4970 - Internship in AAST

Credits: 1-12

Designed for students to utilize the knowledge and skills obtained in their program of study to be applied at an organization or institution. Students will provide a job description, sign an internship contract, keep daily work journals, provide work samples, submit a paper, and include a final evaluation by their Internship supervisor.

Prerequisite: 9 hours in AAST courses.

or

AAST4975 - Independent Research

Credits: 1-3

Max Credit (Max. 6)

Independent study in African American Studies.

Prerequisite: AAST 1000 and consent of instructor.

or

AAST4990 - Topics:

Credits: 3

In-depth study of a topic not offered as regular course.

Prerequisite: COM1.

Foreign Language

8 credit hours of a single foreign language. The courses below list some, but not all, possible options:

ARBC1010 - First Year Arabic I

Credits: 4

Introduces beginning language learners to the Arabic writing system and provides opportunities for developing the four basic language skills (listening, speaking, reading, and writing) at word, phrase and sentence levels.

USP 2015 Code U5H

and

ARBC1020 - First Year Arabic II

Credits: 4

Introduces beginning language learners to the fundamentals of Modern Standard Arabic and provides opportunities for developing the four basic language skills (listening, speaking, reading, and writing) and practicing them in a variety of academic contexts.

USP 2015 Code U5H

Prerequisite: ARBC 1010 or LANG 1010.

or

FREN1010 - First Year French I

Credits: 4

Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

and

FREN1020 - First Year French II

Credits: 4

Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: FREN 1010 or two years of high school French.

or

GERM1010 - First Year German I

Credits: 4

Explores fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

and

GERM1020 - First Year German II

Credits: 4

Examines fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: GERM 1010 or two years of high school German.

or

JAPN1010 - First Year Japanese I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered fall semester)

USP 2015 Code U5H

and

JAPN1020 - First Year Japanese II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: JAPN 1010 or equivalent.

or

LATN1010 - First Year Latin I

Credits: 4

Studies fundamentals of grammar, composition and reading.

When Offered (Offered fall semester)

USP 2015 Code U5H

and

LATN1020 - First Year Latin II

Credits: 4

Studies fundamentals of grammar, composition and reading.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: LATN 1010 or equivalent.

or

SPAN1010 - First Year Spanish I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H
and

SPAN1020 - First Year Spanish II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: SPAN 1010 or two years of high school Spanish.

Additional Requirements

Grade Requirements

AAST classes applied to AAST degrees must be passed with a grade of C or better.

Additional Information

In order to provide a broader range of relevant and enriching courses, in any given year the program in AAST offers topics courses and courses cross-listed with other majors and departments.

American Studies, B.A.

Explore cultural experiences past and present through interdisciplinary study of American lives, communities, and ideas. Writing, critical thinking, and internship opportunities prepare you for careers in education, law, business, community non-profits, public institutions, or graduate study. Flexible 2nd major for any field and for transfer students.

Additional Information

Undergraduate Major

The American Studies B.A. frames and develops each student's individual interests, and allows students to include courses from any program and department that sustain a student's engagement with their particular emphasis. Individual programs of study are as varied as our students.

We value each student as a person, and understand that an education is much more than a list of courses. Our advising is central in supporting each student's path and success through the major and beyond the degree.

Examples of concentrations that draw on courses outside American Studies - interests which we then integrate in our independent studies, internships, and the senior seminar - include sports studies, popular music history, comparative

ethnic studies, marketing, military history, sustainability, disability advocacy, museum studies, philosophy of science, environmental studies, public health and social justice, and the U.S. in international perspectives. Each student develops a concentration of study with their American Studies advisor with ample room to combine courses and interests into a coherent undergraduate education.

The American Studies B.A. can be an attractive second major for students in any UW degree program where cultural context enriches and expands work in their professional or scholarly field. The flexible nature of our B.A. allows us to work effectively with students changing majors at any point in their undergraduate experience as well as transfer students.

Program Learning Outcomes

Students graduating with a B.A. in American Studies integrate study from several fields with their study in American Studies courses, in individual programs of study. The American Studies B.A. prepares students to enter graduate and professional programs, enter education certification programs, and work in community organizations and other public professional settings. Coursework in American Studies prepares students to:

- Interpret American experiences and creative expressions by applying appropriate approaches to words, narratives, images, material objects, communities, built environments, cross-cultural comparison, continuities and discontinuities with the past in a range of American cultural settings.
- Understand the processes of diversity experience including their own, through study of identity formation, performance of identity, stereotyping, contact, memory, and national identity.
- Demonstrate critical analysis, interpretation, or insight, through effective communication primarily in writing but also in speaking (when appropriate, performance or display may embody these as well), as demonstrated in analytically coherent interpretive writing, authoritative, informed oral presentation, and well-documented, visually effective performance or display (where appropriate).
- Apply American Studies methods field-based courses and/or internships, through use of Studies approaches and competencies in non-classroom settings, as demonstrated in field course or internship evaluations and students' final reports.

Internship

The internship experience is essential for students specializing in public sector American studies. The American Studies program has an active program of scholarship-supported internships that can place students in work environments in Wyoming, other parts of the U.S., or in selected foreign countries.

Language

Because American Studies is both an international field with scholars all over the world, and the U.S. has transnational significance, **we strongly encourage students to take 2 years of language study** to achieve meaningful access to skills as readers, scholars, and travelers, and consider participating in an international exchange. Some languages currently in demand by American Studies students include Spanish, Arabic, and Japanese.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.
ENGL 1010

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

College of Arts and Sciences Core

College of Arts and Sciences Core

D - Diversity Credits: 3

G - Global Credits: 3

Curriculum

Through the following curriculum, students develop individual programs of study, with their advisers, to understand and engage American cultures.

Students pursuing Program Honors should also write an undergraduate thesis. Contact the Program Director for more details.

Foundation (12 credit hours)

- AMST2010 - Introduction to American Studies (3 credit hours)
- One course at the 1000- or 2000-level in an interdisciplinary field, including American History, or from departments and programs such as AADS, ENR, INST, GWST, LTST, NAIS, RELI, or appropriate courses transferred from other institutions, to be named in the program of study in consultation with an American Studies advisor. (3 credit hours)
- Two courses at any level outside AMST, from programs in The School of Culture, Gender, and Social Justice or appropriate substitutes in consultation with an American Studies advisor. (6 credit hours)

Concentration (27 credit hours)

Core (9 credit hours)

Each student must take three AMST courses at the 3000-4000 level, excluding the senior seminar. These seminars are designed to maintain an interdisciplinary view of American culture and to foster an American Studies community. (9 credit hours)

Theme (18 credit hours)

An American Studies theme is devised, in consultation with the student's adviser. Typical themes include: American diversity, environment and society, material culture and everyday life, visual culture and media, American cultural history, American institutions and public culture, the United States in international perspective. The theme must include a minimum of 6 credit hours and a maximum of 9 credit hours in a single discipline. Up to 3 credits can be granted for courses at the 1000-2000 level. (18 credit hours)

Capstone (6 Credits)

As part of the 6 credit hours of senior capstone requirements, each student must complete 3 credit hours of Senior Seminar. The additional 3 credit hours can be through either Independent Study or Internship.

AMST4985 - Senior Seminar

Credits: 3

With AMST 4010 or AMST 4970, completes the capstone coursework in AMST. Identifies a broad intellectual tradition in American Studies as foundation for student's research interests; builds a specific scholarly context appropriate to student's research; culminates in a substantial piece of written research appropriate in an identified subfield of American Studies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: senior standing in American studies or consent of program director.

AND

AMST4010 - Independent Study

Credits: 1-3

Max Credit 6

For upper division students in any major who can benefit from independent study in American Studies with minimal supervision.

Dual Listed AMST 5010.

Prerequisite: 3 hours in American Studies and approval of instructor.

OR

AMST4970 - Internship

Credits: 1-3

Max Credit (Max. 6)

Gives undergraduate students practical experience by working on a project at a public institution, agency or educational/cultural organization. Offered for S/U only.

Prerequisite: junior standing, completion of AMST 2010 and 12 hours in major and consent of instructor.

Anthropology, B.A.

Anthropology students will be able to demonstrate knowledge about the four subfields of anthropology. They will have participated in research and will be able to analyze and synthesize in relation to anthropological issues or theories.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Specific Requirements for a B.A.

In addition to university and college requirements listed in this *Catalog*, anthropology majors must complete two semesters of foreign language. ANTH 1100 and ANTH 1300 cannot be used to fulfill the USP PN requirement. ANTH 3300 and ANTH 3310 require an additional 1 hour of ANTH 4975.

ANTH1100 - Introduction to Biological Anthropology

Credits: 4
Basic concepts relating to the origin, evolution and biological nature of the human species.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

ANTH1300 - Introduction to Archaeology

Credits: 3

Explores ways in which prehistoric material remains can provide an understanding of the cultural way of life. General background in archaeological method and theory is used to examine case studies from throughout the world, based on themes such as ceramic technology and artistry development, growth of early civilizations and North American prehistory.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5PN
A&S College Core 2015 ASG

ANTH2000 - Introduction to Linguistic Anthropology

Credits: 3

Demonstrates the interrelationship of language, human biology, and culture at the introductory level. Linguistic anthropological methods and theories are used to examine linguistic behaviors used throughout the world.

USP 2003-2014 Code U3L
USP 2015 Code U5C2

Prerequisite: ANTH 1100, ANTH 1200 or ANTH 1300.

ANTH3300 - Ethnographic Methods in Anthropology

Credits: 3

Introduces anthropology majors to ethnographic fieldwork, the fundamental method in cultural anthropology. Students conduct fieldwork and discuss research problems including ethics and the role of the researcher. Open to students in related fields of humanities and social sciences.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB
USP 2015 Code U5C3

Prerequisite: ANTH 1200.

OR

ANTH3310 - Introduction to Anthropology Research Methods

Credits: 3

Introduces anthropology majors to use of the discipline's scientific method through problem formation, research data acquisition and research techniques used by anthropologists.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, ANTH 1200, and ANTH 1300.

Additional Requirements

In addition to university and college requirements listed in this Catalog, anthropology majors must complete two semesters of foreign language. ANTH 1100 and ANTH 1300 cannot be used to fulfill the USP PN requirement. Specific requirements for a B.A. in anthropology are ANTH 1100, 1200, 1300, and 2000. Students must complete ANTH 3300 or 3310. Students must complete ANTH 3300 or ANTH 3310. ANTH 3300 and ANTH 3310 require an additional 1 hour of ANTH 4975. Also required are an additional 21 credits of upper division anthropology for a total of 25 upper division (3000+) credits within the major, including at least one course from three different subfields (cultural anthropology, linguistic anthropology, biological anthropology, and archaeology). Courses that can be used to fulfill upper division cultural anthropology are ANTH 4023, 4300, 4310, 4320, 4325, 4330, 4340, 4350, 4380, 4020 (with instructor's consent). Courses that can be used to fulfill upper division linguistic anthropology are ANTH 4024, 4740, 4765, 4775, 4785, 4795, 4020 (with instructor's consent). Courses that can be used to fulfill upper division biological anthropology are ANTH 4022, 4210, 4215, 4220, 4230, 4255, 4260, 4020 (with instructor's consent). Courses that can be used to fulfill upper division archaeology are ANTH 4021, 4110, 4115, 4120, 4125, 4130, 4145, 4150, 4160, 4170, 4175, 4020 (with instructor's consent), or six credits of archaeological field school (ANTH 4140 or 5180). It is recommended that anthropology majors take ANTH 1101 to fulfill the First-Year Seminar requirement, but it is not required that students take this particular First-Year course. It is also recommended but not required that students complete a course in statistics (STAT 2050 or 2070) and a third semester of foreign language. Courses required by the department for the major and minor must be completed with a grade of C- or better.

Upper Division Cultural Anthropology

Courses that can be used to fulfill upper division cultural anthropology are

ANTH4023 - Seminar in Cultural Anthropology

Credits: 3

Considers current topics of interest within cultural anthropology.

Prerequisite: ANTH 1200.

ANTH4300 - Anthropology of Religion

Credits: 3

Provides a comparative anthropological study of religious systems, emphasizing analysis of symbolism, myth and ritual.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4320 - Political Anthropology

Credits: 3

Encompasses theories and descriptions of relationships between power and society in both less formal tribal contexts and more highly structured political institutions.

Dual Listed ANTH 5320.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4325 - Symbolic Anthropology

Credits: 3

Teaches several anthropological approaches to symbolic and cultural analysis, while reading ethnographic examples of how symbolic analysis can be used to understand different cultures. Coursework assumes a basic knowledge of social science concepts.

Prerequisite: ANTH 1200 or SOC 1000.

ANTH4330 - Social Organization

Credits: 3

Provides theories of social organization, interrelations of social institutions, and current anthropological methods of interpretation.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4340 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology.

Dual Listed ANTH 5340.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4350 - Medical Anthropology

Credits: 3

Understandings of health and illness vary widely. Taking a comparative historical approach, examines how an individual's interactions with sociocultural and physical environments influence the experiences of health and illness. Topics include symbolic healing, biomedicine as a cultural system, disease and international development, global politics of AIDS and other pandemics.

Dual Listed ANTH 5350.

Prerequisite: ANTH 1200 or SOC 1000.

ANTH4380 - Visual Anthropology

Credits: 3

Offers anthropological interpretation of visual representations and media, including analysis of the development of ethnographic films and their contemporary use. Visual representations of many cultures as well as mainstream United States examples are analyzed.

Prerequisite: ANTH 1200.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

Upper Division Linguistic Anthropology

Courses that can be used to fulfill upper division linguistic anthropology are

ANTH4024 - Seminar in Linguistic Anthropology

Credits: 3

Considers current topics of interest within linguistic anthropology.

Prerequisite: ANTH 2000.

ANTH4740 - Native American Languages and Cultures

Credits: 3

Demonstrates the interrelationship of language and culture in several Native American communities. Examines anthropological and linguistic theories regarding language spread and the peopling of North America, narrative performance, translation, and the connection between linguistic structures and cultural features.

Cross Listed NAIS 4740.

Dual Listed ANTH 5740.

Prerequisite: ANTH 2000 or consent of instructor.

ANTH4765 - Language Humor and Games

Credits: 3

This course examines various forms of language play and the role of language characteristics (ambiguity, phonology, homophony, etc.) in creating humorous utterances and texts. Anthropological understandings of humor and its use also will be explored. Students will construct and analyze forms of humor throughout the course.

Dual Listed ANTH 5765.

Prerequisite: ANTH 2000 or consent of the instructor.

- ANTH 4775

ANTH4785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 5785.

Prerequisite: ANTH 1200 or ANTH 2000.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

Upper Division Biological Anthropology

Courses that can be used to fulfill upper division biological anthropology are

ANTH4022 - Seminar in Biological Anthropology

Credits: 3

Considers current topics of interest within biological anthropology.

Prerequisite: ANTH 1100.

ANTH4210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 5210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH4215 - Hominin Evolution

Credits: 3

Surveys hominin fossil record in context of evolutionary process, stressing structure-function and the dynamics of adaptive responses.

Dual Listed ANTH 5215.

When Offered (Normally offered every third semester)

Former Course Number [4200]

Prerequisite: ANTH 1100.

ANTH4220 - Human Variation

Credits: 3

Studies human biological variation as viewed from the anthropological perspective. Focuses on populational variation among humans in terms of genetic, morphological, and acclimatized characteristics with particular focus on the interaction of biology and culture in shaping these variations.

Dual Listed ANTH 5220.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1100.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

ANTH4255 - Bioarchaeology

Credits: 3

Study of the human skeleton in archaeological context to reveal the biological and cultural pasts of individuals and communities. Using case studies, covers the history of the field, ethics of working with human remains, theoretical and methodological approaches to mortuary archaeology. Gain hands-on experience by working with specimens from the UWyoming Human Remains Repository.

Dual Listed ANTH 5255.

Prerequisite: ANTH 1100 or ANTH 1300.

ANTH4260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 5260.

Prerequisite: ANTH 1100 or ANTH 1200.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

Upper Division Archaeology

Courses that can be used to fulfill upper division archaeology are

ANTH4021 - Seminar in Archaeology

Credits: 3

Considers current topics of archaeological interest.

Prerequisite: ANTH 1300.

ANTH4110 - Zooarchaeology I

Credits: 3

Introductory level seminar in the archaeological analysis of faunal materials. Emphasis is on identification and curation of bones from archaeological and Late Pleistocene paleontological contexts, including their use in the interpretation of prehistoric and historic human behavior, the investigation of paleoenvironmental conditions and paleoecological relationships and problem-oriented taphonomic research.

Dual Listed ANTH 5110.

Prerequisite: ANTH 1300.

ANTH4115 - Lithic Analysis

Credits: 3

An overview of the analysis of stone tools and waste flakes from archaeological sites. Emphasizes appropriate use of typology and methods of debitage analysis.

Dual Listed ANTH 5115.

Prerequisite: ANTH 1300 and 9 additional hours in anthropology.

ANTH4120 - North American Archaeology

Credits: 3

Studies North American prehistory from the earliest evidence to historic times.

Dual Listed ANTH 5120.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1300.

ANTH4125 - Northwestern Plains Prehistory

Credits: 3

Northwestern Plains archaeology from the Paleoindian period to historic contact. A review of important sites and artifact types, ongoing UW research projects, regional and other expressions of ideology, Native American ethnohistory and contemporary perspectives, and historic preservation issues.

Dual Listed ANTH 5125.

When Offered (Normally offered every third semester)

Former Course Number [4100]

Prerequisite: ANTH 1300.

ANTH4130 - Old World Archaeology

Credits: 3

Surveys major archaeological sequences of the Old World.

Dual Listed ANTH 5130.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1300.

ANTH4145 - Origins of the State

Credits: 3

This course takes a comparative approach to the study of the origins of the archaic states. Focus is given to themes in complexity such as emergence of social economic inequality, private property, power, ideology, and urbanism. Comparative civilizations/regions include China, Mesopotamia, Egypt, Central Mexico, and Peru.

Dual Listed ANTH 5145.

Prerequisite: ANTH 1300.

ANTH4150 - Seminar in Prehistory

Credits: 1-3

Max Credit (Max. 9)

Covers the prehistory of a specified region or time period within that region. Emphasizes learning prehistoric sequences, material culture, and research questions associated with the topic. Topics include, but are not limited to, Paleoindian, Archaic, Siberian, Northern Plains, Great Basin, Rocky Mountain, or Southwestern Archaeology.

Dual Listed ANTH 5150.

Prerequisite: ANTH 1300.

ANTH4160 - GIS in Anthropology

Credits: 4

Introduction to how and why geographic information systems (GIS) are used in anthropology. Considers: 1) background, definitions, and concepts of geographic data and GIS; 2) Anthropological and archaeological approaches to GIS; and 3) hands-on-experience with GIS applications in archaeology through demonstrations, lectures, and structured inquiries.

Dual Listed ANTH 5160.

Prerequisite: ANTH 1200, or ANTH 1300.

ANTH4170 - Geoarchaeology

Credits: 3

Introduces students to theory and method in geoarchaeological research. Emphasis is placed upon geomorphical processes of archaeological site formation and paleoenvironmental reconstruction.

Dual Listed ANTH 5170.

Prerequisite: ANTH 1300.

ANTH4175 - South American Prehistory

Credits: 3

Intensive study of the archaeology of South America covering its entire prehistory from first peopling at perhaps 14,000 years ago, to the colonial period. The course focuses not only on the well known Andean cultures, but also on the archaeology of the entire continent.

Dual Listed ANTH 5175.

Prerequisite: ANTH 1300.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

OR

- Six credits of archaeological field school (ANTH 4140 or ANTH 5180).

Recommended

It is recommended that anthropology majors take ANTH 1101 to fulfill the First-Year Seminar requirement, but it is not required that students take this particular First-Year course. It is also recommended but not required that students complete a course in statistics (STAT 2050 or STAT 2070) and a third semester of foreign language. Courses required by the department for the major and minor must be completed with a grade of C- or better.

A&S College Core

The BA in Anthropology requires the A&S Core:

- D - Diversity (3 credits)
- G - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Art Education, B.A.

The BA in Art Education is a professional level degree preparing students to be reflective, innovative and engaged K-12 art educators. The curriculum includes extensive Studio Art competencies and studies in Art History and Professional Education.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Art Education** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA
required

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

required

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

required

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular units, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.
required

Studio Core: 12 Hours

12 credits chosen from the below. At least one core course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramics class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel)

including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Art History Core: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

Upper Division Art History: 6 hours

6 credits of upper division art history beyond ART 2010 and ART 2020

Upper Division Studio Electives: 12 Hours

12 credits of any upper division studio art classes

Art Education Program Requirements

Minimum Course Requirements for B.A. in Art Education

Minimum course requirements for Art Education Majors follow the curriculum plan for the B.A. in Studio Art Degree:

- University and College requirements,
- Foundations Core,
- Art History Core,
- Studio Core
- Upper Division Studio Electives.

The exception that there is no Foreign Language requirement. Students are required to apply for a Wyoming Substitute Teaching Certificate in the fall of their first semester in the program. Additional requirements are:

Professional Education Courses: 10 Hours

EDST 2480: Diversity and the Politics of Schooling Credits: 4

required

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

required

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the

history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.
required

Art Education Courses: 27 Hours

ART3430 - Methods I

Credits: 3

Students investigate ways to translate art making practices and media into K-12 arts curricula and develop effective approaches to teaching these to the K-12 learner. Students create and teach lesson plans based on what they learn through their explorations; they also create their own artwork inspired by their studio investigations.

Restricted Restricted to junior class standing.

Prerequisite: ART 2000.
required

ART3490 - Philosophy, Theory and Issues

Credits: 3

Students explore the foundational elements involved in the history and philosophies of Art Education and the key issues that shape contemporary approaches to teaching in the field. These investigations are undertaken to support students' developing teaching philosophies and inform the connections between their teaching and creative practices.

USP 2003-2014 Code U3CH

USP 2015 Code U5C2

Restricted Restricted to junior class standing.

Prerequisite: ART 2000.
required

ART3550 - Art Education Practicum

Credits: 1-3

Max Credit (Max. 3)

Practicums are integral to an art education student's development as a teacher. They offer opportunities for immersion and hands-on teaching experiences in art classrooms guided by experienced teachers in the field and the UW faculty. Students develop skills and teaching strategies that complement classroom learning and strengthen their teaching practices.

Prerequisite: ART 3430 and ART 3490.
required

ART4440 - Methods II

Credits: 3

Students incorporate their understanding of the stages of artistic development with essential components of curriculum design to create lesson plans that engage the K-12 student in student-directed, holistic learning in the visual arts. Another component of the course is professional practice that includes classroom management and preparing professional portfolios.

Restricted Restricted to senior class standing.

Prerequisite: ART 3430 and ART 3490.

required

ART4460 - Curriculum Design

Credits: 3

Students develop a thorough knowledge of all the components of curriculum design in Art Education and will create a unit of instruction that includes a focus on enduring understandings, clarity of learning objective, assessment for the visual arts, instructional strategies, differentiation, and alignment with standards.

Restricted Restricted to senior class standing.

Prerequisite: ART 3430 and ART 3490.

required

ART4810 - Residency for Elementary

Credits: 6

This is an eight-week residency for teaching art full time at the elementary level. Students team-teach with an experienced mentor teacher, taking on considerable responsibility for all aspects of teaching art. Upon successful completion of this course and ART 4820 , students are certified in Wyoming to teach K-12 Art. Satisfactory/Unsatisfactory only.

Prerequisite: ART 4440 and ART 4460

required

ART4820 - Residency for Secondary

Credits: 6

This is an eight-week residency for teaching art full time at the secondary level. Students team-teach with an experienced mentor teacher, taking on considerable responsibility for all aspects of teaching art. Upon successful completion of this course and ART 4810, students are certified in Wyoming to teach K-12 Art.

Prerequisite: ART 4440 and ART 4460.

required

Studio or Art History Elective, any level: 3 Hours

**3 units of course in Studio Art or Art History at any level*

Additional Requirements

B.A. IN ART EDUCATION DEGREE

The BA in Art Education degree supports students' development as reflective, innovative and engaged K-12 art educators. The curriculum encompasses extensive Studio Art competencies as well as studies in Art History and Professional Education. Art Education courses cover a variety of teaching practices and methods of curriculum development that include interdisciplinary, multicultural approaches to teaching and emphasize relevance to the lives of K-12 students and the realities of our contemporary world. In-class learning is augmented with firsthand teaching experiences in local and regional schools, the University of Wyoming Art Museum, and includes teaching people of all ages in community-based arts settings. Upon graduation from our program, students earn Wyoming licensure for teaching K-12 Art.

Degree Requirements

Requirements of the degree include:

- 120 hours, including 91 hours within the major
- C or better in all courses taken to satisfy Major requirements
- Background check for all incoming art education degree students required prior to enrollment
- Application for art education degree is due prior to enrollment in Art Education courses
- 2.75 UW Total Institution GPA must be maintained throughout the Art Education Program of study
- 2.75 GPA within the major must be maintained throughout the Art Education Program of study
- UW Transfer Art Residency Requirement for transfer of 12 or more art credit hours into department: 26 upper division hours of UW Art courses
- Score of 158 or above on the on the Praxis II Test: Art Content and Analysis by the end of the Residency semester
- As a Professional Degree, the BA in Art Education does not include the A&S Outside Major credit requirement.

Application

Students must fulfill the requirements listed in the *Application for the Art Education Program Checklist*:

- Satisfactory Completion of ART 2000 Portfolio Review
- C or above in all Education Courses
- C or above in all Art Content Courses
- Junior Standing (60+ credits)
- 2.75 or above overall UW total institutional GPA
- 2.75 or above in Major courses
- Completed background check

Probation, Removal, and Re-Application

- An Institutional and/or Major GPA below 2.75 mandates a probationary semester in the program (continuing with art ed courses) to raise GPA back up to 2.75 to continue
- If Institutional and Major GPA are not both above 2.75 by the end of the probationary semester, the student will be removed from the program
- Students may re-apply after removal from program if their GPA is again at or above 2.75

Art History, B.A.

The Art History B.A. offers students a broad understanding of world art, historiography, and professional practices related to the field. Closely linked to the Museum Studies minor, this degree prepares students for graduate work or the work force.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Art History** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Program Requirements

Requirements of the degree include:

- 120 hours, including 57 hours within the major
- All Art courses must be passed with a letter grade of C or better
- 2.50 GPA within major required
- 2.50 or above overall UW total institutional GPA
- UW Transfer Art Residency Requirement for transfer of 12 or more art credit hours into department: 26 upper division hours of UW Art courses

Art History Core: 12 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

required

ART2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ANTH 2700/HIST 2700.

USP 2003-2014 Code U3CH

required

Upper Division Electives: 30 Hours

*30 units - with the following stipulations:

15 hours 3000 or 4000 level Art History Courses

6 hours of ART 4790 Art Seminar

6 hours of upper division art history taken in other departments with cross listed courses

Courses in other disciplines as applicable

Honors Courses as applicable (Honors Program)

Potential other courses on a case by case basis in consultation with art history advisor

3 credits Internship or Art History travel course in consultation with art history advisor

Cross listed and applicable courses

*6 hours of upper division art history may be taken in other departments with cross listed courses (that may have prerequisites other than Art History).

ART4830 - Victorian Women's Lives: Their Art, Literature and Culture

Credits: 3

Interdisciplinary approach to study of women's issues in art. Uses literary/cultural texts to reinforce/contradict and/or expand/enlarge the art historical basis. Topics include domestic goddess, working women, prostitution, education, marriage and divorce.

Cross Listed ENGL 4830/GWST 4830.

When Offered (Normally offered every sixth semester)

USP 2003-2014 Code U3CA

A&S College Core 2015 ASG

Prerequisite: Either ART 2020 or GWST 1080/ENGL 1080.

OR

GWST4830 - Victorian Women's Lives: Their Art, Literature and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage and divorce.

Cross Listed ART 4830/ENGL 4830.

Dual Listed GWST 5830.

When Offered (Offered every other year)

A&S College Core 2015 ASG

Prerequisite: Either ART 2020 or GWST 1080/ENGL 1080.

ART4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the 20th century.

Cross Listed GWST 4780.

When Offered (Normally offered fall semester)

Prerequisite: ART 2010 or ART 2020 or 3 hours of WMST courses; and WB.

OR

GWST4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the twentieth century.

Cross Listed ART 4780.

Dual Listed GWST 5780.

Prerequisite: ART 2010 or ART 2020 or 3 hours of Women's Studies courses; and WB.

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

AMST4250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U.S., including Africa and the Caribbean.

Cross Listed AAST 4250.

Dual Listed AMST 5250.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, AMST 2010, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

AMST4640 - Art and Ecology

Credits: 3

Focuses on the intersection of contemporary art with ecological concerns. Readings present philosophical, historical and cultural aspects of the art/ecology relationship; students reflect and question their own beliefs. Examples of art/artists are reviewed as well as how ecological artwork is developed. Students propose solutions and/ or create art in, out of, or about the environment; local sites are encouraged.

Prerequisite: 6 hours of ART and/or AMST or consent of the instructor.

OR

- ART 4640 - Art and Ecology Credits: 3
- Special Topics in American Studies including travel courses (as appropriate)
- Special topics in Classical and Modern Languages-including travel courses (as appropriate)
- HIST 4070 - History of the Book
- HIST 4075 - History of the Book
- HIST 4076 - History of the Book

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

Art Seminar

*6 hours of ART 4790 Art Seminar (fulfills USP COM 3 requirement)

ART4790 - Art Seminar

Credits: 1-3

Special topic in art history and criticism for advanced students.

When Offered (Offered based on sufficient demand and resources)

USP 2015 Code U5C3

Prerequisite: 6 hours in art history.
required

Upper Division Art History: 15 hours

*15 hours 3000 or 4000 level Art History Courses

Internship or Travel

*3 credits Internship or Art History travel course in consultation with art history advisor

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

Foreign Language: 15 Hours

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

LANG2030 - Third Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010, LANG 1020.

LANG2040 - Fourth Semester in: (TOPIC)

Credits: 3

Max Credit (Max. 12)

Encompasses formal grammar introduction and review; periodic composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5C2

Prerequisite: Satisfactory completion of corresponding study in LANG 2030.

Additional Requirements and Description

The B.A. in Art History major offers students with a course of study that will provide depth and breadth in the history of art. Students will develop a broad understanding of world art, study the art of western and other global cultures in-depth, and explore the historiography and professional practices related to the field. Closely linked to the Museum Studies minor curriculum, the B.A. in Art History has a strong vocational application. This degree provides preparation for entry into graduate school or for students who want to enter the work force after their undergraduate education. Students will have the experience and training to enter into the cultural sector (arts or archival management, non-profit work in the arts and humanities, etc.).

Astronomy and Astrophysics, B.S.

The Bachelor of Science in Astronomy & Astrophysics program prepares students for graduate school, or a career in astronomy/astrophysics or a related field.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Astronomy and Astrophysics** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Requirements

Students in the Bachelor of Science in Astronomy major program are required to complete the following courses:

ASTR1050 - Survey of Astronomy

Credits: 4

Consists of 3 lecture periods and a two-hour laboratory in observational and laboratory astronomy. Observing sessions are scheduled after dark and held when weather permits. Designed primarily for non-science majors.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR2320 - General Astronomy II

Credits: 4

Covers the properties of stars, stellar atmospheres and stellar evolution, interstellar matter, galaxies and cosmology including models of the universe, the Big Bang, and dark energy. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR4610 - Introduction to Astrophysics

Credits: 3

Includes astrophysical sources of radiation, radiation transport, nonequilibrium processes, stellar atmospheres, stellar interiors and the interstellar medium.

Prerequisite: ASTR 2310, PHYS 2310 and concurrent registration in PHYS 4210 and PHYS 4410.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

PHYS3640 - Modern Electronics and Experimental Techniques

Credits: 4

Introduced to analog and digital circuits/devices and computer interfacing with laboratory equipment and experiments. Includes computer programming, the analysis of experimental data, and report writing. Apply the skills developed in this class to interface with and control representative instrumentation used in experimental physics laboratories.

Prerequisite: PHYS 2320.

PHYS3650 - Advanced Lab in Modern Physics and Electronics

Credits: 4

Presents fundamentals of modern optics, modern and quantum physics, E&M/electronics, and thermodynamics in a project oriented interactive undergraduate laboratory with a focus on professional grade lab report writing that qualifies as WB USP. Students learn professional data handling, error theory, and data analysis.

USP 2015 Code U5C3

Prerequisite: WA and PHYS 2310 or PHYS 2320.

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 4210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4420 - Electricity and Magnetism II

Credits: 3

Follows PHYS 4410 and continues intermediate discussion of electricity and magnetism. Covers magnetostatics, magnetoquasistatics, alternating currents, electromagnetic waves, transmission lines and antennae.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 4410.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Additional Description

- See the "Prerequisite and MPE Cut Score Reference Chart" on the Math Placement website for the most up-to-date math placement equivalencies: <http://www.uwyo.edu/mathstats/math-placement/>.
- For declared physics/astronomy majors, the prerequisite of Math 2200 is waived and concurrent enrollment is approved.
- For declared physics/astronomy majors, the prerequisite of Math 2205 is waived and concurrent enrollment is approved.
- Students are strongly encouraged to enroll in Human Culture requirement courses that correspond to the College of Arts & Sciences Core required US Diversity (ASD) and Global Awareness (G) electives or else they will have to take separate ASD and ASG courses. A list of ASD & ASG courses that transfer is available.

If intending to apply to graduate school, plan to take the physics GRE by fall semester of the senior year

Additional Requirements

Course sequencing may need to be altered if ACT, SAT or Math Placement scores require a student to take pre-college courses before taking required math or English courses. • Not all courses are offered every semester and some electives may have prerequisites. Students should review course descriptions in the University Catalog and consult with their academic advisor to plan accordingly.

Students must have a minimum cumulative GPA of 2.0 to graduate. • Students must complete 42 hours of upper division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. • Courses must be taken for a letter grade unless offered only for S/U. • University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major

The Bachelor of Science degree in astronomy and astrophysics is administered by the Department of Physics and Astronomy faculty. Please see the Physics and Astronomy listing in this *Catalog* for more information.

Biology, B.S.

The Bachelor of Science degree in Biology is designed to provide a thorough foundation in biology as well as other supporting areas of physical and life sciences and mathematics while providing flexibility and student choice.

Additional Information

The Biology major is designed for students interested in obtaining a broad education in biological sciences. It enables students to combine courses in biology, botany, zoology, physiology, and other biological sciences to meet the requirements of the major. On completion of the core requirements for the major, specific courses selected to complete the major may vary according to students' interests and are worked out by consultations between student and adviser. The requirements for a bachelor of science degree in biology are as follows:

*Course must be completed with a grade of C or better.

The degree program is administered by the Department of Botany.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3

A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3

A&S Core: Global Awareness Course

Biology Major -Lower Division Courses

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines,

identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

OR

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

A&S College Core 2015 Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

A&S College Core 2015 This course is not an acceptable prerequisite for CHEM 2440.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: PHYS 1110.

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Foundational Biology - Two of the Following:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.
OR MOLB 2021 (General Microbiology, crosslisted with MICR 2021)

Data Science course- select ONE of the following:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1100 - Computer Science Principles and Practice

Credits: 3

Introduces use of computers for algorithmic problem solving. Studies scope, major contributions, tools and current status of computer science. Presentation of computer science principles; use of software packages and evaluation of their effectiveness; and elementary programming.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: C or better in MATH 1400 or in any University Studies QB or Level 4 or higher on Mathematics Placement Exam.

COSC1200 - Computer Information Systems

Credits: 3

Introduces computers and information processing, computer systems and hardware, computer software, information processing systems, information systems and information resource management. Uses word processing, data base language and electronic spreadsheet program in hands-on exercises.

Prerequisite: passing of Mathematics Placement Examination at Level 2 or equivalent.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language,

including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

Biology Major Upper Division Courses

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

BOT4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed ZOO 4100.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

A&S College Core 2015 Preference given to seniors.

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

Scientific Communication BOT 4100/4101 recommended; any COM3 will apply here.

BOT4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences. Preference given to seniors.

Cross Listed ZOO 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

Biology, Ecology and Evolution Concentration, B.S.

The Department of Botany offers the Ecology and Evolution Concentration for Biology majors. This concentration will prepare students for a career or further graduate study. Students will receive the academic training to become park naturalists, environmental consultants, restoration ecologists, natural resource managers, conservation scientists, environmental educators, and research technicians in academic or government agencies. In addition to core concepts and theories, this concentration will teach students important skills that are required in the workforce, including organism identification, quantitative reasoning, data analysis, and scientific communication. Students also will have opportunities to participate in faculty research projects, which will train them for graduate research, careers in scientific discovery, or any endeavor where critical thinking and problem solving are essential components of the vocation.

To fulfill the requirements of the concentration, students will select five courses that meet a minimum of 15 credit hours in addition to what is required for the Biology Major. These will be selected from a variety of upper-division (3000-4000) courses that satisfy their individual interests (listed below).

Students must select

1. one course in organismal biology (A),
2. one course in ecology (B),
3. one course in evolution (C),
4. any one additional course from these three categories,
5. and one fourth-year capstone course (D).

Students who concentrate in Ecology and Evolution should plan to take LIFE3500 - Evolutionary Biology in their third year to be able to take an additional evolution course before graduating. All courses listed below will count toward this concentration. However, there are many other excellent courses offered across campus that are relevant to this concentration. Students can obtain approval to take other courses that are not included on the list below to satisfy the requirements of the concentration.

List of Potential Courses

A. Organismal Biology

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

BOT4360 - Mushrooms of the Rocky Mountains

Credits: 3

A broad introduction to the biology of mushrooms, with emphasis on identification, ecology, and safety for consumption. Lab emphasizes learning major mushroom families and genera and their features, use of keys and manuals, and mushroom collections with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023 or equivalent.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

BOT4395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 5395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

B. Ecology

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4650 - Tropical Field Ecology Ecuador

Credits: 4

Course comprises 10 days in Ecuador in January (before spring semester), followed by one lecture per week during spring semester. Focus will be ecology, biodiversity and conservation of tropical forests and behavioral ecology of birds and mammals. Field site is at 1100m on west slope of the Andes.

Dual Listed ZOO 5650.

Prerequisite: LIFE 2022.

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

OR

GEOL4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed BOT 4280.

Dual Listed GEOL 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

BOT4200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 5200.

Prerequisite: LIFE 1010 and LIFE 2021.

C. Evolution

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

- BOT4790 - Special Topics in Ecology Credits: 3 (Evolution of development)
- BOT4790 - Special Topics in Ecology Credits: 3 (Evolution seminar)

BOT5060 - Fundamental Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/ZOO 5060.

Prerequisite: graduate student in good standing.

OR

ZOO5060 - Fundamental Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/BOT 5060.

Prerequisite: graduate student in good standing.

D. Senior Capstone Course

BOT4965 - Undergraduate Research in Botany

Credits: 1-10

Max Credit (Max. 10)

Undergraduate research or study in botany done under the guidance of a Botany Faculty Member. Encouraged to present their research at local, regional, or national scientific meetings, and, when appropriate, submit a manuscript for publication.

Prerequisite: LIFE 2023, undergraduate status in good academic standing; consent of a botany faculty research mentor.

Botany, B.S.

The Bachelor of Science degree in Botany is designed to provide a thorough foundation in botany as well as other supporting areas of physical and life sciences and mathematics.

Additional Information

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Lower Division Courses

Students take introductory courses in biology, chemistry, physics, and mathematics. These courses provide the foundation for more advanced work in upper division biology courses and contribute to a more comprehensive understanding of biological processes.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

or

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

Upper Division Courses

BOT3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Cross Listed Cross listed with: REWM 3000.

Prerequisite: LIFE 2022 or LIFE 2023.

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

BOT4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed ZOO 4100.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

A&S College Core 2015 Preference given to seniors.

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

A&S College Core 2015 Preference given to seniors

BOT4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences. Preference given to seniors.

Cross Listed ZOO 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

Upper Division BOT elective credits- **FOUR** credit hours from the following:

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

BOT4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed ATSC/ESS 4001/GEOL 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

BOT4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

BOT4200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 5200.

Prerequisite: LIFE 1010 and LIFE 2021.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

BOT4745 - Terrestrial Ecosystem Ecology

Credits: 3

Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. We study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Cross Listed ECOL 5745.

Dual Listed BOT 5745.

Prerequisite: 1 course in ecology.

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is

given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

BOT4965 - Undergraduate Research in Botany

Credits: 1-10

Max Credit (Max. 10)

Undergraduate research or study in botany done under the guidance of a Botany Faculty Member. Encouraged to present their research at local, regional, or national scientific meetings, and, when appropriate, submit a manuscript for publication.

Prerequisite: LIFE 2023, undergraduate status in good academic standing; consent of a botany faculty research mentor.

BOT4970 - Internship

Credits: 1-12

Max Credit (Max. 12)

Provides undergraduate students with academic credit for approved work experiences in the fields of botany and

biology. Must be arranged in consultation with a botany faculty member and the work supervisor.

Prerequisite: junior or senior standing,

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

BOT4360 - Mushrooms of the Rocky Mountains

Credits: 3

A broad introduction to the biology of mushrooms, with emphasis on identification, ecology, and safety for consumption. Lab emphasizes learning major mushroom families and genera and their features, use of keys and manuals, and mushroom collections with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023 or equivalent.

BOT4395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 5395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

BOT4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed ENR 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

BOT4640 - Flora of the Rocky Mountains

Credits: 3

Field course. Acquaints students with the flora of the surrounding region. Emphasizes field identification and collection from plant communities encompassing a wide range of environments, such as grasslands, forests and alpine tundra.

When Offered (Normally offered summer session)

Prerequisite: LIFE 2023.

BOT4664 - Special Topics in Evolution

Credits: 1-4

Max Credit (Max. 6)

Advanced topics in evolutionary biology are engaged by studying primary research and topical synthesis in the current literature.

Dual Listed BOT 5664.

Prerequisite: LIFE 3500 or equivalent.

BOT4680 - Taxonomy of Vascular Plants

Credits: 4

A study of classification principles, nomenclature rules and systematic botany literature. Plants of the Rocky Mountain region are used primarily as examples, but the course gives a comprehensive view of the characteristics and relationships of the principal plants families.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2023.

BOT5000 - Graduate Seminar

Credits: 1-3

Max Credit (Max. 6)

Selected topics on current research in the botanical sciences.

Prerequisite: 15 hours of botany or biology.

BOT5060 - Fundamental Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/ZOO 5060.

Prerequisite: graduate student in good standing.

BOT5150 - Research in Remote Sensing

Credits: 1-6

Max Credit (Max. 6)

Independent research into problems on the remote sensing of vegetation using satellite technology.

Prerequisite: graduate standing and consent of instructor.

BOT5200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 4200.

BOT5480 - Spatial Information Sciences Seminar

Credits: 1

There are many earth science technologies, remote sensing, GIS and GPS. Synergism among these technologies increase the range of solutions for research and management. This course is a forum for presentation of these solutions or questions requiring solutions.

Cross Listed GEOL 5480.

Prerequisite: a course in remote sensing, GIS, GPS, and graduate standing.

BOT5600 - Ecological Modeling

Credits: 3

Course will immerse students in the most important and fundamental statistical modeling techniques for data analysis. Each class will include theoretical content delivered through a brief lecture and the immediate application of the theory through activities using R software.

Prerequisite: STAT 2050, STAT 3050, or an equivalent course.

Chemistry, B.A.

The Bachelor of Arts program (B.A.) is designed to provide a solid foundation in chemistry for those pursuing careers that would benefit from chemical expertise.

University Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Chemistry** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Plan 1

(32 hours of chemistry)

Course Requirements

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

- **Additional USP requirements** Credits: 21
- **Additional A&S core requirements** Credits: 6
- **Electives** Credits: 45

Basic Chemistry: 26 Hours

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

OR

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

Additional Upper-Level Chemistry: 6 Hours

(Including one of the following)

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4530 - Physical Chemistry Laboratory II

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with emphasis on thermodynamics and kinetics.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4508 or concurrent enrollment.

PHYS: 8 Hours

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for

premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Minimum Total: 120 Hours

Additional Requirements

The Plan 1 B.S. degree requires at least 38 hours.

The Plan 2 B.S. requires 46 hours of chemistry courses.

Since the chemistry required in the first two years of all programs is the same, students interested in pursuing a chemistry major can elect any program initially. Discussions with a departmental adviser will allow students to choose the most appropriate major for their career objectives. In general, students planning graduate work in chemistry should elect one of the B.S. programs.

The B.A. program has a more liberal content with additional electives. It would support careers in business, law and advanced study in areas needing a strong chemistry background such as toxicology or forensic science.

A B.A. is suitable for students in the College of Education who wish to obtain an A&S degree, and may also be appropriate for some premedical tracks.

The Plan 2 (CACCS) program is designed to meet standards set by the American Chemical Society (ACS). A student who completes the Plan 2 B.S. program will be certified by the Department of Chemistry to the ACS as having met the specific ACS requirements for undergraduate professional training in chemistry.

Students must obtain a grade of C- or higher in each of the chemistry, physics or math courses specifically required for their degree.

The department offers both, B.A. and B.S. degree programs. The B.A. degree includes a minimum of 32 hours of chemistry.

The Bachelor of Arts program (B.A.) is designed to provide a solid foundation in chemistry for those pursuing careers that would benefit from chemical expertise.

Chemistry, B.S.

The Bachelor of Science program (B.S.) provides an intensive study of chemistry appropriate for those pursuing careers in the chemical sciences.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Chemistry** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Plan 1

(38 hours of chemistry)

Course Requirements

CHEM4930 - Undergraduate Research

Credits: 1-3

Research activities on a chemical project of limited scope or as part of a laboratory project of great scope. A written report is submitted to the department each semester of enrollment.

When Offered (Offered every semester)

Prerequisite: chemistry major and consent of instructor.

- Additional upper-level chemistry Credits: 3

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

- **Additional USP requirements** Credits: 21
- **Additional A&S core requirements** Credits: 6
- **Electives** Credits: 34

Basic Chemistry: 36 Hours

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM4000 - Career Skills

Credits: 3

Max Credit 3

This class will help students develop their communication and job seeking skills for a professional career in chemical sciences. Additionally, it will help build their problem solving, chemical literature, laboratory safety, teamwork and ethical skills that are necessary to succeed in their professional careers in chemical sciences.

When Offered (Normally offered fall semester)

Prerequisite: At least 6 credit hours of Chemistry (CHEM) classes.

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM4508 - Physical Chemistry II

Credits: 3

Second semester of a one year sequence, emphasizes kinetic theory of gasses and non-ideal solutions, chemical equilibrium, electrochemistry, statistical thermodynamics, and reaction kinetics. Uses multivariable calculus and differential equations.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4507.

CHEM4525 - Physical Chemistry Lab I

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with an emphasis on quantum mechanical (spectroscopic) methodologies.

Prerequisite: CHEM 4507 or concurrent enrollment.

CHEM4530 - Physical Chemistry Laboratory II

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with emphasis on thermodynamics and kinetics.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4508 or concurrent enrollment.

PHYS: 8 Hours

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Minimum Total: 120 Hours

Plan 2 (CACS)

(46 hours of chemistry)

Course Requirements

CHEM4930 - Undergraduate Research

Credits: 1-3

Research activities on a chemical project of limited scope or as part of a laboratory project of great scope. A written report is submitted to the department each semester of enrollment.

When Offered (Offered every semester)

Prerequisite: chemistry major and consent of instructor.

- Additional upper-division chemistry Credits: 2-3

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

- **Additional USP requirements** Credits: 21
- **Additional A & S core requirements** Credits: 6
- **Electives** Credits: 4-6

Basic Chemistry: 43-44 Hours

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)
Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

OR

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

OR

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

CHEM4000 - Career Skills

Credits: 3

Max Credit 3

This class will help students develop their communication and job seeking skills for a professional career in chemical sciences. Additionally, it will help build their problem solving, chemical literature, laboratory safety, teamwork and ethical skills that are necessary to succeed in their professional careers in chemical sciences.

When Offered (Normally offered fall semester)

Prerequisite: At least 6 credit hours of Chemistry (CHEM) classes.

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM4508 - Physical Chemistry II

Credits: 3

Second semester of a one year sequence, emphasizes kinetic theory of gasses and non-ideal solutions, chemical equilibrium, electrochemistry, statistical thermodynamics, and reaction kinetics. Uses multivariable calculus and differential equations.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4507.

CHEM4525 - Physical Chemistry Lab I

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with an emphasis on quantum mechanical (spectroscopic) methodologies.

Prerequisite: CHEM 4507 or concurrent enrollment.

CHEM4530 - Physical Chemistry Laboratory II

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with emphasis on thermodynamics and kinetics.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4508 or concurrent enrollment.

PHYS: 8 Hours

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Computer Science: 3 Hours

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

CHEM4515 - Applied Mathematics in Physical Chemistry I

Credits: 3

Designed to introduce the necessary mathematical background and essential computer programming tools for students of physical and theoretical chemistry. This includes an introduction into linear algebra, multivariate calculus, differential equations, analysis and modeling of experimental data, use of Matlab software and mathematical analysis of physical chemistry problems.

Dual Listed CHEM 5515.

Prerequisite: MATH 2200 and MATH 2205, CHEM 1020/CHEM 1030 or CHEM 1050/CHEM 1060.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

Program Supporting Courses: 18 Hours

A group of courses selected to further the career objectives of the individual student. These are chosen after consultation with the departmental adviser and must subsequently be approved by the departmental Undergraduate Studies Committee. A grade of C- or higher is required for all program supporting courses.

Minimum Total: 120 Hours

Additional Requirements

The BS in chemistry requires a minimum of 39 hours of chemistry.

1 See the "Prerequisite and MPE Cut Score Reference Chart" on the Math Placement website for the most up-to-date math placement equivalencies: <http://www.uwyo.edu/mathstats/math-placement/>.

2 Students with specific additional interests (e.g. pre-med or another pre-professional program) may wish to move their V/H/C2 courses to alternate semesters so as to take other necessary required courses (e.g. LIFE 1010, MOLB 3000, etc.).

3 Students taking CHEM 4010 or MICR 4321 as their C3 are not required to take CHEM 4000.

Communication, B.A.

Communication is a liberal arts degree relevant to a variety of careers in community relations, public relations, politics, administration, law, sales management and many other fields.

University Studies Program

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Departmental Core Courses

In addition to the university studies requirements listed in this Catalog, all students majoring in communication and journalism must take the following required courses:

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

LANG1010 - First Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Required Courses

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3040 - Advanced Communication Theory

Credits: 3

Considers nature of human communication theories. Analyzes problems in developing communication theory based on current social science methods.

Prerequisite: COMM 1000 and COMM 1040.

- Electives Credits: 15 (At least 12 elective hours must be at the 3000-level or higher of COJO courses.) The other three hours may be lower or upper division in COJO/COMM.

College of Arts and Science Requirements

- A&S U.S. Diversity (ASD) Credits: 3
- A&S Global Awareness (ASG) Credits: 3

Additional Program Requirements

- Physical and Natural World Credits: 6-8 (PN)
- **OR**
- Quantitative Reasoning Credits: 6-8 (Q)

Communication, B.S.

Communication is a liberal arts degree relevant to a variety of careers in community relations, public relations, politics, administration, law, sales management and many other fields.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Departmental Core Courses

In addition to the university studies requirements listed in this Catalog, all students majoring in communication and journalism must take the following required courses:

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COJO3070 - Communication Research

Credits: 3

Focuses on problems in communication and mass communication research. Specifically studies and applies language of science, basic concepts of communication, mass communication research, types and limitations of empirical research, as well as measurement procedures and analysis.

Prerequisite: COMM 1000 or COMM 1040 and STAT 2050 or STAT 2070.

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

Required Courses

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3040 - Advanced Communication Theory

Credits: 3

Considers nature of human communication theories. Analyzes problems in developing communication theory based on current social science methods.

Prerequisite: COMM 1000 and COMM 1040.

- Electives Credits: 15 (At least 12 elective hours must be at the 3000-level or higher of COJO courses.) The other three hours may be lower or upper division in COJO/COMM.

College of Arts and Sciences Requirements

- A&S U.S. Diversity (ASD) Credits: 3
- A&S Global Awareness (ASG) Credits: 3

Additional Program Requirements

- Physical and Natural World Credits: 6-8 (PN)
OR
- Quantitative Reasoning Credits: 6-8 (Q)

Criminal Justice, B.A.

The B.A. in Criminal Justice is a social science that major examines the causes and impacts of crime in society. Graduates go on to careers in fields such as law enforcement, homeland security, probation and parole, and victim services.

University Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.
One PN Course must be a lab science to meet major requirements

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.
POLS 1000 Required for major requirements

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

Arts & Sciences College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Foundation Courses

Students must complete all foundation courses with a grade of C or better.

CRMJ1001 - Introduction to Criminal Justice

Credits: 3
Introduces the American criminal justice system. Examines nature of crime and describes historical and philosophical foundations of law enforcement agencies, criminal courts and correctional institutions. Discusses major issues facing the criminal justice system.

Former Course Number [2120]

CRMJ2210 - Criminal Law

Credits: 3
Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

CRMJ2400 - Criminology

Credits: 3
Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed SOC 2400.
Prerequisite: SOC 1000.

CRMJ2685 - Research Methods

Credits: 3
Max Credit 3

Introduces students to fundamental issues associated with the application of scientific methods to criminal justice problems. Students examine research designs involving ethnographic, archival, historical, and quantitative methods and how they relate to criminal justice issues.

Cross Listed SOC 2685

Former Course Number [3680]**Restricted** Criminal Justice or Sociology majors and minors

Prerequisite: CRMJ 1001 OR SOC 1000

CRMJ3110 - Criminal Courts and Processes

Credits: 3
Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ3350 - Correctional Theory and Practice

Credits: 3
Examines the various components of the correctional complex from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current correctional practice and will be called upon to critically evaluate this research and its implications for correctional policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 2685.

CRMJ3490 - Issues in Policing

Credits: 3
Examines the various components of policing from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current policing practice and will be called upon to critically evaluate this research and its implications for policing policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, CRMJ 2685.

CRMJ4200 - Ethics in Administration of Justice

Credits: 3
Introduces basic ethical theories, emphasizing how ethical theory can be applied to contemporary problems in law enforcement, corrections and adjudication. Students will be called upon to apply these various ethical frameworks to

typical moral dilemmas in criminal justice.

Former Course Number [3200]

Prerequisite: CRMJ 3110, CRMJ 3350, and CRMJ 3490.

Criminal Justice Core

Students must complete any 4 courses with a grade of C or better.

CRMJ3250 - Juvenile Delinquency

Credits: 3

Considers the nature of delinquency, including an analysis of treatment methods and the juvenile justice system.

Cross Listed SOC 3250.

Prerequisite: CRMJ 2400/SOC 2400.

CRMJ3400 - Deviant Behavior

Credits: 3

Examines theory and research relevant to understanding deviant behavior in general and specific types of individual and subcultural deviancy.

Cross Listed SOC 3400.

Prerequisite: SOC 1000.

CRMJ3500 - Drugs and the Criminal Justice System

Credits: 3

Focus on drugs and their impact on society. Particular interest is paid to the extent of drug use/abuse in America, and the effects of this problem on the criminal justice system and society as a whole. Strategies for controlling both supply and demand are discussed.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4140 - Criminal Legal Procedure

Credits: 3

Examines the constitutional principles that safeguard the rights and liberties of criminal suspects and constrain police during the investigatory stages of the criminal justice process: arrest; search and seizure; interrogation; undercover operations; pretrial identification; and the exclusionary rule.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ4150 - Community-Based Corrections

Credits: 3

Designed to provide students with an in-depth look at the community corrections complex. It will examine the history and growth of community corrections, the probation system, methods of post-incarceration supervision, intermediate sanctions, and correctional programming and treatment in the community.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3350.

CRMJ4151 - Crime Causation

Credits: 3

Examines the causal mechanisms that produce crime. Theoretical perspectives and empirical research from various disciplines will be evaluated, with particular emphasis placed on social factors that may cause crime. Policy implications of the different perspectives will be discussed.

Dual Listed CRMJ 5151.

Former Course Number [3150]

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4260 - Gangs

Credits: 3

Considers the nature and the characteristics of gangs and gang members. The theoretical and empirical evidence regarding the phenomenon of gangs is evaluated. Particular emphasis is placed on the social and policy implications of this social problem.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

CRMJ4280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 5280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

CRMJ4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims

and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 / GWST 5540 .

Dual Listed CRMJ 5540.

Prerequisite: ENGL 1080/WMST/GWST 1080 , WMST/GWST 2500 , WMST/SOC 3500, or CRMJ 2400/SOC 2400.

CRMJ4705 - Terrorism

Credits: 3

Examines the concept, causes, incidence, types, consequences of, and responses to terrorism. Highlights the distinction between domestic and international terrorism and expands on the latter within the framework of the global environment.

Cross Listed INST 4705, POLS 4705, and SOC 4705.

Former Course Number [4700]

Prerequisite: 9 hours in CRMJ, INST, POLS, or SOC coursework.

CRMJ4860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 5860.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400 and junior standing.

Supporting Courses

Students must complete one three credit hour course from the list below; or 1 additional course from Criminal Justice Core. Must be completed with a grade of C or better.

CRMJ4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

CRMJ4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed ANTH 4230.

Prerequisite: ANTH 1100.

CRMJ4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed SOC 4350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

CRMJ4370 - Criminal Psychopathology

Credits: 3

Provides an overview of current theories and empirical evidence concerning the relationship between psychological disorder and criminal behavior. Examines various clinical syndromes and their role in biological, social and psychological genesis of crime, as well as the concept of criminal responsibility.

Cross Listed PSYC 4370.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Cross Listed POLS 4600.

When Offered (Normally offered every other year)

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

CRMJ4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed PSYC 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4750 - Criminal Justice Internship

Credits: 1-12

Integrates practical criminal justice experience with academic knowledge. Students participate in specifically assigned duties and observe broader activities of the sponsoring organization, and reflect upon these experiences through written assignments.

Restricted Junior Standing.

Prerequisite: Integrates practical criminal justice experience with academic knowledge. Students participate in specifically assigned duties and observe broader activities of the sponsoring organization, and reflect upon these experiences through written assignments.

CRMJ4760 - Child Maltreatment

Credits: 3

Examines the phenomenon of child abuse and neglect. Includes an overview of attitudes towards and legal definitions of child maltreatment. Explores parental factors, contextual influences and developmental consequences of maltreatment. Relies heavily on current research in child abuse and neglect. Emphasizes policy implications.

Cross Listed PSYC 4760.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4965 - Research Hours in Criminal Justice

Credits: 1-6

Max Credit (Max. 6)

Provides undergraduates with an opportunity to assist in conducting various aspects of research under the supervision of criminal justice faculty. Specific research activities and requirements will be determined in consultation with the sponsoring faculty person. Credit is only available for research corresponding to enrollment in this course.

Dual Listed CRMJ 5965.

Prerequisite: upper division standing and consent of instructor required in advance.

CRMJ4975 - Readings

Credits: 1-3

Max Credit (Max. 6)

Special programs of readings in criminal justice related subjects will be outlined to meet needs of individual students.

Prerequisite: consent of instructor.

CRMJ4990 - Topics:

Credits: 1-3
Max Credit (Max. 6)

Intended to accommodate various special subjects not offered as regular courses.

Prerequisite: as listed for housing department's topics course.

Foreign Language

Students are required to complete two semesters of the same foreign language with a grade of C or better. Two semesters of American Sign Language (SPPA 2110 & SPPA 2120) will fulfill this requirement.

Statistics

Students are required to complete STAT 2050 or STAT 2070 or SOC 2070 with a grade of C or better.

In Addition

Upper division course work that was completed more than ten years prior to graduation will not meet major requirements.

Criminal Justice, Prelaw Concentration, B.A.

The Pre-Law Concentration consists of diverse courses selected from departments across the university to help prepare students for the challenges of law school and the practice of law.

Verbal Comprehension and Expression: 3 Hours Minimum

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

Written Comprehension and Expression: 6 Hours Minimum

Students must complete any two (2) courses with a USP designation of WC or COM3.

Critical Understanding of Human Institutions and Values: 3 Hours Minimum

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

PHIL3120 - Ancient Greek Philosophy

Credits: 3

Surveying some of ancient Greek philosophy. Begins with the works of the earliest extant philosophical thinkers, the pre-Socratics. Remainder of focus on Plato and Aristotle.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3340 - Philosophy in Literature

Credits: 3
Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL
USP 2015 Code U5H
Former Course Number [2340]

Prerequisite: one course in philosophy or one course in literature or consent of instructor.
OR

ENGL3340 - Philosophy in Literature

Credits: 3
Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL 3340.
Prerequisite: one course in philosophy or one course in literature or consent of instructor.

PHIL3350 - History of Moral Philosophy

Credits: 3
A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H
Prerequisite: 3 hours of philosophy.

PHIL3500 - History of Science

Credits: 3
Historic and philosophic survey of the development of science from the ancient Greeks to the 20th century.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

POLS4051 - Environmental Politics

Credits: 3
Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and

regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

OR

AMST4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed POLS 4051 / ENR 4051 / GEOG 4051 / REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

OR

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

COJO4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 4260.

Dual Listed COJO 4260.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

OR

AAST4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed COJO 4260.

Dual Listed AAST 5260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [AAST 4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

Creative and Analytical Thinking: 3 Hours Minimum

CW2050 - Introduction to Fiction

Credits: 3

Max Credit (Max. 6)

Analyzes forms of fiction and the practice of creative writing at an introductory level.

Prerequisite: WA/COM1.

OR

CW2060 - Introduction to Nonfiction

Credits: 3

Max Credit (Max. 6)

The new nonfiction course will be described according to the emphasis the individual professor chooses to impart. In general, the course will teach students to research, organize, and express themselves in a nonfiction genre, such as essay, memoir, article, biography, autobiography, etc.

Prerequisite: WA/COM1.

OR

CW2080 - Introduction to Poetry

Credits: 3

Max Credit (Max. 6)

Analyzes forms of poetry and practice of creative writing at introductory level.

Prerequisite: WA/COM1.

PHIL3140 - Philosophy of Science

Credits: 3

Systematically examines philosophical problems about the nature of science, its methods of explanation, and the status of its laws.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3420 - Symbolic Logic

Credits: 3

Studies both propositional and quantificational logic, concentrating on methods of proof. Takes up such topics as identity, singular terms, intuitive set theory, and translating English sentences into symbolic notation.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3510 - Introduction to Epistemology

Credits: 3

Systematic introduction to epistemology, the philosophical study of knowledge and justified belief. Aims to answer questions such as: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? How we are to understand the concept of justification?

Prerequisite: 3 hours of philosophy, or consent of instructor.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

OR

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 4550.

Dual Listed ENR 5550.
Former Course Number [4700]

Prerequisite: QA.

World Cultures and International Institutions: 3 Hours Minimum

INBU1040 - Introduction to International Business

Credits: 3

A broad survey of the field of international business which introduces basic concepts of international business activity and theory and reviews major foreign environmental forces--financial, economic and socioeconomic, physical, sociocultural, political, legal, labor, competitive and distributive.

Cross Listed INST 1040.
A&S College Core 2015 ASG
Former Course Number [BUSN 2000]
OR

INST1040 - Introduction to International Business

Credits: 3

A broad study of the field of international business activity and theory and review major foreign environmental forces

Cross Listed INBU 1040.
Former Course Number [INST 2000]

Prerequisite: ECON 1010.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

INST2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed POLS 2310.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG

OR

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.
USP 2015 Code U5H
Prerequisite: 3 hours of philosophy, or consent of instructor.

ANTH3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed INST 3420.
Prerequisite: ANTH 1200.

OR

INST3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. ,

poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed ANTH 3420.

Prerequisite: ANTH 1200.

CRMJ4280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 5280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

INST4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed POLS 4340.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

INST4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed SOC 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 2100.

OR

SOC4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed INST 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 3000.

Electives: 9 Hours Max (3 Courses)

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

COMM1030 - Interpersonal Communication

Credits: 3

Focuses on interpersonal communication settings or face-to-face interaction. Basic unit of study is, therefore, the dyad. Also includes some work in small group settings.

USP 2015 Code U5H

Former Course Number COJO 1030

OR

COJO 1030 - Interpersonal Communication Credits: 3

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

OR

COJO 1040 - Intro to Communication Theory Credits: 3

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

CNSL2200 - Introduction to Student Leadership

Credits: 2

Acquaints student leaders with skills and competencies necessary for successful service in the university community.

When Offered (Normally offered each fall semester)

USP 2003-2014 Code U3CS, U3L

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

COJO3190 - Cross-Cultural Communication

Credits: 3

Studies human communication processes within the context of various cultures and subcultures. Opportunity for field study of the effect of culture on communication behavior.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: COMM 1040 and junior standing.

PHIL3440 - Philosophy of Mind

Credits: 3

Considers topics in philosophy of mind, including the mind-body problem, emotions, attitudes, perception and psychological explanation.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

CRMJ4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

OR

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

ANTH4340 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology.

Dual Listed ANTH 5340.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

OR

INST4350 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology.

Identical to ANTH 4340.

Prerequisite: ANTH 1200.

CNSL4520 - Fundamentals of Counseling (B)

Credits: 3

Students learn some of the skills of counseling and develop an understanding of elementary principles of counseling theory, as well as a better understanding of themselves in relation to other people.

Dual Listed CNSL 5520.

When Offered (Offered on campus and online all semesters)

Prerequisite: junior standing; 6 hours of education or psychology and graduate standing to receive graduate credit.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

Additional Information

The Department of Criminal Justice offers a Pre-Law Concentration for Criminal Justice majors that consists of courses selected from several departments across the university. These courses were chosen to help prepare students for the challenges of law school and the practice of law. Students electing the Pre-Law Concentration are urged to seek advising early.

The Pre-Law Concentration requires 27 credit hours - 18 of which must be 3000-level or above. All coursework must be completed with a grade of C or better to be counted toward the concentration.

English, B.A.

Choose from two tracks in English: Literary Studies track or English Studies track. The former focuses on the study of literature and culture, while the latter balances literary study with courses in rhetoric and composition and professional writing.

USP Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

ENGL 1010

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

ENGL 2025

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

ENGL 4999

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Gateway to the English Major - 3 Hours

ENGL2025 - Introduction to English Studies

Credits: 3

This course provides an introduction to English Studies, covering the history of English as an academic field, the

options available within it, and possible career paths. Students will also be taught the skills they need to succeed as English majors, including critical reading and writing, and literary and rhetorical analysis.

USP 2015 Code U5C2

Prerequisite: COM1; English major status.

Historical Period - 12 or 15 hours

English Studies Track: 12 hours

Literary Studies Track: 15 hours

English Studies Track students take one of the following six courses.

Literary Studies Track students take two of the following six courses.

ENGL2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed AAST 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2425 - Literatures in English I

Credits: 3

Surveys major figures and literary movements in literatures written in English through 1750.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2430 - Literatures in English II

Credits: 3

Surveys major figures and literary movements in literatures written in English 1750-1865.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2435 - Literatures in English III

Credits: 3

Surveys major figures and literary movements in literatures written in English 1865-present.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

Take three of the following five courses:

ENGL3200 - Topics in: Medieval Literature

Credits: 3

Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

Expanding the Canon - 6 Hours

A full list of courses that fulfill the Expanding the Canon requirements will be published each semester. Generally speaking, these courses will cover topics related to racial diversity, global literatures, gender, sexuality, or disability studies. ENGL 2340/2350/2360 can be taken either as an Expanding the Canon course OR as an Historical Period course. The Expanding the Canon options are always changing, but will always include the following:

ENGL2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2345 - American Indians in Hollywood Film

Credits: 3

Examines the ways Hollywood film has constructed various forms of racial identity for American Indians.

Cross Listed NAIS 2345.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed AAST 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL3330 - Global Shakespeare in Performance

Credits: 3

Max Credit (Max. 12)

Shakespeare's works are constantly being reinterpreted around the globe, because their cultural capital invites many

cultures to rebrand Shakespeare as their own. While helping us to see universal connections, recorded re-interpretations provide opportunities for viable cross-cultural analysis, as we explore and compare the hot-button cultural issues addressed through global performance.

A&S College Core 2015 ASG

Prerequisite: COM1.

ENGL3610 - Non-Western Women Writers

Credits: 3

Examines literature written by women in non-western cultures. The geographical region, time period, and genres of literature may vary by semester. Analyzes representations of such topics as family, marriage, sexuality, community, and colonialism as expressed in fiction, drama, literary non-fiction, and/or poetry.

Prerequisite: ENGL 1010 or GWST 1080; junior standing.

ENGL4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 4455.

Dual Listed ENGL 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

ENGL3710 - Gender: Humanities Focus

Credits: 3

Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity, and class.

Cross Listed ART 3710/GWST 3710.

USP 2003-2014 Code U3Ch

USP 2015 Code U5C2

Prerequisite: GWST 1080 or ENGL 1010.

ENGL4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed NAIS 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed ART 4830/GWST 4830.

Dual Listed ENGL 5830.

USP 2003-2014 Code U3CA

A&S College Core 2015 ASG

Prerequisite: ART 2020, GWST 1080/ENGL 1080.

ENGL4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed AAST 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

ENGL4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed LTST 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: LTST 1100 and WA/COM1.

ENGL4640 - Studies in Emerging Fields and Approaches

Credits: 3

Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in emerging fields or approaches to literature written in English.

A&S College Core 2015 ASG

Prerequisite: six hours of 2000 level literature courses.

- Please note that only ENGL 4640: Postcolonial Literature & Theory counts towards the Expanding the Canon Requirement **unless otherwise specified in a given semester.**

Methods - 3 Hours

Choose the methods course that corresponds with your track.

Literary Studies Track:

ENGL3000 - Literary Theory

Credits: 3

An introduction to critical theory as a methodology within literary studies. The course covers major schools of theory and major figures within those schools. Students will read, discuss, and write about literary texts and cultural artefacts by placing them in dialogue with important works of both theory and literary criticism.

Prerequisite: ENGL 2025 and junior standing.

OR

English Studies Track:

ENGL3010 - Approaches to Rhetoric, Composition Pedagogy, and Professional Writing

Credits: 3

Introduces common methods, concepts, and theories emphasized in these interrelated intellectual traditions. It asks students to examine how research traditions have developed alongside each other over time, and prepares students to design a multimodal research project.

Prerequisite: ENGL 2025 and junior standing.

Foundations of Language - 3 Hours

This requirement is for the English Studies Track only.

ENGL4780 - History of the English Language

Credits: 3

Considers major sources of change in the English language historically, as well as some of the internal and external catalysts for the process. Identical to ANTH 4780.

Prerequisite: ENGL 4750.

OR

ENGL4785 - Linguistics, Language Teaching and Social Context

Credits: 3

Introduces prospective teachers of English as second language to the basic components of language and to the social aspects of human language use. Explores a variety of concepts about language: how it is used and perceived, how languages change, how diverse cultures respond to such changes.

Cross Listed LANG 4785.

Prerequisite: WB/COM2.

OR

EDCI4761 - Linguistics, Sociolinguistics, and Social Literacies for Teachers

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies that are necessary for understanding and working with children from diverse linguistic and cultural backgrounds. As such, the course was designed to redirect students' attention from a sole focus on schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring to school from their own sociocultural contexts.

Prerequisite: EDST 3480.

OR

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations; (d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

Electives - 6 hours

Literary Studies: Students can select from any of our courses for credit in this category. One of the two electives must be in either Rhetoric & Composition or Creative Writing.

English Studies: Two courses from the list of Rhetoric/Composition/Professional Writing classes offered by English. See the examples below:

- ENGL 2005 - Writing in Technology and the Sciences (3 Credits)
- ENGL 2035 - Writing for Public Forums (3 Credits)
- ENGL 2125 - Writing Tutor Pedagogy/Practicum (3 Credits)
- ENGL 3020 - Culture, Communication, Work (3 Credits)
- ENGL 4010 - Technical Writing in the Professions (3 Credits)
- ENGL 4020 - Editing for Publication (3 Credits)
- ENGL 4025 - Writing for the Web (3 Credits)

- ENGL 4030 - Writing for Magazines (3 Credits)
- ENGL 4040 - Rhetoric, Media, and Culture (3 Credits)
- ENGL 4061 - Rhetorical Theory and Criticism (3 Credits)
- ENGL 4075 - Writing for Non-Profits (3 Credits)

Capstone - 3 Hours

Advanced standing in English is required for all majors prior to taking the senior seminar. To be eligible for advanced standing in English, the student must have completed 24 hours of English coursework above COM1, including the required 2000-level Historical Period courses. Each course must have been passed with a grade C or better. Approved transfer courses from other institutions will satisfy the prerequisites for advanced standing. ENGL 4999 should be taken in the next to last semester before graduation.

ENGL4999 - Senior Seminar

Credits: 3

This course is the capstone course in the English major. Subject matter varies by section. In all sections students will exercise skills acquired in the major (close-reading, historical analysis, application of theory) to explore significant texts and to reflect on the nature of English study today.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and either ENGL 3000 or ENGL 3010; Senior standing.

Additional Requirements

All English Education students are required to take the English Studies track. Students should consult with an advisor to declare a track in Literary Studies or English Studies before their junior year.

The English major requires 36 hours of work within the major and an additional 12 hours of a single foreign language. 21 of the hours within the major must be taken at the upper division. Only those courses in which a grade of C or better has been earned may count toward the 36 hours required for the B.A. and the foreign language requirement. No 1000-level courses count toward the B.A.

Prerequisites

Most 2000-level courses require the completion of the COM1 requirement. Normally, 3000-level courses have the COM1, ENGL 2025, and one 2000-level "broad historical sweep" course (one of ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, ENGL 2360) as prerequisites, and 4000-level courses have 6 hours of 2000-level English courses as prerequisites. Students without certain prerequisites should consult the English department for permission to enroll.

Environmental Geology and Geohydrology, B.S.

The Environmental Geology and Geohydrology (EGGH) degree is intended for students interested in becoming professionals in environmental fields and will prepare students for graduate school in environmental disciplines and for entry-level jobs.

Required Courses

One of the Following:

GEOL1005 - Earth History

Credits: 4

Reviews the evolution of the Earth including: the creation of the Universe, formation of a layered earth, development and history of continents, controls on climate change, and the origin and evolution of life. Class introduces basic geologic, chemical, physical and biologic concepts used to decipher Earth history.

USP 2003-2014 Code U3S

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

- GEOL 1200 - Historical Geology Credits: 4

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

And Each of the Following:

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL4444 - Geohydrology

Credits: 4

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 5444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL4777 - Geochemistry of Natural Waters

Credits: 3

Studies physical chemistry applied to natural waters, and chemistry of rock weathering, sources and controls on major, minor and trace elements, plus problems related to introduced pollutants.

Cross Listed GEOL 5777.

Prerequisite: CHEM 1030 OR consent of instructor.

GEOL4880 - Earth Surface Processes

Credits: 3

Quantitative interpretation of Earth's surface processes. Uses a quantitative approach to demonstrate how the development of landforms can be modeled.

Prerequisite: MATH 2205 (MATH 2210 preferred), PHYS 1210.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

Required Allied Math and Science Courses

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

One of the Following:

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and

functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Additional Electives

Additional 18 credit hours of Electives, in consultation with advisor

- GEOL 2005 - Intro to Geophysics Credits: 4
OR

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2070 - Introduction to Oceanography

Credits: 4

Survey of ocean processes, including the major subdisciplines of physical, geological, chemical, and biological oceanography. Studies the form of the world ocean; composition and chemistry of seawater; circulation, currents, waves and tides; nutrients and organisms; estuaries and coastal processes; origin and distribution of deep-sea sediments; and impacts of human activities.

When Offered (Normally offered the first half of the fall semester)

Prerequisite: GEOL 1005, GEOL 1100, 1200, GEOL 1500 or ENR 1500; MATH 1405 or MATH 1450.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust. Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises

are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GEOL4888 - Glaciology

Credits: 3

Dynamics of frozen water. Covers behavior of ice masses, in the form of glaciers or ice-sheets, and geomorphic aspects of glacial erosion and deposition. Includes forcing and feedbacks between cryosphere and global climate.

When Offered (Offered every second year spring semester)

Prerequisite: MATH 2205, PHYS 1210 (PHYS 1310).

Note:

Students are encouraged, in consultation with their adviser, to design a major that best fits their interests and goals. With this in mind, there are many courses outside the Department of Geology and Geophysics that may be substituted for courses in the Electives (B) list above provided that such substitutions are made with the consent of an adviser. A list of such courses may be obtained from the Department. Students who seek the Geology BS may not also seek EGGH as a double major, and vice versa.

French, B.A.

The main goal of French courses will be to emphasize "the development of communication skills in French through the four language skills: listening, speaking, reading, and writing". Each course introduces students to French and Francophone cultures.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Prerequisites - 12 Credits

FREN1010 - First Year French I

Credits: 4
Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

FREN1020 - First Year French II

Credits: 4
Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: FREN 1010 or two years of high school French.

FREN2030 - Second Year French I

Credits: 4
Emphasizes the development of communication skills (listening, speaking, reading and writing) so as to help students function effectively in real-life contexts. Provides a systematic review of grammatical structures necessary for successfully communicating in French.

USP 2015 Code U5H

Prerequisite: FREN 1020 or three years of high school French.

A language major requires 30 hours of credit in a single language above 2030

Required Courses

FREN2040 - Second Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2130 - Contemporary French Culture

Credits: 3

Designed as an introduction to contemporary French culture. It gives students an in-depth insight into contemporary French life. It also deals with issues affecting the French-speaking world in general: Quebec, Africa, New Caledonia, Switzerland, Monaco, etc.

USP 2015 Code U5H

Prerequisite: FREN 1020 or equivalent.

OR

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

FREN4100 - A Survey of French Literature I

Credits: 3

A study of French Literature and civilization from the Middle Ages through the 18th century.

Prerequisite: FREN 2140 or equivalent.

FREN4110 - A Survey of French Literature II

Credits: 3

A study of French Literature and civilization from the 19th century to the present.

Prerequisite: FREN 2140 or equivalent.

- Plus 6 hours of electives in French at the 4000-level (See Electives list in Minor Requirements)

Minor Program Requirements - 18 Credit Hours

Required Minor Classes

FREN2040 - Second Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

- Electives - 9 hours of French Courses at the 3000 course level or 4000 course level (Choose from Elective list below)

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

FREN3990 - Independent Study

Credits: 1-4

Books or periodicals of special interest to the student, selected in consultation with a member of the staff; independent reading and reports.

Prerequisite: FREN 2030.

FREN4080 - Studies in the French Language

Credits: 3

Max Credit (Max. 9)

The topics explored under this general heading include: translation, history of the French language, French of the media and conversation.

Dual Listed FREN 5080.

Prerequisite: FREN 3060.

FREN4100 - A Survey of French Literature I

Credits: 3

A study of French Literature and civilization from the Middle Ages through the 18th century.

Prerequisite: FREN 2140 or equivalent.

FREN4110 - A Survey of French Literature II

Credits: 3

A study of French Literature and civilization from the 19th century to the present.

Prerequisite: FREN 2140 or equivalent.

FREN4120 - Medieval French Literature

Credits: 3

A survey of medieval French literature: epic, courtly poetry, Arthurian romance, theatre and the poetry of Villon.

Dual Listed FREN 5120.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4140 - 17th Century French Literature

Credits: 3

A survey of representative works from the major literary genres from the formative period to classicism and its aftermath.

Dual Listed FREN 5140.

USP 2003-2014 Code U3WC

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4200 - Introduction to Research

Credits: 3

Senior seminar on a topic varying from year to year.

USP 2015 Code U5C3

Prerequisite: COM2 (FREN 3050), Survey I and II courses (FREN 4100 and FREN 4110).

FREN4250 - 19th Century French Literature

Credits: 3

Development of romanticism from Rousseau on with excerpts from Chateaubriand and romantic poets like Hugo and Vigny. The period of realism-naturalism focuses on novels of Flaubert and Zola, while the symbolist school of poetry is represented by Baudelaire, Verlaine and Rimbaud.

Dual Listed FREN 5250.

Former Course Number [4150]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4260 - 20th Century French Literature

Credits: 3

The era since 1900 is divided into four parts: pre-World War I, between the wars, post-World War II and the New Wave. These periods are represented by authors including Valery, Proust, Malraux, Saint-Exupery, Camus, Sartre and others.

Dual Listed FREN 5260.

Former Course Number [4160]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4350 - Studies in French and Francophone Literatures

Credits: 3

An intensive study of a topic, period or author (pertaining to French or Francophone literature), to be selected according to interest and currency).

Dual Listed FREN 5350.

Prerequisite: FREN 3060; FREN 4100 and FREN 4110 strongly recommended.

FREN4990 - Advanced Independent Study

Credits: 1-3

Special projects designed to meet the needs of individual students, designed in consultation with instructor.

Prerequisite: FREN 3050 and consent of instructor.

Gender and Women's Studies, B.A.

Provides foundational knowledge in historical and contemporary issues related to sex, gender, and sexuality. Upon completion, students will be able to apply intersectional feminist and gender theories to interdisciplinary research and practice.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

COM1 - Communication 1

Credits: 3
College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

A&S College Core

The College of Arts and Sciences requires:

- D - Diversity (3 credits)
- G - Global (3 credits)

Requirements

The GWST major requires 30 credit hours of GWST courses, including 9 credits of core courses and 21 credits of elective courses.

Please note, curriculum requirements reflect updates effective Fall 2022, so any courses completed under the previous requirements will still count. Details are listed below.

Introductory Core: 3 Credits

Complete ONE course from the following:

GWST1080 - Intro Gender & Women's Studies

Credits: 3

This course serves as an introduction to the field of Gender and Women's Studies. Students will examine a range of GWST topics, gain knowledge of gender, feminist, and intersectional theories, and learn to apply course concepts and frameworks to analyses of socio-political and representational issues, primarily in U.S. contexts.

Cross Listed ENGL 1080.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST2000 - Introduction to LGBTQ/NS Studies

Credits: 3

Lesbian, Gay, Bisexual, Transgender, Queer and New Sexuality Studies (LGBTQ/NS) explores the interdisciplinary study of sexuality and its importance to the organization of social relations and social institutions. Primary among its concerns is the study of the lives, the politics, and the creative work of sexual minorities.

USP 2003-2014 Code U3C, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Note: If taken prior to Fall 2022, GWST 1900, Women & Leadership can satisfy this requirement.

Interdisciplinary Theory Core: 6 Credits

Complete TWO courses from the following:

Core course required for all majors:

- GWST 3XXX: Gender, Race, Sex & Soc System

(Will be offered Spring 2023)

- Note: If taken prior to Fall 2022, these courses may satisfy this requirement: GWST 3710, Gender & Humanities; GWST 2500, Gender & Society

Choose ONE of the following:

GWST4700 - Feminist Theories

Credits: 3

Surveys contemporary feminist theories and places those theories within the framework of social, literary, and artistic criticism. Uses feminist theories to address questions such as nature of meaning in literature and artistic forms; construction of science; and identity of the individual as these phenomena are affected by gender construction.

When Offered (Offered once a year)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 12 hours of women's studies.

GWST4430 - Queer Theory

Credits: 3

Introduces students to the intellectual lens used to evaluate the messages regarding gender and sexuality of many institutions and the way in which some actual experiences fall out of line with those norms.

Cross Listed AMST 4430.

Dual Listed GWST 5430.

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: Consent of instructor.

Electives: 21 Credits

Complete SEVEN courses or 21 credit hours from among the following:

GWST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed LTST 1030/AAS 1030/AMST 1030/NAIS 1030.

USP 2003-2014 Code U3D, U3I

A&S College Core 2015 ASD

GWST1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical and cultural aspects of leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed SOWK 1900.

USP 2003-2014 Code U3L, U3O

Former Course Number [4510]

GWST2060 - Topics in Women's Studies

Credits: 1-4

Popular and current topics in women's studies.

GWST2070 - Gender and Religion

Credits: 3

Aims to help students understand how religion constructs and reinforces gender roles in religion and society. Looks at traditional gender roles in Christianity and the transformation they have undergone in the past century or so.

Cross Listed RELI 2070.

GWST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed HIST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

GWST2700 - Gender and Disability

Credits: 3

Disability studies draws upon critical theory to investigate disability as a discursive construction. Investigates how intersecting conceptions of disability and gender have shaped cultural meanings and the social positioning of specific groups, especially women with disabilities. Topics include non-normative embodiment, issues of representation and subjectivity, and the politics of health, sexuality, and care.

Cross Listed WIND 2700.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/AMST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

GWST3200 - Perspectives in Chicana Studies

Credits: 3

An interdisciplinary introduction to the study of the history, culture, gender relations, and contemporary political, economic status of Chicanas/Mexican American women. Examines the origins, development of Chicana studies as a major emphasis in Chicano/ Chicana studies.

Cross Listed LTST 3200.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: LTST 1100.

GWST3300 - Psychology of Gender

Credits: 3

In this course, we will examine a variety of psychological theories and research on the experiences and behaviors of men and women. We will study attitudes about gender, theories of gender development, and research about similarities and differences between men and women.

Cross Listed PSYC 3300.

Prerequisite: A grade of C or better in PSYC 1000.

GWST3400 - Popular Music and Sexualities

Credits: 3

Looks at ways in which popular music has intersected with sexual and gendered identities as a means and expression of both oppression and liberation.

Cross Listed AMST 3400.

USP 2003-2014 Code U3CH, U3D

Prerequisite: WA.

GWST3710 - Gender and Humanities

Credits: 3

Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity and class.

Cross Listed ENGL 3710/ART 3710.

When Offered (Offered once a year)

USP 2003-2014 Code U3CH

USP 2015 Code U5C2

Prerequisite: GWST 1080 or ENGL 1010.

GWST3800 - Chicanas/os in Contemporary Society

Credits: 3

Focuses on three major movements within the Chicana/o community; labor, nationalism, and feminism. Students will assess these three movements to determine what role they have played in transforming the social conditions and political identity of the Chicana/o and Latina/o population in the US.

Cross Listed AMST/ LTST 3800.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: LTST 1100 or GWST 1080 or AMST 2010.

GWST4200 - Gender and Race in the Economy

Credits: 3

Focuses on the role gender and race play in the economy; specifically the way that gender and race affect economic outcomes for individuals in the United States.

Cross Listed AGEC 4200.

Dual Listed GWST 5200.

A&S College Core 2015 ASD

Prerequisite: AGEC 1020 or equivalent, or SOC 1000, or GWST 1080, and WB.

GWST4300 - The Politics of Sexuality

Credits: 3

Addresses issue of how sexuality has become gendered with different meanings for both males and females as to reproductive behavior, especially how women's bodies are defined in sexual terms.

When Offered (Offered every other year)

Prerequisite: GWST 1080, 3500 or GWST 3710.

GWST4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society.

Cross Listed Cross-listed with AAST 4233 and COJO 4233;

Dual Listed dual-listed with GWST 5233.

USP 2003-2014 Code U3D, U3WC

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

GWST4335 - Women and Islam

Credits: 3

Examines women's lives in Islamic societies from the seventh century to the present in the Middle East and throughout the world. Themes include women's position in Islamic law, society and culture, Western images of Muslim women, veiling and Islamist movements, theoretical readings on power, gender and agency.

Cross Listed HIST 4335 and RELI 4335.

Dual Listed GWST 5335.

Prerequisite: 9 hours of HIST, WMST, INST, or RELI.

GWST4360 - American Indian Women

Credits: 3

Explores the lives of American Indian women in a variety of contexts through time. The complexity and diversity of Indian women's experiences throughout history are emphasized. Much of the class concerns Indian women's lives within the reality of European American colonization and its consequences for Indian peoples.

Cross Listed NAIS 4360/SOC 4360.

Prerequisite: 6 hours of 2000-level NAIS classes.

GWST4450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 5450.

Prerequisite: 6 hours in WMST, PHIL, and/or ENR.

GWST4500 - Special Topics in Women's Studies

Credits: 1-4

Presents current research issues by visiting and regular faculty.

Prerequisite: GWST 1080, 3500, GWST 3710 or consent of instructor.

GWST4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims

and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540.

When Offered (Offered every other year)

Prerequisite: ENGL 1080/GWST 1080, WMST/SOC 3500, or CRMJ 2400/SOC 2400 , WMST/GWST 2500

GWST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 4650/LTST 4650/INST 4650.

Dual Listed GWST 5650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

GWST4675 - USWomen of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed AAST 4675/LTST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: junior standing and/or a combination of

GWST4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the twentieth century.

Cross Listed ART 4780.

Dual Listed GWST 5780.

Prerequisite: ART 2010 or ART 2020 or 3 hours of Women's Studies courses; and WB.

GWST4440 - Queer Life Through Memoir

Credits: 3

This reading intensive class explores queer life in the late 20th and early 21st centuries in the United States of America. Through close reading and analysis of the texts and discussions, issues of sexuality, race, class, violence and place are explored.

Cross Listed GWST 5440

Prerequisite: GWST 2000 , GWST 4430 , or GWST 5430 or graduate standing, or permission of instructor

GWST4960 - Women's Bodies, Women's Minds

Credits: 3

Explores women's physiologic and psychologic development and the influences of patriarchal society upon the interpretation of what constitutes normalcy across the female life cycle. Historical, cultural and contemporary attitudes of the health care system and women's perspectives on menstruation, childbearing, breastfeeding and menopause will be analyzed.

When Offered (Offered every other year)

USP 2003-2014 Code U3CS

Prerequisite: upper division status.

GWST4965 - Senior Honors Project

Credits: 3

The student consults with the director/faculty supervisor to identify a topic and (a) produces a 30-40 page research paper or (b) a shorter 15-20 page paper plus a creative or service learning component, showing originality, firm knowledge of the discipline(s), and solid research skills, with a thesis defense as culmination.

Former Course Number [4980]

Prerequisite: GWST 4700, or concurrent enrollment with instructor consent, and a 3.500 GPA.

GWST4970 - Internship

Credits: 3

Max Credit (Max. 12)

Students gain practical experience in the application of principles learned in women's studies courses. Students will work with the director of women's studies internships to select a site; will intern approximately ten hours per week in the host organization; and will complete written assignments which reflect the student's work.

Former Course Number [4000]

Prerequisite: 12 semester hours of WMST coursework,

GWST4975 - Independent Studies

Credits: 1-4

Max Credit (Max. 9)

Offers the advanced student the opportunity to pursue a topic of interest with the assistance and direction of an

instructor in women's studies.

Former Course Number [4970]

Prerequisite: 6 hours in women's studies or consent of instructor.

Grading & Honors

Grading Requirements

All GWST core courses and at least 15 credit hours of GWST electives must be completed with a "C" or better.

To be eligible for internships, students must have a minimum GPA of 3.300.

Honors in Gender & Women's Studies

Honors in Gender and Women's Studies recognizes academically ambitious students who have excelled in their undergraduate careers, and who are ready for graduate school and/or employment in the public or private spheres. Requirements include an overall minimum GPA of 3.500 and the completion of GWST 4965, Senior Honors Project.

Honors in GWST also requires the completion of 3 semesters of foreign language or sign language, or a concentration in quantitative analysis and research methods, including statistics.

Students in UW Honors Program, McNair Scholars Program, or other departments that require completion of an independent research project may dovetail their honors work in GWST with those programs.

Additional Information

Students in GWST are encouraged to work with a faculty advisor to develop an individualized plan of study. Contact the program director, Dr. Michelle Jarman (mjarman@uwo.edu), for more information.

Geology and Earth Science, B.A.

The B.A. in Geology and Earth Science provides students with a broad educational experience in preparation for careers in earth science-related fields.

Required Courses

Each of the following:

- GEOL 1000-level intro lab course(s) Credits: 4-8

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the

evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

Six Courses from the Following

ATSC2000 - Introduction to Meteorology

Credits: 4

First course in meteorology for students with minimal background in math and science. Provides general and practical understanding of weather phenomena. Emphasizes observational aspects of the science, meteorological view of the physical world and the impact the science has on life and society. Includes three hours of lecture and one laboratory per week. Includes atmospheric composition and structure, radiation, winds and horizontal forces, stability and vertical motions, general circulation, synoptic meteorology, clouds and precipitation, severe storms and atmospheric optics.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

OR

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

- GEOL 2005 - Intro to Geophysics Credits: 4

OR

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL2050 - Principles of Paleontology

Credits: 4

Max Credit 4

Examines principles, biological and geological, that underlie general study of ancient life on Earth. Includes interactions of evolutionary, taphonomic, and paleogeographic concepts within various approaches to paleobiology and systematic paleontology. Optional field trip.

When Offered (Normally offered spring semester)

Prerequisite: 1000-level GEOL or LIFE 1000 or LIFE 1010

GEOL2070 - Introduction to Oceanography

Credits: 4

Survey of ocean processes, including the major subdisciplines of physical, geological, chemical, and biological oceanography. Studies the form of the world ocean; composition and chemistry of seawater; circulation, currents, waves and tides; nutrients and organisms; estuaries and coastal processes; origin and distribution of deep-sea sediments; and impacts of human activities.

When Offered (Normally offered the first half of the fall semester)

Prerequisite: GEOL 1005, GEOL 1100, 1200, GEOL 1500 or ENR 1500; MATH 1405 or MATH 1450.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL4444 - Geohydrology

Credits: 4

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 5444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust.

Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL4835 - Applied/Exploration Geophysics

Credits: 3

Discusses the fundamentals of Applied or Exploration Geophysics, encompassing lecture, laboratory classes and discussion of case histories. It covers the Seismic Refraction, Seismic Reflection, Gravity, and Magnetism methods. Provides a solid grounding about the exploration of the Earth's subsurface for mineral and hydrocarbon resources, and environmental issues.

Dual Listed GEOL 5835.

Former Course Number [GEOL 4970]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210 and MATH 2200.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

OR

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

Additional Electives

Additional 12 hours of electives with adviser consultation, at least 6 hours of which must be taken outside of the Department of Geology and Geophysics.

Geology, B.S.

The B.S. in Geology program provides a quality educational experience for students intending to enter careers in geology. Graduates will have gained the scientific and technical skills necessary for graduate programs and professional opportunities in geosciences.

Required Courses

Note: This program represents a minimum proficiency. Students are strongly advised to elect additional courses in geology.

One of the Following:

GEOL1005 - Earth History

Credits: 4

Reviews the evolution of the Earth including: the creation of the Universe, formation of a layered earth, development and history of continents, controls on climate change, and the origin and evolution of life. Class introduces basic geologic, chemical, physical and biologic concepts used to decipher Earth history.

USP 2003-2014 Code U3S

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

- GEOL 1200 - Historical Geology Credits: 4

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

And Each of the Following:

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

- GEOL 2005 - Introduction to Geophysics Credits: 4
- OR**

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust. Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL4717 - Field Course in Geology

Credits: 1-8

Reviews field observation of geologic phenomena, methods of geologic mapping and interpretation of data collected. Course includes a six-week field trip.

When Offered (Offered early summer)
Former Course Number [GEOL 5100]

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

Additional Geology Courses

Additional 18 credit hours in Geology courses at 2000-level and above:

Allied Math and Sciences Credits: 20 Hours

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

OR

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

OR

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OPTION A: Fundamental Math

GEOL2120 - Quantitative GeoMethods

Credits: 3

Focuses on fundamental mathematical concepts used in geosciences. This course provides the tools to solve quantitative problems in geosciences applications. Students should demonstrate mathematical skills needed to formulate, analyze, and interpret quantitative arguments in geosciences.

USP 2003-2014 Code U5Q

Prerequisite: Level 5 in Math Placement Test OR 23 in Math ACT OR 600 in Math SAT.

AND

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

OPTION B: Advanced Math

MATH 2200 - Calculus I. Credits: 4

AND

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

OR

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

OR

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students.

Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied.

Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

- Eng Physics Credits: 4

German, B.A.

As a German Major, you will develop your speaking, listening, and communication skills as a German speaker. You will gain a better understanding of perspectives and experiences of German speaking cultures.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses - 9 credits

A language major requires 30 hours of credit in a single language above 2030.

GERM2040 - Second Year German II

Credits: 3
Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5H

Prerequisite: GERM 2030 or three years of high school German.

GERM3050 - Third Year German I

Credits: 3
Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3060 - Introduction to German Literature

Credits: 3
Introduces literature of Germany. Analyzes major literary types and elements of criticism. Emphasizes compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Prerequisite: GERM 3050.

Electives - 21 credits

All electives must be above GERM 2030. At least three courses should be at the 4000-level.

GERM3006 - 20th Century German Culture and Civilization

Credits: 3
Major political, ideological and cultural developments in Germany between 1871 and the present. An interdisciplinary approach (history, art history, film and literature) allows students to explore and assess a nation's culture and civilization as well as far-reaching events (WWI, WWII and the Holocaust) from various perspectives.

USP 2003-2014 Code U3CH, U3WC

Prerequisite: junior standing.

GERM3150 - German History and Culture

Credits: 3

Taught in English, this class engages students both theoretically and practically with German history and culture throughout the ages from the Middle Ages to today. Reading content is complemented with outings to culturally and historically significant sites in Germany as part of a summer study abroad program.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WA or equivalent.

GERM3990 - Independent Study

Credits: 1-4

Focuses on books or periodicals of special interest to the student selected in consultation with a staff member; independent reading and reports.

Prerequisite: GERM 2030.

GERM4070 - Fourth Year German

Credits: 3

Emphasizes weekly compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Dual Listed GERM 5070.

When Offered (Offered every other year)

Prerequisite: GERM 3060.

GERM4080 - German-English and English- German Translation

Credits: 3

Encompasses written translation exercises based on contemporary and relevant texts in both English and German. Addresses specific translation problems arising in both English and German, when translating into the other language.

When Offered (Offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: GERM 3050 and/or GERM 3060.

GERM4100 - A Survey of German Literature I

Credits: 3

Studies German literature and civilization from the Middle Ages to the 17th century.

Dual Listed GERM 5100.

Prerequisite: GERM 2140 or equivalent.

GERM4110 - A Survey of German Literature II

Credits: 3

Studies German literature and civilization from the 18th century to the end of the 20th century.

Dual Listed GERM 5110.

Prerequisite: GERM 2140 or equivalent.

GERM4145 - Weimar Classicism

Credits: 3

Introduces student to Weimar Classicism, one of the crucial periods in German literature and culture. Explores the foundation of the movement, its cultural and historical contexts, aesthetic and philosophical principles, and significant works during this period. Primary language for instruction for this course is German.

Dual Listed GERM 5145.

Prerequisite: GERM 2140 or equivalent.

GERM4180 - German Poetry

Credits: 3

Surveys poetry from the Middle Ages to the present. Emphasizes poetry after 1600. Treats formal elements and genre categories.

Dual Listed GERM 5180.

Prerequisite: GERM 2140.

GERM4200 - Introduction to Research

Credits: 3

Max Credit 9

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2015 Code U5C3

Prerequisite: 12 hours of 4000-5000-level courses.

GERM4240 - German Literature of the Romantic Period

Credits: 3

Introduces the philosophical bases of German Romanticism and analyzes representative works of prose and poetry.

Dual Listed GERM 5240.

Prerequisite: GERM 2140 or equivalent.

GERM4255 - 19th Century German Novellas

Credits: 3

Studies a wide selection of significant German novellas from the period when this genre flourished in the German-speaking world, with a popularity unparalleled in the rest of Europe. Examines the form's origins, evolution, reception, and theory.

Dual Listed GERM 5255.

Prerequisite: GERM 2140 or equivalent.

GERM4275 - Contemporary Migration Literature

Credits: 3

Introduces students to a range of recent cultural production by artists identified with immigrant communities or communities of color. Topics examined include intersections of gender, race, nation, culture, and class; experiences of different minorities; question of national and transnational identity, self-representation, immigration, multiculturalism and integration debates. Course is taught in German.

Dual Listed GERM 5275.

Prerequisite: GERM 2140 or equivalent.

GERM4285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities. Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the Americanization of German culture, minorities in contemporary Germany.

Dual Listed GERM 5285.

Prerequisite: WB.

GERM4990 - Advanced Independent Study

Credits: 1-3

Encompasses special projects designed to meet needs of individual students, designed in consultation with instructor.

Prerequisite: GERM 2140 and consent of instructor.

History, B.A.

A History B.A. provides the skills needed to succeed in any job, public history, archive and museum work, law, education, business and more. Skills mastered include critical thinking, multi-perspective analysis, and written and oral communication.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

ENGL 1010

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

College of Arts and Sciences Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

History Requirements

The History major requires a minimum of 36 credit hours in History courses or approved substitutions and an additional 12 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages. All courses used to satisfy major requirements - including the language

requirement - must be completed with a grade of C or better. To complete the Bachelor of Arts (B.A.) degree in History, all University Studies Program (USP) and college requirements must also be satisfied.

Language

Students must complete three semesters of a single foreign language or the equivalent as determined by the Department of Languages - Modern and Classical. This requirement may be satisfied by American Sign Language.

Two Required Courses: 6 Hours

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

AND

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

Elective: Any Level: 3 Hours

One additional History course at any level.

Lower-Division Electives: 12 Hours

Lower-Division courses are 1000 and 2000 level courses.

HIST1101 - FYS: Hamilton's America: Beyond the Musical

Credits: 3

Over the last few years, Hamilton: An American Musical has taken the world by storm. Taking the musical as a starting point, we will consider the real Alexander Hamilton's life and times; the relationship between history, memory, storytelling, and art; and the newfound love of an historical figure who was, in his own time, less than universally popular. This course fulfills the First-Year Seminar (FYS) requirement of the 2015 University Studies Program.

USP 2015 Code U5FY

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

HIST1210 - United States History I

Credits: 3

Surveys U. S. history 1607-1865. Together with HIST 1220, it is the foundation on which all U. S. history courses offered by the department are based. Students cannot receive credit for both HIST 1210 and HIST 1211 .

USP 2003-2014 Code U3VT

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1220 - United States History II

Credits: 3

Surveys U.S. history from reconstruction to recent past. Together with HIST 1210, it is the foundation for all U. S. history courses offered by the department. Students cannot receive credit for both HIST 1220 and HIST 1221.

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1250 - History of Wyoming

Credits: 3

A study of Wyoming from its beginning to the present. Students cannot receive credit for both HIST 1250 and HIST 1251.

USP 2003-2014 Code U3VT

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1290 - History of the U.S. West

Credits: 3

An introductory survey of the American West, with consideration of developments in both the 19th and 20th centuries.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and

interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

HIST2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed ENR 2030.

USP 2003-2014 Code [(none)<>H]

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST2060 - Topics in History

Credits: 2-3
Max Credit 6

Discusses special topics that fall outside traditional chronological and geographical framework of history; content varies from semester to semester in accordance with faculty interest and student demand.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2105 - Medieval Europe in Film

Credits: 3

Historical depictions in films help to shape people's view of the past. Uses commercial films to study major themes in the development of western European civilization between 500 and 1500. Students view, discuss and write about films, learning to evaluate films historically and to view films critically, developing media literacy.

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

HIST2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed RELI 2225.

USP 2015 Code U5H

HIST2230 - The History of Russia to 1855

Credits: 3

General survey of modern Russian history from earliest times to 1855.

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed RELI 2250.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2252 - American Religious History II (1865 to 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed RELI 2252.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed INST 2280.

USP 2015 Code U5C2

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

HIST2315 - History of Non-Western Religions

Credits: 3

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed RELI 2315.
USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

HIST2360 - African-American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed AAST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

HIST2370 - Chicano History: Origins to 1900

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2370/GEOG 2370.
USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2380 - Latin American History 1500 to 2000

Credits: 3

Provides introduction to Latin American history, from colonial contacts to the present. Explores important themes and connections across the colonial and modern periods, such as race, national identity, foreign involvement, indigenous peoples' role in nation-states, religion, social movements, economic systems, and globalization.

USP 2003-2014 Code U3G

USP 2015 Code U5H

HIST2385 - Chicano History : 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

HIST2390 - US West Between the World Wars

Credits: 3

Examines two pivotal decades (1918-1942) in the US West that encompasses prosperity, Depression, and reform, through the use of historical documents, art, film, literature, and music.

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4
Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

HIST2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed ECON 2500.

HIST2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in long-distance trade.

Cross Listed ANTH 2600.
USP 2015 Code U5H

HIST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/AMST 2700/ANTH 2700.
USP 2003-2014 Code U3CH

HIST2705 - Museology II

Credits: 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater

appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes. Cross listed between Anthropology, History, American Studies, and Art.

Cross Listed AMST 2705 / ANTH 2705 / ART 2705

Upper-Division Electives: 15 Hours

Upper-Division courses are 3000 and 4000 level courses.

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research.

Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/POLS 3050.

Prerequisite: WB or COM2.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/PHIL 3160.

Prerequisite: WB or COM2.

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000 or RELI 2225/HIST 2225.

HIST3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500 - 1500 CE, concentrating on the Latin West. It examines the growth of Christian institutions and practices, the Church's role as sole governing entity, along with conflicts with secular governments as they developed in later centuries.

Cross Listed RELI 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

HIST3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: RELI 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

HIST3275 - World Christianities

Credits: 3

Examines the development of Christianity primarily in Africa, Asia and South America.

Cross Listed RELI 3275

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WB and CH

HIST3300 - Secret History of Science

Credits: 3

Explores developments in science from prehistory to the present. It focuses on the lesser-known men and women who contributed to science, as well as on seemingly superstitious beliefs that were nonetheless important to advances in knowledge.

Restricted Restricted to junior standing or higher.

Prerequisite: 6 hours in HIST or 6 hours of PN coursework, or a combination of both.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

HIST3500 - Colonial America

Credits: 3

This course covers the history of European colonization from roughly 1492 to 1763. Our geographic focus will be on the (future) United States, but will also learn how transatlantic forces influenced its people.

Prerequisite: 12 hours of HIST courses or permission of instructor.

HIST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia, and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed AAST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/HIST 2360.

HIST3880 - Comparative History

Credits: 3

Explores comparative history from a variety of topics, such as colonialism, memory, nationalisms, frontiers, or cultural history. This course will introduce students to at least one of these themes from at least two regions, time periods, or groups of people to understand patterns and change in human societies through time.

Prerequisite: 6 hours of HIST.

HIST3900 - Historical Archaeology

Credits: 3

This course introduces students to the field of historical archaeology, the archaeological and archival study of literate societies. Students will be introduced to the history of the discipline, a survey of contemporary historical archaeological practice.

Cross Listed ANTH 3900

Former Course Number [none < > none]

Prerequisite: ANTH 1300

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000

Dual Listed HIST 5000

USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 9 hours of HIST or NAIS.

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

HIST4060 - Independent Study

Credits: 1-3

Max Credit 6

Credit not to exceed 6 hours maximum, to be arranged in either European or American history. Primarily for juniors and seniors who can profit from independent work with minimal supervision.

Prerequisite: 12 semester hours in history; written permission of instructor required.

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

HIST4100 - Early Medieval Europe

Credits: 3

Studies development of European civilization from decline of Rome to 12th century.

Dual Listed HIST 5100.

Prerequisite: 9 hours of HIST.

HIST4110 - The High Middle Ages

Credits: 3

Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 5110.

Prerequisite: 9 hours of HIST.

HIST4112 - History of the Medieval City

Credits: 3

After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000 Europe began its rise to world prominence and cities contributed to that rise. Examines development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 5112.

Prerequisite: 9 hours of HIST.

HIST4113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what some would call heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed RELI 4113.

Dual Listed HIST 5113.

Prerequisite: 9 hours of HIST or RELI.

HIST4120 - Europe During the Renaissance

Credits: 3

Intensely studies European history in 14th and 15th centuries.

Prerequisite: 9 hours of HIST.

HIST4130 - Europe During the Reformation

Credits: 3

Intensely studies European history in the 16th century.

Prerequisite: 9 hours of HIST.

HIST4140 - Europe During the Age of the Baroque

Credits: 3

Intensely studies European history in 17th century.

Prerequisite: 9 hours of HIST.

HIST4150 - Europe During the Age of the Enlightenment

Credits: 3

Intensely studies European history in 18th century.

Prerequisite: 9 hours of HIST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed RELI 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

HIST4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed RELI 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend

globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 5305.

USP 2003-2014 Code U3G

Prerequisite: 9 hours of HIST, INST, or POLS.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 4380.

Dual Listed HIST 5380.

Prerequisite: 9 hours of HIST or INST.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

HIST4405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African and Asian people from pre-contact through the mid-19th century.

Dual Listed HIST 5405.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 5406

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST.

HIST4410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 5410.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 5415.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 5425.

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4450 - The Civil War and Reconstruction

Credits: 3

Studies crisis of the Union, 1861-1877. Examines experiences of both the North and South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 5450.

Prerequisite: 9 hours of HIST.

HIST4460 - Post-Civil War America: The Gilded Age

Credits: 3

Intensively covers economic, cultural and political developments which marked the U.S. in post-Civil War era, such as rise of industry, emergence of distinctive national culture and party struggles shaping America's Gilded Age.

Dual Listed HIST 5460.

Prerequisite: 9 hours of HIST.

HIST4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed NAIS 4462.

Dual Listed HIST 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

HIST4463 - American Indian History 1783 to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied moving west.

Cross Listed NAIS 4463.

Dual Listed HIST 5463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural, social and political forms that help create an American Indian identity.

Cross Listed NAIS 4464.

Dual Listed HIST 5464.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed NAIS 4466.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST, NAIS, or ANTH.

HIST4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed NAIS 4468.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U. S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between depression of the 1890s and that of the 1930s.

Dual Listed HIST 5470.

Prerequisite: 9 hours of HIST.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

HIST4480 - Growth of Modern America, 1929 to 1960

Credits: 3

Studies political and diplomatic developments in the U.S. in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasizes economic crisis, growth of government, reform traditions, anti-communism and civil rights.

Dual Listed HIST 5480.

Prerequisite: 9 hours of HIST.

HIST4485 - U.S. Latino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U.S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives' responses are stressed.

Cross Listed LTST 4485/INST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Cross Listed LTST 4492.

Dual Listed HIST 5492.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST or INST.

HIST4494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 5494.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or INST.

HIST4495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 5495.

Former Course Number [4720]

Prerequisite: 9 hours of HIST or INST.

HIST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed LTST 4496.

Dual Listed HIST 5496.

Former Course Number [4800]

Prerequisite: 9 hours of HIST or INST.

HIST4505 - The Old South, 1820 to 1861

Credits: 3

Studies history of the South from emergence of southern identity to the Civil War. Emphasizes southern society and culture.

Dual Listed HIST 5505.
Former Course Number [4500]

Prerequisite: 9 hours of HIST.

HIST4510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 5510.
Former Course Number [4950]

Prerequisite: 9 hours of HIST.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.
Former Course Number [4710]

Prerequisite: 9 hours of HIST.

HIST4530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 5530.
Former Course Number [4630]

Prerequisite: 9 hours of HIST.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

HIST4540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 5540.

Former Course Number [4640]

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

HIST4560 - American Social History in the 20th Century

Credits: 3

Explores history of social mobility and conflict in 20th century. Emphasizes impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting and architecture.

Dual Listed HIST 5560.

Prerequisite: 9 hours of HIST.

HIST4582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed INST 4582.

Dual Listed HIST 5582.

Prerequisite: 9 hours of HIST or INST.

HIST4610 - Seminar Topics in the History of Wyoming I

Credits: 3

An intensive research and writing course dealing with topics in the period before statehood in 1890.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4620 - Seminar Topics in the History of Wyoming II

Credits: 3

Allows students to do intensive research and writing dealing with topics in Wyoming history from 1890 to present.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4965 - Senior Thesis

Credits: 3

Working closely with a faculty advisor, a history major will develop a research proposal that, after approval by the History department faculty, will lead to in-depth research and writing, producing a minimum 50-page thesis that demonstrates an excellent grasp of historical methods and a high degree of writing skill.

Prerequisite: 12 hours of HIST; senior class standing; HIST major.

HIST4990 - Topics in _____

Credits: 1-6

Max Credit (Max. 12)

Affords students opportunity to study in-depth various topics in history not offered in regular courses or independent study.

Former Course Number [4080]

Prerequisite: 9 hours of HIST.

History, Public History Concentration, B.A.

Want work in a museum, historical site, park, archive, historical consulting firm, establishing and operating archives and records management systems for private businesses, state agencies, or universities, and more? Then public history is for you.

Public History Concentration

Combined with the History B.A. requirements (below,) students can declare a Public History Concentration. The History B.A. requires a minimum of 36 credit hours in History courses, and 18 of those can qualify to meet the Public History Concentration requirements. The Public History Concentration requires a minimum of 18 hours of History coursework that may be tailored for individual student career goals.

Specific course requirements for the Public History Concentration are as follows:

Required Courses for Public History Concentration

HIST2050 - Introduction to Public History

HIST2700 - Introduction to Museology

HIST3020 - Historical Methods

HIST4400 - Internship

Elective courses for Public History Concentration

2 of the following courses:

HIST4055 - Archival Research Methods

HIST4077 - Book History: Topics

HIST4315 - History, Politics and Memory of the Holocaust in Europe

HIST4320 - Memory and National Identity in Twentieth Century Europe

HIST4400 - Internship (Students are allowed 2 Internship courses if approved by an advisor)

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

ENGL 1010

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

College of Arts and Sciences Core

D- - Diversity

Credits: 3

A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3

A&S Core: Global Awareness Course

History BA Requirements

The History major requires a minimum of 36 credit hours in History courses or approved substitutions and an additional 12 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages. All courses used to satisfy major requirements - including the language requirement - must be completed with a grade of C or better. To complete the Bachelor of Arts (B.A.) degree in History, all University Studies Program (USP) and college requirements must also be satisfied.

Language

Students must complete three semesters of a single foreign language or the equivalent as determined by the Department of Languages - Modern and Classical. This requirement may be satisfied by American Sign Language.

Two Required Courses: 6 Hours

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research.

Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

AND

HIST4030 - Senior Capstone Seminar

Credits: 3
Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

Elective: Any Level: 3 Hours

One additional History course at any level.

Lower-Division Electives: 12 Hours

Lower-Division courses are 1000 and 2000 level courses.

HIST1101 - FYS: Hamilton's America: Beyond the Musical

Credits: 3

Over the last few years, Hamilton: An American Musical has taken the world by storm. Taking the musical as a starting point, we will consider the real Alexander Hamilton's life and times; the relationship between history, memory, storytelling, and art; and the newfound love of an historical figure who was, in his own time, less than universally popular. This course fulfills the First-Year Seminar (FYS) requirement of the 2015 University Studies Program.

USP 2015 Code U5FY

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

HIST1210 - United States History I

Credits: 3

Surveys U. S. history 1607-1865. Together with HIST 1220, it is the foundation on which all U. S. history courses offered by the department are based. Students cannot receive credit for both HIST 1210 and HIST 1211 .

USP 2003-2014 Code U3VT

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1220 - United States History II

Credits: 3

Surveys U.S. history from reconstruction to recent past. Together with HIST 1210, it is the foundation for all U. S. history courses offered by the department. Students cannot receive credit for both HIST 1220 and HIST 1221.

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1250 - History of Wyoming

Credits: 3

A study of Wyoming from its beginning to the present. Students cannot receive credit for both HIST 1250 and HIST 1251.

USP 2003-2014 Code U3VT

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1290 - History of the U.S. West

Credits: 3

An introductory survey of the American West, with consideration of developments in both the 19th and 20th centuries.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

HIST2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed ENR 2030.

USP 2003-2014 Code [(none)< >H]

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST2060 - Topics in History

Credits: 2-3

Max Credit 6

Discusses special topics that fall outside traditional chronological and geographical framework of history; content varies from semester to semester in accordance with faculty interest and student demand.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2105 - Medieval Europe in Film

Credits: 3

Historical depictions in films help to shape people's view of the past. Uses commercial films to study major themes in the development of western European civilization between 500 and 1500. Students view, discuss and write about films, learning to evaluate films historically and to view films critically, developing media literacy.

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

HIST2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed RELI 2225.

USP 2015 Code U5H

HIST2230 - The History of Russia to 1855

Credits: 3

General survey of modern Russian history from earliest times to 1855.

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed RELI 2250.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2252 - American Religious History II (1865 to 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed RELI 2252.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed INST 2280.

USP 2015 Code U5C2

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

HIST2315 - History of Non-Western Religions

Credits: 3

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed RELI 2315.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

HIST2360 - African-American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed AAST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

HIST2370 - Chicano History: Origins to 1900

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2370/GEOG 2370.
USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2380 - Latin American History 1500 to 2000

Credits: 3

Provides introduction to Latin American history, from colonial contacts to the present. Explores important themes and connections across the colonial and modern periods, such as race, national identity, foreign involvement, indigenous peoples' role in nation-states, religion, social movements, economic systems, and globalization.

USP 2003-2014 Code U3G
USP 2015 Code U5H

HIST2385 - Chicano History : 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2385.
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD

HIST2390 - US West Between the World Wars

Credits: 3

Examines two pivotal decades (1918-1942) in the US West that encompasses prosperity, Depression, and reform, through the use of historical documents, art, film, literature, and music.

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4
Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

HIST2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed ECON 2500.

HIST2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in

long-distance trade.

Cross Listed ANTH 2600.
USP 2015 Code U5H

HIST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/AMST 2700/ANTH 2700.
USP 2003-2014 Code U3CH

HIST2705 - Museology II

Credits: 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes. Cross listed between Anthropology, History, American Studies, and Art.

Cross Listed AMST 2705 / ANTH 2705 / ART 2705

Upper-Division Electives: 15 Hours

Upper-Division courses are 3000 and 4000 level courses.

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 6 hours of HIST or NAIS.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/POLS 3050.

Prerequisite: WB or COM2.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/PHIL 3160.

Prerequisite: WB or COM2.

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G
A&S College Core 2015 ASG
Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000 or RELI 2225/HIST 2225.

HIST3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500 - 1500 CE, concentrating on the Latin West. It examines the growth of Christian institutions and practices, the Church's role as sole governing entity, along with conflicts with secular governments as they developed in later centuries.

Cross Listed RELI 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

HIST3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: RELI 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

HIST3275 - World Christianities

Credits: 3

Examines the development of Christianity primarily in Africa, Asia and South America.

Cross Listed RELI 3275

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WB and CH

HIST3300 - Secret History of Science

Credits: 3

Explores developments in science from prehistory to the present. It focuses on the lesser-known men and women who

contributed to science, as well as on seemingly superstitious beliefs that were nonetheless important to advances in knowledge.

Restricted Restricted to junior standing or higher.

Prerequisite: 6 hours in HIST or 6 hours of PN coursework, or a combination of both.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

HIST3500 - Colonial America

Credits: 3

This course covers the history of European colonization from roughly 1492 to 1763. Our geographic focus will be on the (future) United States, but will also learn how transatlantic forces influenced its people.

Prerequisite: 12 hours of HIST courses or permission of instructor.

HIST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia, and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed AAST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/HIST 2360.

HIST3880 - Comparative History

Credits: 3

Explores comparative history from a variety of topics, such as colonialism, memory, nationalisms, frontiers, or cultural history. This course will introduce students to at least one of these themes from at least two regions, time periods, or groups of people to understand patterns and change in human societies through time.

Prerequisite: 6 hours of HIST.

HIST3900 - Historical Archaeology

Credits: 3

This course introduces students to the field of historical archaeology, the archaeological and archival study of literate societies. Students will be introduced to the history of the discipline, a survey of contemporary historical archaeological practice.

Cross Listed ANTH 3900

Former Course Number [none < > none]

Prerequisite: ANTH 1300

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000

Dual Listed HIST 5000

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

HIST4060 - Independent Study

Credits: 1-3

Max Credit 6

Credit not to exceed 6 hours maximum, to be arranged in either European or American history. Primarily for juniors and seniors who can profit from independent work with minimal supervision.

Prerequisite: 12 semester hours in history; written permission of instructor required.

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

HIST4100 - Early Medieval Europe

Credits: 3

Studies development of European civilization from decline of Rome to 12th century.

Dual Listed HIST 5100.

Prerequisite: 9 hours of HIST.

HIST4110 - The High Middle Ages

Credits: 3

Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 5110.

Prerequisite: 9 hours of HIST.

HIST4112 - History of the Medieval City

Credits: 3

After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000 Europe began its rise to world prominence and cities contributed to that rise. Examines development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 5112.

Prerequisite: 9 hours of HIST.

HIST4113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what some would call heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed RELI 4113.

Dual Listed HIST 5113.

Prerequisite: 9 hours of HIST or RELI.

HIST4120 - Europe During the Renaissance

Credits: 3

Intensely studies European history in 14th and 15th centuries.

Prerequisite: 9 hours of HIST.

HIST4130 - Europe During the Reformation

Credits: 3

Intensely studies European history in the 16th century.

Prerequisite: 9 hours of HIST.

HIST4140 - Europe During the Age of the Baroque

Credits: 3

Intensely studies European history in 17th century.

Prerequisite: 9 hours of HIST.

HIST4150 - Europe During the Age of the Enlightenment

Credits: 3

Intensely studies European history in 18th century.

Prerequisite: 9 hours of HIST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed RELI 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

HIST4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed RELI 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 5305.

USP 2003-2014 Code U3G

Prerequisite: 9 hours of HIST, INST, or POLS.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 4380.

Dual Listed HIST 5380.

Prerequisite: 9 hours of HIST or INST.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

HIST4405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African and Asian people from pre-contact through the mid-19th century.

Dual Listed HIST 5405.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 5406

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST.

HIST4410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 5410.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 5415.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 5425.

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4450 - The Civil War and Reconstruction

Credits: 3

Studies crisis of the Union, 1861-1877. Examines experiences of both the North and South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 5450.

Prerequisite: 9 hours of HIST.

HIST4460 - Post-Civil War America: The Gilded Age

Credits: 3

Intensively covers economic, cultural and political developments which marked the U.S. in post-Civil War era, such as rise of industry, emergence of distinctive national culture and party struggles shaping America's Gilded Age.

Dual Listed HIST 5460.

Prerequisite: 9 hours of HIST.

HIST4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed NAIS 4462.

Dual Listed HIST 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

HIST4463 - American Indian History 1783 to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied moving west.

Cross Listed NAIS 4463.

Dual Listed HIST 5463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural, social and political forms that help create an American Indian identity.

Cross Listed NAIS 4464.

Dual Listed HIST 5464.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed NAIS 4466.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST, NAIS, or ANTH.

HIST4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed NAIS 4468.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U. S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between depression of the 1890s and that of the 1930s.

Dual Listed HIST 5470.

Prerequisite: 9 hours of HIST.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

HIST4480 - Growth of Modern America, 1929 to 1960

Credits: 3

Studies political and diplomatic developments in the U.S. in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasizes economic crisis, growth of government, reform traditions, anti-communism and civil rights.

Dual Listed HIST 5480.

Prerequisite: 9 hours of HIST.

HIST4485 - U.S. Latino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U.S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives' responses are stressed.

Cross Listed LTST 4485/INST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Cross Listed LTST 4492.

Dual Listed HIST 5492.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST or INST.

HIST4494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 5494.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or INST.

HIST4495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 5495.

Former Course Number [4720]

Prerequisite: 9 hours of HIST or INST.

HIST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed LTST 4496.

Dual Listed HIST 5496.

Former Course Number [4800]

Prerequisite: 9 hours of HIST or INST.

HIST4505 - The Old South, 1820 to 1861

Credits: 3

Studies history of the South from emergence of southern identity to the Civil War. Emphasizes southern society and culture.

Dual Listed HIST 5505.

Former Course Number [4500]

Prerequisite: 9 hours of HIST.

HIST4510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 5510.

Former Course Number [4950]

Prerequisite: 9 hours of HIST.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

HIST4530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 5530.

Former Course Number [4630]

Prerequisite: 9 hours of HIST.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

HIST4540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 5540.

Former Course Number [4640]

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

HIST4560 - American Social History in the 20th Century

Credits: 3

Explores history of social mobility and conflict in 20th century. Emphasizes impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting and architecture.

Dual Listed HIST 5560.

Prerequisite: 9 hours of HIST.

HIST4582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed INST 4582.

Dual Listed HIST 5582.

Prerequisite: 9 hours of HIST or INST.

HIST4610 - Seminar Topics in the History of Wyoming I

Credits: 3

An intensive research and writing course dealing with topics in the period before statehood in 1890.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4620 - Seminar Topics in the History of Wyoming II

Credits: 3

Allows students to do intensive research and writing dealing with topics in Wyoming history from 1890 to present.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4965 - Senior Thesis

Credits: 3

Working closely with a faculty advisor, a history major will develop a research proposal that, after approval by the History department faculty, will lead to in-depth research and writing, producing a minimum 50-page thesis that demonstrates an excellent grasp of historical methods and a high degree of writing skill.

Prerequisite: 12 hours of HIST; senior class standing; HIST major.

HIST4990 - Topics in _____

Credits: 1-6

Max Credit (Max. 12)

Affords students opportunity to study in-depth various topics in history not offered in regular courses or independent study.

Former Course Number [4080]

Prerequisite: 9 hours of HIST.

International Studies, B.A.

Students graduating with a degree in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective. uwyo.edu/sppais.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements

All required courses for the major must be passed with a grade of C or better. There are numerous special topics courses offered during the academic year and these courses can fulfill the international studies requirements with approval from your adviser. Students are encouraged to satisfy the USP Q (quantitative reasoning) requirement by taking STAT2070 - Introductory Statistics for the Social Sciences or STAT2050 - Introduction to Statistics.

Core Courses

Students take 9 hours of core coursework. INST2350 - Introduction to Global Studies and INST2310 - Introduction to International Relations provide the theoretical framework for the global and regional tracks. INST4950 - Capstone in International Studies (Capstone) provides the culminating experience for students completing the B.A. degree in international studies and fulfills the COM3 writing requirement for the University Studies Program.

Area of Focus

Students will complete a minimum of 18 hours of coursework in two specific areas of focus, choosing a global and regional track. Students must complete a minimum of 9 hours in each track.

Global and regional tracks have suggested Gateway courses. Most Gateway courses fulfill University Studies requirements. All INST students are required to take the Regional Gateway course in their chosen region. All INST students are required to take the Regional Gateway course in their chosen region. These courses fulfill the COM2 requirement for the University Studies Program and count towards the 9 hours required for the Regional Track.

INST2230 - Introduction to Asian Studies

Credits: 3

Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

INST2240 - Introduction to African Studies

Credits: 3

Confronts African stereotypes by exploring the continent's complex history and current affairs, with the help of different disciplinary perspectives, such as economics, political science, and anthropology. Equipped with the basics, students will be primed to tackle more advanced courses on Africa.

Cross Listed AAST 2240.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

INST2250 - Introduction to Latin American Studies

Credits: 3

An introduction to the culture, history and politics of Latin America, from the US/Mexico border to the Antarctic ice fields of Patagonia. We will consider historical events and encounters from pre-Conquest times to contemporary crises. Our toolkit includes geography, anthropology, history, political economy, literature and cultural studies.

USP 2015 Code U5C2

OR

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.

USP 2015 Code U5C2

OR

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 o r POLS 1250 o r permission of the instructor.

Global Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

- Global Track, Sustainable Development and the Environment
- Global Track, Economic Systems
- Global Track, Culture and Social Issues
- Global Track, Governance and Conflict Resolution

Regional Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

- Regional Tracks, Africa and the Middle East
- Regional Tracks, Asia
- Regional Tracks, Europe and the Former Soviet Union
- Regional Tracks, Latin America

Foreign Language

Students must complete a four semester sequence in a single foreign language or show an equivalent level of proficiency. Language courses must be conversational language courses. American Sign Language is not considered a foreign language.

Electives

Students must take 9 hours of elective courses from the international studies curriculum, 6 of which must be upper division. The following Gateway courses can count for the elective requirement:

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

INST1060 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed Cross listed with: GEOG 1000.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

OR

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

INST1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed POLS 1200.

USP 2003-2014 Code U3CS, U3G

OR

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

INST1330 - World History since 1750

Credits: 3

A history of the world's peoples and societies from 1750 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Jazz Performance, B.M.

The BM in Jazz Performance is a jazz intense professional degree intended to prepare students for graduate school as well as a career in performing music. Acceptance to the program is by audition only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Jazz Performance, B.M.: 120 Credits

Music Core: 56 Credits

- Students must complete at least one ensemble per semester enrolled, total 8.

MUSC0200 - Music Convocation

Credits: 0
Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

Students must complete 8 semesters of Convocation, 1 each semester they are in residence.

MUSC1290 - Class Piano I

Credits: 1
Encompasses group instruction for the beginner at the keyboard. First semester of four-semester sequence. Enrollment limited to music or music education majors whose principal performance area is not piano.

When Offered (Offered fall semester)

MUSC1295 - Class Piano II

Credits: 1
Continues skills begun in MUSC 1290 including all major scales, beginning minor scales, prescribed chord progressions, harmonization, transposition, sight reading and repertoire.

When Offered (Offered spring semester)

Prerequisite: MUSC 1290 or successful completion of final exam requirements for MUSC 1290.

MUSC1030 - Written Theory I

Credits: 3
First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- One hour of Applied Lessons on the students major instrument must be taken every semester starting at the 2000 level.
 MUSC 2*** Applied Lessons II: 4 Credits
 MUSC 3*** Applied Lessons III: 4 Credits
 MUSC 4*** Applied Lessons IV: 4 Credits
 MUSC 5*** Applied Lessons V: 4 Credits

Instrumental Emphasis: 2 Credits

MUSC4615 - Instrumental Pedagogy

Credits: 2

Surveys teaching materials in solo and chamber literature, techniques, practices, and methods for applicable instrument.

Prerequisite: 8 credit hours of individual study in a specific instrument.

Jazz Core Requirements: 11 Credits

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz

materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

Upper Division Music Electives: 9 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D
A&S College Core 2015 ASD
Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050, MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin, viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4990 - Topics in:

Credits: 1-12

Max Credit (Max. 12)

Encompasses various topics in music. Specific subjects vary from year to year as course is often taught by distinguished visiting artists and lecturers or music faculty. Presents topics of special interest to music majors, graduate students and music educators. Please check class schedule for course titles each semester.

Prerequisite: consent of instructor.

MUSC5035 - Advanced Theory

Credits: 3

To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combing historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

General Electives: 6 Credits

Journalism, B.A.

The journalism major is designed to prepare students for careers as reporters, editors and writers with newspapers, news services, magazines, public information, public relations, advertising, and many other fields.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

- Departmental Core Courses Credits: 30

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

- Elective Credits: 15 (At least 9 hours must be from the list of journalism courses.) Three hours need to be upper division in COJO. The other three hours can be upper or lower division in COJO/COMM.

Departmental Core Courses

In addition to the university studies requirements listed in this catalog, all students majoring in communication and journalism must take the following required courses:

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COJO3070 - Communication Research

Credits: 3

Focuses on problems in communication and mass communication research. Specifically studies and applies language of science, basic concepts of communication, mass communication research, types and limitations of empirical research, as well as measurement procedures and analysis.

Prerequisite: COMM 1000 or COMM 1040 and STAT 2050 or STAT 2070.

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010.

College of Arts and Sciences Requirements

- A&S U.S. Diversity (ASD) Credits: 3
- A&S Global Awareness (ASG) Credits: 3

Additional Program Requirements

- Human Culture Credits: 6 (H)

Music Education, B.M.

The **BM in Music Education** is a professional degree intended to prepare students for careers as K-12 music educators. Acceptance to the program is by audition only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Music Education: B.M.

Music Core: 43 Credits

- Students must complete at least one ensemble per semester enrolled, total 7.

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2390 - Piano Literacy Exam

Credits: 0

The Piano Literacy test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2390 a maximum of two times. Consult the Music Department Handbook for specific requirements.

Restricted MUSIC, BA and BM Instrumental Performance only

- Students who are Brass, Woodwind, and Percussion Emphasis may fulfill this requirement by passing Class Piano 1 and 2 with a B or higher.
OR

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

- Required for all Vocal and String emphasis students. Class Piano 1-4 is recommended to prepare for this exam.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4155 - Senior Music Education Recital

Credits: 0

Music Education students perform a recital which may be a part of a Convocation or a separate performance. Consult your studio teacher for individual studio requirements.

Prerequisite: senior standing and studio teacher consent.

- Applied lessons are required each semester of residency:
MUSC 2*** Applied Lessons II: 2 Credits
MUSC 3*** Applied Lessons III: 2 Credits
MUSC 4*** Applied Lessons IV: 2 Credits
MUSC 5*** Applied Lessons V: 2Credits

Music Education Core: 13 Credits

Prerequisite: MUSC 1040 & 1045

MUSC1025 - Introduction to Music Education

Credits: 2

Introduces music teacher education. Includes overview of vocal and instrumental music education and teaching processes in grade levels K-12. Requires on-site visits and observations of music programs.

When Offered (Offered spring semester)

Former Course Number [1020]

Prerequisite: music majors only.

MUSC1312 - Public School Tech: Brass

Credits: 2

This course is designed to teach the fundamentals of brass pedagogy and performance for music education majors. The course consists of two components applied study on brass instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1322 - Public School Tech: Percussion

Credits: 2

This course is designed to teach the fundamentals of percussion pedagogy and performance for music education majors. The course consists of two components applied study on percussion instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1332 - Public School Tech: Strings

Credits: 2

This course is designed to teach the fundamentals of string pedagogy and performance for music education majors. The course consists of two components applied study on string instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1340 - Public School Methods: Voice I

Credits: 1

Max Credit (Max. 2)

Encompasses group instruction in vocal methods for music education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1352 - Public School Tech: Woodwinds

Credits: 2

This course is designed to teach the fundamentals of woodwind pedagogy and performance for music education majors. The course consists of two components applied study on woodwind instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1360 - Public School Methods: Guitar

Credits: 1

Max Credit (Max. 2)

Prerequisite: MUSC 1040, MUSC 1045.

MUSC3265 - Music Education Proficiency Review

Credits: 0

This course is required for entrance into upper-division Music Education coursework. The review will assess competency in oral and written communication skills, preliminary teacher performance, sight singing, and error detection. Completion is in the sophomore year or in the first semester for transfer students.

Prerequisite: sophomore standing.

MUSC4620 - Practicum in Music Education

Credits: 1

Provides opportunity to gain experience in music classroom in area public schools. Includes work on meeting educational standards of Wyoming necessary to begin student teaching and continued work on developing a teaching portfolio.

Prerequisite: MUSC 1050 and junior status.

Emphasis: Choose One, 4-5 credits

String Emphasis: 4 credits

- String majors must take lessons on a secondary string instrument. 2 credits

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

Vocal Emphasis: 4 credits

MUSC2320 - Diction for Singers I

Credits: 2

Studies phonetic sounds of English and Italian.

When Offered (Offered fall semester)

MUSC4620 - Practicum in Music Education

Credits: 1

Provides opportunity to gain experience in music classroom in area public schools. Includes work on meeting educational standards of Wyoming necessary to begin student teaching and continued work on developing a teaching portfolio.

Prerequisite: MUSC 1050 and junior status.

Brass, Woodwind, and Percussion Emphasis: 5 credits

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

Professional Education Requirements: 33 Credits

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

MUSC4455 - Elem General Music Methods

Credits: 3

This course is designed to prepare students for a career in K-6 music teaching while emphasizing the need for music teachers to recognize diverse student needs, including those unique qualities brought into the classroom by marginalized populations.

A&S College Core 2015 ASD

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent enrollment in MUSC 4705.

MUSC4460 - Choral Music Methods

Credits: 3

This course is designed to help pre-professional music educators gain tools for teaching secondary choral music. Topics to be explored include choral literature, methodology involving strengthening musicianship, rehearsal techniques, and issues pertaining to the development of a choral ensemble program.

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent Enrollment in MUSC 4715 for choral emphasis students.

MUSC4465 - Instrumental Music Methods

Credits: 3

Based on a comprehensive instrumental music education model, this course acquaints students with curriculum development, instructional planning, and materials and techniques designed for teaching musical concepts and skills in instrumental ensemble and class lesson settings.

USP 2015 Code U5C3

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent enrollment in MUSC 4715 for instrumental emphasis students.

MUSC4705 - Elementary Music Ed Practicum

Credits: 1

Practicum experience is integral to development as a music teacher. As part of the Music Teaching Methods Sequence, pre-service music teachers will be immersed into authentic elementary and secondary music settings.

Restricted Restricted to Music Education majors.

Prerequisite: Concurrent enrollment with MUSC 4455 for instrumental emphasis students.

MUSC4715 - Secondary Music Ed Practicum

Credits: 1

Practicum experience is integral to development as a music teacher. As part of the Music Teaching Methods Sequence, pre-service music teachers will be immersed into authentic elementary and secondary music settings.

Restricted Restricted to Music Education majors.

Prerequisite: Concurrent enrollment with MUSC 4460 or MUSC 4465.

MUSC4700 - Elementary Student Teaching in Music

Credits: 8

The final professional academic semester of the teacher education program. A full-time residency with an elementary mentor teacher.

Prerequisite: 2.750 cumulative GPA, 3.000 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

MUSC4710 - Secondary Student Teaching in Music

Credits: 8

The final professional academic semester of the teacher education program. A full-time residency with a secondary mentor teacher.

Prerequisite: 2.750 cumulative GPA, 3.000 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

Music Performance, B.M.

The **BM in Performance** is a professional degree intended to prepare students for graduate school as well as a career in performing music. Acceptance to the program is by audition only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

B.M. Performance, Vocal Emphasis: 120 Total Hours

Music Core: 54 Credits

- Ensembles: 1 per semester, minimum 8

MUSC0200 - Music Convocation

Credits: 0
Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons

without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Applied lessons are required each semester of residency:
MUSC 2*** Applied Lessons II: 4 Credits
MUSC 3*** Applied Lessons III: 4 Credits
MUSC 4*** Applied Lessons IV: 4 Credits
MUSC 5*** Applied Lessons V: 4 Credits

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

Vocal Emphasis: 6 Credits

MUSC2320 - Diction for Singers I

Credits: 2

Studies phonetic sounds of English and Italian.

When Offered (Offered fall semester)

MUSC2325 - Diction for Singers II

Credits: 2

Studies phonetic sounds of French and German. (Usually offered spring semester)

MUSC4635 - Vocal Pedagogy

Credits: 2

This specialized course addresses anatomy and physiology of the vocal instrument and the scientific principles surrounding it, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private voice studio. The last quarter of the class includes an in-class, supervised teaching unit. Students enrolled in the graduate level (5635) will undertake an extensive research paper/project and additional teaching.

Dual Listed MUSC 5635.

When Offered (Offered alternate spring semesters)

Former Course Number [4610]

Prerequisite: 8 credits of voice or permission of instructor.

Upper Division Music Electives: 16 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of

marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

B.M. Performance, Keyboard Emphasis: 120 Hours Total

Music Core: 56 Hours

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

- Students must be enrolled in Convocation every semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Applied lessons are required each semester of residency:
 - MUSC 2*** Applied Lessons II: 4 Credits
 - MUSC 3*** Applied Lessons III: 4 Credits
 - MUSC 4*** Applied Lessons IV: 4 Credits
 - MUSC 5*** Applied Lessons V: 4 Credits

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC1280 - Collaborative Piano I

Credits: 1-2

Max Credit (Max. 8)

Encompasses supervised practice in the art of collaborative piano playing. Discusses traditional usages as applicable to various schools and periods of vocal and instrumental duo literature.

Prerequisite: audition required.

- Ensembles: MUSC 1280 is intended for freshman and sophomores; MUSC 3280 is intended for juniors and seniors. You must be registered for a minimum of one ensemble per semester.

MUSC3280 - Collaborative Piano II

Credits: 1-2

Max Credit (Max. 8)

Encompasses supervised practice in the art of collaborative piano playing. Discusses traditional usages as applicable to various schools and periods of vocal and instrumental duo literature.

Prerequisite: audition required.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2
Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

Keyboard Emphasis: 5 Credits

MUSC4625 - Piano Pedagogy

Credits: 2
Max Credit (Max. 2)

This specialized course addresses the teaching of piano to children with special emphasis on the development of correct technique, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private studio. The last quarter of the class includes an in-class, supervised teaching unit.

Dual Listed MUSC 5625.
Former Course Number [4600]

Prerequisite: 8 credit hours of piano study.

MUSC4650 - Keyboard Literature

Credits: 3
An overview of solo ensemble keyboard literature from the 1600 s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

Upper Division Music Electives: 17 Hours

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3
Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.
USP 2003-2014 Code U3G, U3WB
A&S College Core 2015 ASG
Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin, viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

B.M. Performance, String Emphasis: 120 Total Hours

Music Core: 56 Credits

- Ensembles: 1 per semester, minimum 8

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

- Students must be enrolled in Convocation every semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

- Class Piano 1-4 is highly recommended for students with little or no piano experience. All music majors must pass a piano proficiency test during their sophomore year (MUSC 2395). If a student opts not to take Class Piano, then four (4) hours of elective credits must be taken to ensure 120 hours for graduation.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

Applied lessons are required each semester of residency:

MUSC 2*** Applied Lessons II: 4 Credits

MUSC 3*** Applied Lessons III: 4 Credits

MUSC 4*** Applied Lessons IV: 4 Credits

MUSC 5*** Applied Lessons V: 4 Credits

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

String Emphasis: 4 Credits

MUSC4615 - Instrumental Pedagogy

Credits: 2

Surveys teaching materials in solo and chamber literature, techniques, practices, and methods for applicable instrument.

Prerequisite: 8 credit hours of individual study in a specific instrument.

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

Upper Division Music Electives: 18 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050, MUSC 2055

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

B.M. Performance, Winds & Percussion Emphasis: 120 Total Hours

Music Core: 58 Credits

- Ensembles: 1 per semester, minimum 8

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

Students must be enrolled in Convocation every semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Applied lessons are required each semester of residency:
MUSC 2*** Applied Lessons II: 4 Credits
MUSC 3*** Applied Lessons III: 4 Credits
MUSC 4*** Applied Lessons IV: 4 Credits
MUSC 5*** Applied Lessons V: 4 Credits

MUSC1290 - Class Piano I

Credits: 1

Encompasses group instruction for the beginner at the keyboard. First semester of four-semester sequence. Enrollment limited to music or music education majors whose principal performance area is not piano.

When Offered (Offered fall semester)

AND

MUSC1295 - Class Piano II

Credits: 1

Continues skills begun in MUSC 1290 including all major scales, beginning minor scales, prescribed chord progressions, harmonization, transposition, sight reading and repertoire.

When Offered (Offered spring semester)

Prerequisite: MUSC 1290 or successful completion of final exam requirements for MUSC 1290.

OR

MUSC2390 - Piano Literacy Exam

Credits: 0

The Piano Literacy test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2390 a maximum of two times. Consult the Music Department Handbook for specific requirements.

Restricted MUSIC, BA and BM Instrumental Performance only

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

Instrumental Emphasis: 2 Credits

MUSC4615 - Instrumental Pedagogy

Credits: 2

Surveys teaching materials in solo and chamber literature, techniques, practices, and methods for applicable instrument.

Prerequisite: 8 credit hours of individual study in a specific instrument.

Upper Division Music Electives: 18 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600 s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

Music, B.A.

The **BA in Music** is a broad liberal arts degree with a 58-credit core music curriculum. Majors have the freedom to explore the potential for future careers in the music and arts industry such as arts management, entrepreneurship, and audio technology.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Music Core: 40 Credits

- Students must complete at least one ensemble per semester enrolled, total 8.

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

- All music majors must enroll in and successfully complete Convocation each semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2390 - Piano Literacy Exam

Credits: 0

The Piano Literacy test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2390 a maximum of two times. Consult the Music Department Handbook for specific requirements.

Restricted MUSIC, BA and BM Instrumental Performance only

- The Piano Literacy Exam must be completed by the end of Sophomore year. It may be substituted by passing Class Piano 1 and 2 with a B or higher.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Students must be enrolled in instrument specific lessons every semester they are enrolled. They must complete the following:
 - MUSC 2*** Applied Lessons II, 2 credits
 - MUSC 3*** Applied Lessons III, 2 Credits
 - MUSC 4*** Applied Lessons IV, 2 Credits
 - MUSC 5*** Applied Lessons V, 2 Credits

Upper Division Electives: 18 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4040 - Composition

Credits: 2
Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4315 - America's Ethnic Music

Credits: 3
Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D
A&S College Core 2015 ASD
Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3
An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3
Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3
Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H
Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2
Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for

music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050, MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin, viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4990 - Topics in:

Credits: 1-12

Max Credit (Max. 12)

Encompasses various topics in music. Specific subjects vary from year to year as course is often taught by distinguished visiting artists and lecturers or music faculty. Presents topics of special interest to music majors, graduate students and music educators. Please check class schedule for course titles each semester.

Prerequisite: consent of instructor.

MUSC5035 - Advanced Theory

Credits: 3

To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combing historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

Native American and Indigenous Studies, B.A.

The curriculum for the 30-hour Bachelor of Arts degree in Native American and Indigenous Studies will encourage students to understand and appreciate the roles of history, culture, and politics in the development of tribal world views.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

A&S College Core

The College of Arts and Sciences requires:

- D - Diversity (3 credits)
- G - Global (3 credits)

Major Requirements

Foundation Courses

Foundation Classes 9 Hours Required. Choose from the following:

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2210 - North American Indians

Credits: 3

Comparative consideration of North American Indian culture areas at European contact period.

Cross Listed ANTH 2210.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

NAIS & Crosslisted Courses

Choose seven (7), for a total of 21 credit hours, courses from the following:

NAIS1010 - Beginning Indigenous Language

Credits: 4

Fundamentals of grammar, conversation, composition, and reading.

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional

discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.
USP 2003-2014 Code U3I, U3L
A&S College Core 2015 ASD

NAIS2010 - Intermediate Indigenous Language

Credits: 4
Second level fundamentals of grammar, conversation, composition, and reading.

Prerequisite: NAIS 1010.

NAIS2060 - Topics

Credits: 1-4
Max Credit (Max. 6)

Popular and current topics in American Indian studies.

NAIS2340 - Native American Culture and Literature

Credits: 3
Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed ENGL 2340.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD
Prerequisite: WA course.

NAIS2345 - American Indians in Hollywood Film

Credits: 3
Examines the ways Hollywood films have constructed various forms of racial identity for American Indians.

Cross Listed ENGL 2345.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD
Prerequisite: WA.

NAIS3000 - Plains Culture and History

Credits: 3
An ethnohistorical study of those Native peoples inhabiting the Plains region of the U. S. from prehistory to the present.

Cross Listed HIST 3000.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 6 hours of HIST or NAIS.

NAIS3010 - Proficient Indigenous Language

Credits: 4
Emphasizes the development of listening, speaking, reading, and writing so as to help students function effectively in the tribal cultural context of which the language is a part.

Prerequisite: NAIS 2010.

NAIS3100 - Tribal Literatures of the Great Plains

Credits: 3
Familiarizes students with American Indian literatures of the Great Plains. The Great Plains region is the locus of much historical and contemporary significance in regard to American Indian cultures. The literature of Great Plains Indians allows students to confront and reexamine the national narratives surrounding American Indians.

Cross Listed ENGL 3100.
USP 2003-2014 Code U3D, U3WC
A&S College Core 2015 ASD
Prerequisite: 6 hours of NAIS or ENGL.

NAIS3200 - Indigenous Peoples and the Environment

Credits: 3
Understand the historical, political, and socio-economic forces that have shaped the relationships of Indigenous peoples to their environments, and be able to discern the similarities and dissimilarities of Indigenous issues across international borders. The course may include a study abroad component.

Prerequisite: 6 hours NAIS credit.

NAIS3300 - Federal Indian Law

Credits: 3
Survey of law that applies to individual Indians and tribal governments. In particular, explores the legal relationships among, and relative jurisdictions of federal, tribal, and state governments. Specific topics include civil and criminal jurisdiction, taxation, family law, hunting and fishing, and gaming regulations.

Prerequisite: NAIS 1001 or NAIS 1350.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3
Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples

and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

NAIS4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed HIST 4000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

NAIS4010 - Advanced Indigenous Language

Credits: 4

Stresses the usage of language through composition, conversation, oral presentation, and grammar review.

Prerequisite: NAIS 3010.

NAIS4020 - Internship

Credits: 1-12

Max Credit (Max. 12)

Requires active participation and service to an Indigenous community or organization in US or elsewhere. A written agreement among the student, the NAIS director or NAIS faculty mentor, and an on-site supervisor is required. NAIS Majors must take at least four credit hours.

Prerequisite: 9 hours of NAIS courses.

NAIS4100 - Tribal Government

Credits: 3

Examines traditional systems of tribal governance; the establishment of contemporary tribal governments; stakeholders and their goals; factors influencing tribal government operations, including the federal trust relationship, plenary power, tribal federal and tribal-state relations; powers of tribal governments; and the future of tribal governments.

Prerequisite: 6 hours of NAIS courses, including NAIS 1001, and/or NAIS 1350.

NAIS4110 - Educational Foundations in American Indian Education

Credits: 3

Examines cultural, geographical, linguistic, spiritual, political, and societal factors before, during, and after colonization of the Americas. Definitions and day-to-day realities of terms like ethnocentrism, cultural relativism, assimilation, acculturation, and institutional racism. Development of insights into positive teacher-pupil-community relationships that honor culture and language differences and enhance achievement.

Cross Listed EDCI 4110.

Dual Listed NAIS 5110.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: NAIS 1001 and 15 credit hours of NAIS or EDST.

NAIS4200 - Indigenous Communities Abroad: International Travel

Credits: 4

Devoted to study/ travel related to Indigenous peoples abroad. The specific topic will be determined each time the class is offered. Two weeks of international travel will follow sixteen hours of on-campus instruction.

Prerequisite: 6 credits in NAIS.

NAIS4340 - Natural Resource Management on Western Reservations

Credits: 3

Examines natural resource management techniques on western reservations. Focus is on the management and planning of water, grazing, extractive industries, and forestry. Fieldwork on the Wind River Indian Reservation is included.

Cross Listed GEOG 4340.

Prerequisite: 6 hours of 2000-level NAIS courses.

NAIS4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed ENGL 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

NAIS4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed HIST 4466.

Dual Listed NAIS 5466.

Prerequisite: 9 hours of HIST, NAIS, or ANTH.

NAIS4740 - Native American Languages and Cultures

Credits: 3

Demonstrates the interrelationship of language and culture in several Native American communities. Examines anthropological and linguistic theories regarding language spread and the peopling of North America, narrative performance, translation, and the connection between linguistic structures and cultural features.

Cross Listed ANTH 4740.

Prerequisite: ANTH 2000 or consent of instructor.

NAIS4975 - Independent Study

Credits: 1-4

Max Credit (Max. 8)

Directed, independent study in American Indian issues with American Indian Studies affiliated faculty. Students must initiate a project with an appropriate faculty member and have it approved by the program director.

Prerequisite: consent of instructor and 6 hours of NAIS.

NAIS4990 - Special Topics

Credits: 1-4

Max Credit (Max. 9)

Current research topics presented by regular and visiting faculty.

Prerequisite: 3 hours of NAIS courses.

Additional Requirements

Grade Requirements

NAIS classes applied to NAIS degrees must be passed with a grade of C or better. This policy applies to NAIS classes completed fall semester 2012 and beyond.

Additional Information

Cross-Listing & NAIS Courses

In order to provide a broader range of relevant and enriching courses, in any given year, the program in Native American and Indigenous Studies offers topics courses (NAIS 2060 or NAIS 4990) that are frequently cross-listed

with other majors and departments. Any such courses may be counted towards a student's 21 hours of required courses beyond the foundational courses.

If a student chooses to take more than one topics course in the same semester, it may require an override within the registration system. If you seek to enroll in a topics course and have trouble doing so, please contact scgsj@uwyo.edu.

Declaring a NAIS Major/Minor

Please complete and submit the "Change of Advisor, Major, Minor, Option/Concentration, College, and or Graduate Status" form available on the Office of the Registrar's website.

Philosophy, B.A.

Philosophy provides the critical thinking, logical reasoning, and innovative problem-solving skills necessary to be competitive in law, business, academia, tech, arts, and government. It also explores what it is to live a meaningful life outside a career.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements

- A major in Philosophy requires a minimum of 33 hours (11 courses) of philosophy.

- At least 6 hours (2 courses) must be at the 4000-level.
- At least an additional 18 hours (6 courses) must be at or above the 3000-level.
- The remaining 9 hours (3 courses) may be at any level.
- The department recommends that students begin with a 1000-level Intro course or a FYS followed by one or two other courses at the 1000 or 2000-level but it is not required that a student follow this recommendation.
- Only those courses in which a grad of C or better has been earned may count toward the 33-hour requirement.

1000 -2000-level courses

Nine hours (3 courses) may be at any level.

PHIL1000 - Introduction to Philosophy

Credits: 3

Introduces critical thinking through a study of elementary logic, scientific method and philosophical problems of ethics, religion, epistemology and metaphysics.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

PHIL2100 - The Greek Mind

Credits: 3

Part one of the history of philosophy sequence. The first great age of philosophy was in ancient Greece. Students read from ancient Greek poets, historians and medical writers, as well as philosophers. The course attempts to understand the Greek mind: what Greeks thought of persons, society and the universe.

USP 2003-2014 Code U3CH

PHIL2300 - Ethics in Practice

Credits: 1-3

Alerts preprofessional students and other interested individuals to various ethical issues they will encounter and relevant professional work on those issues. Emphasis of the course concentrates one time on biomedical ethics, another on technology and engineering ethics, another on ethics in the professions.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL2310 - Philosophy of Religion

Credits: 3

Systematically examines philosophical questions, arguments and theories arising from study of religion. Topics may include: reason and religion; the existence and nature of God.

USP 2003-2014 Code U3CH

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

3000-level courses

At least 18 hours (6 courses) must be at or above the 3000-level.

PHIL3000 - Special Topics

Credits: 3

Max Credit (Max. 9)

Provides undergraduates with the opportunity for in-depth discussion of seminal works in the history of philosophy or a problem in contemporary philosophy not offered in regular courses or independent study. Open to interested undergraduates from all majors.

Prerequisite: 3 hours of philosophy.

PHIL3100 - History of Modern Philosophy: The Rationalists

Credits: 3

The second great age of philosophy absorbed the influence of the new science during the 17th and 18th centuries. People to be studied include: Descartes, Spinoza and Leibniz.

Prerequisite: 3 hours of philosophy.

PHIL3110 - History of Modern Philosophy: The Empiricists

Credits: 3

People to be studied include: Locke, Berkeley, Hume and Kant. These philosophers are included in the second great age of philosophy.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3120 - Ancient Greek Philosophy

Credits: 3

Surveying some of ancient Greek philosophy. Begins with the works of the earliest extant philosophical thinkers, the pre-Socratics. Remainder of focus on Plato and Aristotle.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3140 - Philosophy of Science

Credits: 3

Systematically examines philosophical problems about the nature of science, its methods of explanation, and the status of its laws.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/HIST 3160.

Prerequisite: WB or COM2.

PHIL3220 - Existentialism and Phenomenology

Credits: 3

Examines fundamental perspectives of existentialist thought, beginning with its roots in Kierkegaard and Nietzsche. Looks at a large variety of existentialist perspectives presented by Sartre, Heidegger, Buber, Jaspers and Camus. Considers the relation of Husserl's phenomenological method to existentialism.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3340 - Philosophy in Literature

Credits: 3
Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL
USP 2015 Code U5H
Former Course Number [2340]

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

PHIL3350 - History of Moral Philosophy

Credits: 3
A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H
Prerequisite: 3 hours of philosophy.

PHIL3420 - Symbolic Logic

Credits: 3
Studies both propositional and quantificational logic, concentrating on methods of proof. Takes up such topics as identity, singular terms, intuitive set theory, and translating English sentences into symbolic notation.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3440 - Philosophy of Mind

Credits: 3
Considers topics in philosophy of mind, including the mind-body problem, emotions, attitudes, perception and psychological explanation.

USP 2015 Code U5H
Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3500 - History of Science

Credits: 3
Historic and philosophic survey of the development of science from the ancient Greeks to the 20th century.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3510 - Introduction to Epistemology

Credits: 3

Systematic introduction to epistemology, the philosophical study of knowledge and justified belief. Aims to answer questions such as: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? How we are to understand the concept of justification?

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3560 - Introduction to Metaphysics

Credits: 3

A systematic introduction to metaphysics, the branch of philosophy concerned with providing a comprehensive account of the most general features of reality as a whole. Of central importance is the study of ontology, which seeks to address the question of what general sorts of things exist: particulars, universals, propositions, numbers, minds.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3933 - African Philosophy

Credits: 3

Examines the work of philosophers of Africa, of African descent and others who deal with African diaspora.

Cross Listed AAST 3933/INST 3933.

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 6 hours of philosophy.

4000-level-courses

At least 6 hours (2 courses) must be at the 4000-level.

PHIL4000 - Philosophical Issues

Credits: 1-3

Dual Listed PHIL 5000.

Prerequisite: consent of instructor.

PHIL4020 - Plato

Credits: 3

Detailed examination of selected dialogues of Plato.

Dual Listed PHIL 5020.

Prerequisite: PHIL 3120.

PHIL4030 - Aristotle

Credits: 3

Detailed examination of selected works of Aristotle.

Dual Listed PHIL 5030.

Prerequisite: PHIL 3120.

PHIL4040 - Kant

Credits: 3

An examination of one or more aspects of the work of Immanuel Kant, conducted either from the perspective of the history of philosophy.

Prerequisite: 6 hours of philosophy.

PHIL4110 - Figures in Contemporary Philosophy

Credits: 3-6

Max Credit (Max. 6)

An advanced study of the work of one, or several related, contemporary philosophers.

Prerequisite: 12 hours of philosophy including PHIL 3100 or PHIL 3110.

PHIL4120 - Philosophy and the 20th Century

Credits: 3

Part three of the history of philosophy sequence. Covers the third great age of philosophy. Studies the main ways in which philosophy has been done since 1900. Topics normally include logic and philosophy, Wittgenstein, logical positivism and current trends.

Dual Listed PHIL 5120.

Former Course Number [4100]

Prerequisite: 6 hours of philosophy.

PHIL4130 - Figures in Modern and 19th Century Philosophy

Credits: 3

A detailed examination of one or more of the figures in modern or 19th century philosophy.

Dual Listed PHIL 5130.

Prerequisite: 6 hours of philosophy.

PHIL4140 - Topics in Philosophy of Science

Credits: 3

Max Credit (Max. 6)

Encompasses selected topics in philosophy of science.

Dual Listed PHIL 5140.

Prerequisite: 6 hours of philosophy.

PHIL4190 - Philosophy of Language

Credits: 3-6

Max Credit (Max. 6)

An advanced study of the work of one, or several related, contemporary philosophers.

Dual Listed PHIL 5190.

Prerequisite: 6 hours of philosophy.

PHIL4300 - Topics in Ethics

Credits: 3-6

Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 5300.

Prerequisite: 6 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3

Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.

Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

PHIL4420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 4420/MATH 4420.

Dual Listed PHIL 5420.

Prerequisite: PHIL 3420 or equivalent.

PHIL4440 - Topics in Philosophy of the Mind

Credits: 3-6

Max Credit (Max. 6)

An advanced study of problems in the philosophy of mind such as the concept of human action; intention, choice, reasons and causes in the explanation of human action, mental states and brain states, and artificial intelligence.

Dual Listed PHIL 5440.

Prerequisite: 6 hours of philosophy.

PHIL4510 - Theory of Knowledge

Credits: 3

Studies such problems as knowledge and belief, skepticism, perception and knowledge, memory, truth.

Dual Listed PHIL 5510.

Prerequisite: 6 hours of philosophy.

PHIL4560 - Metaphysics

Credits: 3

Examines approaches to metaphysics. Discusses problems such as causality, individuation.

Dual Listed PHIL 5560.

Prerequisite: 6 hours of philosophy.

PHIL4975 - Independent Study

Credits: 1

Max Credit 6

Primarily for juniors and seniors who can benefit from independent study of topics in philosophy not covered in course offerings. Guidance provided by faculty member in the appropriate field.

Restricted undergraduate standing

Prerequisite: 9 hours of philosophy and consent of instructor

Physics, B.A.

The Bachelor of Arts (BA) in Physics degree program provides a pathway for more students to major in physics, as a second major to physical chemistry, mathematics, and engineering, for example.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Physics** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Require Courses

Students in the Bachelor of Arts in physics major program are required to complete the following courses:

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

PHYS3650 - Advanced Lab in Modern Physics and Electronics

Credits: 4

Presents fundamentals of modern optics, modern and quantum physics, E&M/electronics, and thermodynamics in a project oriented interactive undergraduate laboratory with a focus on professional grade lab report writing that qualifies as WB USP. Students learn professional data handling, error theory, and data analysis.

USP 2015 Code U5C3

Prerequisite: WA and PHYS 2310 or PHYS 2320.

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: P HYS 4 210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Electives

- Students are required to take at least 3 hours of electives from any PHYS 4000 or 5000 level course.

Additional Requirements

Course sequencing may need to be altered if ACT, SAT or Math Placement scores require a student to take pre-college courses before taking required math or English courses. Not all courses are offered every semester and some electives may have prerequisites. Students should review course descriptions and consult with their academic advisor to plan accordingly.

A major requires 42 hours of upper division (3000 level or above) coursework, 30 of which must be from the University of Wyoming.

Students must have a minimum cumulative GPA of 2.0 to graduate. Courses must be taken for a letter grade unless offered only for S/U.

University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

For declared physics majors, the prerequisite of MATH 2200 is waived and concurrent enrollment is approved.

For declared physics majors, the prerequisite of MATH 2205 is waived and concurrent enrollment is approved.

If intending to apply to graduate school, students should take the physics GRE by fall semester of the senior year.

Students with specific additional interests (e.g. pre-med or another pre-professional program) may wish to move their V/H/C2 courses to alternate semesters so as to take the necessary required courses (e.g. LIFE 1010, MOLB 3000 etc.)

Physics, B.S.

The Bachelor of Science in Physics program is intended for students who will pursue a career or a graduate degree in physics or related fields.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Physics** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Requirement for Major in Physics

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Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I Credits 4

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II Credits: 4

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

PHYS3640 - Modern Electronics and Experimental Techniques

Credits: 4

Introduced to analog and digital circuits/devices and computer interfacing with laboratory equipment and experiments. Includes computer programming, the analysis of experimental data, and report writing. Apply the skills developed in this class to interface with and control representative instrumentation used in experimental physics laboratories.

Prerequisite: PHYS 2320.

PHYS3650 - Advanced Lab in Modern Physics and Electronics

Credits: 4

Presents fundamentals of modern optics, modern and quantum physics, E&M/electronics, and thermodynamics in a project oriented interactive undergraduate laboratory with a focus on professional grade lab report writing that qualifies as WB USP. Students learn professional data handling, error theory, and data analysis.

USP 2015 Code U5C3

Prerequisite: WA and PHYS 2310 or PHYS 2320.

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: P HYS 4 210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

PHYS4420 - Electricity and Magnetism II

Credits: 3

Follows PHYS 4410 and continues intermediate discussion of electricity and magnetism. Covers magnetostatics, magnetoquasistatics, alternating currents, electromagnetic waves, transmission lines and antennae.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 4410.

PHYS4830 - Mathematical and Computational Physics I

Credits: 3

First semester of a two-semester sequence. Provides a comprehensive overview of mathematical physics and numerous analytical mathematical techniques applied to physics problems. Topics include: numerical computations and visualizations, differential and integral vector analysis, linear algebra, infinite series, complex variables, partial differential equations, ordinary differential equations, integral transforms and equations, and calculus of variations.

Prerequisite: PHYS 2310 or PHYS 2320 and MATH 2210, MATH 2250, MATH 2310.

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Electives

Students are required to take at least 3 hours of electives from any PHYS 4000 or 5000 level course.

Additional Requirements

Course sequencing may need to be altered if ACT, SAT or Math Placement scores require a student to take pre-college courses before taking required math or English courses. Not all courses are offered every semester and some electives may have prerequisites. Students should review course descriptions and consult with their academic advisor to plan accordingly.

A major requires 42 hours of upper division (3000 level or above) coursework, 30 of which must be from the University of Wyoming.

Students must have a minimum cumulative GPA of 2.0 to graduate. Courses must be taken for a letter grade unless offered only for S/U.

University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

For declared physics majors, the prerequisite of MATH 2200 is waived and concurrent enrollment is approved.

For declared physics majors, the prerequisite of MATH 2205 is waived and concurrent enrollment is approved.

If intending to apply to graduate school, students should take the physics GRE by fall semester of the senior year.

Students with specific additional interests (e.g. pre-med or another pre-professional program) may wish to move their V/H/C2 courses to alternate semesters so as to take the necessary required courses (e.g. LIFE 1010, MOLB 3000 etc.)

Physiology, B.S.

Physiology is the science of how the body functions in health and disease. A degree in physiology provides excellent preparation for careers or graduate study in the health professions and biomedical research or related disciplines.

Additional Information

Physiology is the study of how animals work: how they breathe, feed, interact with their environment, and carry out many other activities and functions. Physiology is the knowledge that the health sciences are built on and so is especially important for students who may be thinking of becoming medical practitioners, veterinarians or health care professionals.

All courses in the major must be completed with a grade of "C" or better.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

A&S College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Foundation Courses:

(MATH 1450 may substituted for MATH 1400 and MATH 1405)

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces

associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics

and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Two Additional CHEM Courses:

*MOLB 3610 may be used as a CHEM elective, but cannot also count as a PHSO Core Elective.

*CHEM 3550 may be used as a CHEM elective, but cannot also count as a PHSO Core Elective

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM3020 - Environmental Chemistry

Credits: 3

Environment and modern environmental problems in terms of chemical structures and reactions. Chemical principles of equilibrium, kinetics, and thermodynamics are used to help understand our changing environment. Topics include toxicological chemistry, aquatic chemistry, atmospheric chemistry, and green chemistry.

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 2230; and QA course.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

Physiology Core Required Courses

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data.

Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Physiology Core Electives

A minimum of 10 of the 18 Physiology Core Elective credits must be exclusive to the PHSO major.

At the end of this program students will have a thorough knowledge of physiology, will be well prepared to enter health sciences or graduate education, and will have a range of skills attractive to employers.

Choose a Total of 18 Credits From:

**cannot count towards PHSO electives if used as a CHEM requirement in the Foundational Courses

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4260 - Mammalian Endocrinology

Credits: 3

Introduces principles of endocrinology, role of endocrine systems in regulating metabolism, growth, reproduction and lactation in mammals.

Dual Listed ANSC 5260.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010, ZOO 3115, or equivalent.

ANTH4210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 5210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular, circulatory, and

respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3038 - Exercise Psychology

Credits: 3

Studies psychological theories for understanding and predicting health-oriented exercise behavior, including psychological intentions for increasing exercise participation and adherence. Emphasizes psychological and psychobiological responses to exercise.

Prerequisite: grade of C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; 2.750 GPA.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

KIN4042 - Advanced Biomechanics

Credits: 3

Provides understanding of biomechanical theories and the application of biomechanical measurements to human movement in sports, training, and rehabilitation. Emphasis on using equipment to collect biomechanical data to answer research and clinical questions. Lecture and data collection topics include electromyography, force, balance, kinematics, and kinetics.

Prerequisite: C or better in KIN 3042, minimum 2.750 GPA.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MICR4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed PATB 4001.

Dual Listed MICR 5001.

Prerequisite: STAT 2050.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

NEUR4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 4295.

Dual Listed NEUR 5295.

Prerequisite: ZOO 4280.

NEUR5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed ZOO 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 5295.

Dual Listed NEUR 4295.

NEUR5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms will be covered in addition to the basic neurophysiology of nerve cells.

Cross Listed ZOO 5685.

Prerequisite: one course in physiology, chemistry, physics.

NEUR5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

PATB4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed MICR 4001

Dual Listed PATB 5001

Prerequisite: STAT 2050 or STAT 2070

PATB4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed MICR 4130

Dual Listed PATB 5130

When Offered (Normally offered spring semester)

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

PATB4140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action and their effects on various organisms including man

and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 5140

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: 9 hours of biological science (e.g., physiology), 4 hours chemistry, 3 hours biochemistry.

PATB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed MOLB 4400

Dual Listed PATB 5400

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PSYC3250 - Health Psychology

Credits: 3

Provides overview of growing partnership between psychology and health care, including history of psychology in

health care; theoretical foundations of health and illness; intervention and research techniques; stress and high risk behaviors (e. g. , substance abuse, eating behaviors, AIDS); psychology's contribution to improving outcomes and quality of life in chronic and life-threatening behaviors.

Cross Listed NURS 3250.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

PSYC4080 - Physiological Psychology

Credits: 4

Examines physiological mechanisms of behavior, strongly emphasizing neural and hormonal processes. Includes fundamentals of neuroanatomy and evolution of the nervous system, basic neurophysiology, sensory and motor processes, as well as the physiology of emotion, motivation, learning and memory. Lecture three hours per week. Laboratory two hours per week.

USP 2003-2014 Code U3SB

Prerequisite: A grade of C or better in 6 hours of psychology and LIFE 1000, LIFE 1003, or LIFE 1010 or an introductory zoology course.

PSYC4250 - Psychological Aspects of Chronic Illness

Credits: 3

Investigates the impact of chronic physical illnesses on diagnosed children and adults, their families, and society. Emphasizes effects of illnesses on psychological adaptation and quality of life. Should be of particular interest to helping professionals and health care workers.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 3250.

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

SOC4160 - Sociology of Aging

Credits: 3

The process of aging from the individual to the societal level is the focus of the course. Consequences of this process such as the increase in the number of elderly, retirement and health are examined from the major social institutions, the relationships between these institutions and American society as a whole.

Dual Listed SOC 5160.

Former Course Number [4150]

Prerequisite: 6 hours of sociology (including SOC 1000) and at least junior standing.

ZOO3010 - Vertebrate Anatomy, Embryology, and Histology

Credits: 4

Provides a comprehensive overview of vertebrate anatomy. The structural organization, embryological derivation, and histological organization of the major organ systems will be emphasized. The evolution and functional organization of anatomical structure will also be emphasized. Includes laboratory sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: LIFE 2022 or equivalent, and a semester of chemistry.

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

- ZOO 4670

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed NEUR 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

ZOO5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms are covered in addition to the basic neurophysiology of nerve cells. The laboratory complements the lecture sequence.

Cross Listed NEUR 5685.

Prerequisite: one course in physiology, chemistry, physics.

SPPA3265 - Anatomy and Physiology of Speech, Swallowing and Hearing

Credits: 4

Introduces the student to the anatomy of the normal speech and hearing systems as well as the physiologic underpinnings of the speech (respiration, phonation, articulation), swallowing, and hearing (external, middle, and inner ear) systems. Theories of speech production and speech perception are presented.

Former Course Number [3400]

Prerequisite: KIN 2040 or consent of instructor.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

Political Science B.A.

Political Science is the study of how societies govern themselves and interact with one another. The Political Science major offers the subfields: American politics, comparative government, international relations, political philosophy, public law, and public administration.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Political Science B.A.

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Or

POLS1250 - Introduction to Comparative Government

Credits: 3

How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.

A&S College Core 2015 ASG

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

Or

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

Additional Requirements:

A major in political science requires 33 department hours.

A maximum of 6 hours of internship credit may be applied toward the 33 hours required for the political science major. Only those political science courses in which a grade of C or better has been earned may be used to satisfy departmental requirements.

Most university studies courses and lower division political science courses should be completed prior to the junior year. Additional information about the political science major may be obtained from the School of Politics, Public Affairs, and International Studies: www.uwyo.edu/sppais.

Students are also required to take

- at least one seminar in political science (and its prerequisites)
- 8 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages
- STAT2070 - Introductory Statistics for the Social Sciences Credits: 4
- OR
- STAT2050 - Fundamentals of Statistics Credits: 4
- minimum of 9 hours of upper division credit in political science.

Political Science, B.A./M.A.

The Political Science 5 Year B.A./M.A. Program offers highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor's degree (whether B.A. or B.S.) and thereby earn a graduate degree more efficiently. Political science majors with a cumulative major GPA of 3.5 or higher may be invited to apply at the outset of the second semester of the junior year.

Interested students will submit an application and 2 letters of recommendation, at least one from a political science faculty to be reviewed, along with unofficial, current UW transcripts, by the M.A. Director and Committee. Upon provisional acceptance into the program in the junior year, students will be required to take the GRE. GRE scores will be considered for full and final acceptance to the M.A. program, which will be made once the student has completed the bachelor's degree.

Provisional acceptance to the 5 Year B.A./M.A. program in Political Science will allow students to apply up to six credit hours of 5000-level courses toward both the B.A./B.S. and M.A. degree programs. To earn graduatelevel credit, students must achieve at least a 3.000 in the course. By successfully completing up to six credit hours of graduate coursework during their senior year, these students will have demonstrated their ability to do graduatelevel coursework

as undergraduates, easing their transition into the Master's Program in Political Science. Interested students may reserve up to six additional credits for graduate study that do not apply to the undergraduate degree by securing appropriate approvals as explained in the Registrar's "Request to Reserve Coursework for Graduate Credit" prior to taking the coursework.

Students will be granted the BA/BS upon completion of the credit hours required for the undergraduate degree in political science. Students must complete the BA/BS before formally entering the MA program. To remain in good standing in the program, students must maintain a cumulative and departmental GPA of 3.200 and earn at least a 3.000 in all 5000-level courses. Failure to meet the GPA requirements places a student on probation for one semester. If the GPA requirement is not met after that semester, the student will be suspended from the program. Students in the program are encouraged to take the Plan B option. Please see the Graduate Study section to find the degree requirements of the M.A. in Political Science.

Political Science, B.S.

Political Science studies how states govern themselves and interact. Subfields include: American politics, comparative government, international relations, political philosophy, public law, and public administration with an emphasis on statistical analysis and quantitative methods.

Introductory Courses

Students are required to complete the following four introductory courses:

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

OR

POLS1250 - Introduction to Comparative Government

Credits: 3

How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to

different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.
A&S College Core 2015 ASG

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)
OR

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB
USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

Other Requirements

In addition to the university and college requirements listed elsewhere in this bulletin, a major in political science requires 33 department hours.

A maximum of 6 hours of internship credit may be applied toward the 33 hours required for the political science major. Only those political science courses in which a grade of C or better has been earned may be used to satisfy departmental requirements.

Most university studies courses and lower division political science courses should be completed prior to the junior year. Additional information about the political science major may be obtained from the School of Politics, Public Affairs, and International Studies: www.uwyo.edu/sppais.

Students are also required to take

- at least one seminar in political science (and its prerequisites)

- 8 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

- minimum of 9 hours of upper division credit in political science.

Psychology, B.S.

Learn empirical approaches to understanding human behavior from biological, clinical, cognitive, developmental, neuroscientific, and social psychological perspectives. Develop skills in critical thinking, communication, and scientific research.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D - Diversity 3 credits
G - Global 3 Credits

Students Must Complete the Following Courses:

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

PSYC2000 - Research Psychological Methods

Credits: 4

Introduces some of the methods of investigating psychological questions. Exposure to various research strategies ranging from observational to experimental, using representative laboratory exercises, lectures, readings, films and demonstrations. Requires written and oral reports. May be used to satisfy department's written and oral communication requirement for majors. Laboratory two hours per week.

USP 2003-2014 Code U3WB

Prerequisite: A grade of C or better in PSYC 1000, WA or COM1, STAT 2050 or STAT 2070.

Four of Five Cores:

Biological Core

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

PSYC2080 - Biological Psychology

Credits: 3

Introduces biological bases of behavior. Includes ethology and comparative behavior, psychobiological development, physiological and sensory mechanisms of behavior, and evolution and behavioral genetics. Presents basic structural and functional properties of the nervous system.

When Offered (Normally offered fall semester)

Prerequisite: A grade of C or better in PSYC 1000 and general biology.

Social Psychology Core

PSYC2380 - Social Psychology

Credits: 3

Examines how peoples' thoughts, feelings, and behaviors are influenced by the presence of others. Course will cover a broad range of theories and research in social psychology.

When Offered (Normally offered fall semester)

Former Course Number [4755]

Prerequisite: A grade of C or better in PSYC 1000.

Clinical Core

PSYC2340 - Abnormal Psychology

Credits: 3

Provides a general overview of abnormal behavior, emphasizing types, etiology and treatment methods.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: A grade of C or better in PSYC 1000.

Cognitive Core

PSYC3120 - Cognitive Psychology

Credits: 3

Deals with higher mental processes that are primarily unique to human beings from theoretical and research orientations. Emphasizes interrelationships between various cognitive processes and continuity of those processes with perceptual and non-cognitive activities. Discusses how information is processed and remembered.

When Offered (Normally offered spring semester)

Former Course Number [4120]

Prerequisite: A grade of C or better in 6 hours of psychology including PSYC 1000.

Developmental Core

PSYC2300 - Developmental Psychology

Credits: 3

Introduces psychological development, including age-related changes in thinking, emotion, and behavior. Major theories, methodologies, and empirical discoveries are surveyed in an exploration of developments beginning with conception, with emphasis on social, affective, and cognitive developments in childhood and infancy and their implications for policy and practice.

When Offered (Normally offered spring semester)

Prerequisite: A grade of C or better in PSYC 1000.

One of the Following

Additionally **one** of the following restricted enrollment (seminar or writing intensive) courses is required:

PSYC4150 - Cognitive Development

Credits: 3

Examines cognitive development from infancy through adolescence. Explores, through lecture, discussion and projects, major theories and current empirical research on cognitive development, as well as implications for social and educational policies concerning children.

Prerequisite: A grade of C or better in 9 hours of psychology, including child psychology course.

PSYC4250 - Psychological Aspects of Chronic Illness

Credits: 3

Investigates the impact of chronic physical illnesses on diagnosed children and adults, their families, and society. Emphasizes effects of illnesses on psychological adaptation and quality of life. Should be of particular interest to helping professionals and health care workers.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 3250.

PSYC4320 - Intellectual Disability

Credits: 3

Acquaints students with all aspects of intellectual disability including assessment, diagnosis and classification, etiology, and associated health and mental health difficulties. Prevention, educational and psychological intervention, family adaptation, and community involvement are also addressed.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 4300 or FCSC 2121 or EDST 2450.

PSYC4350 - Psychology of Adulthood

Credits: 3

Examines theories and research on psychological development from early adulthood to the end of life, with special emphasis on positive development, successful aging, and methodological issues in the study of adult development.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4380 - Death and Dying

Credits: 3

Designed to provide a comprehensive overview of the field of thanatology. Death is considered from both an individual and sociocultural perspective. Aims to provide solid ground in research, methods, and theory of end-of-life issues and to encourage contemplation of personal and professional applications of death studies.

Prerequisite: A grade of C or better in PSYC 1000 and junior/ senior standing.

PSYC4390 - Personality Science

Credits: 3

Examines the contemporary science in personality psychology, with a focus on the genetic, biological, social, cognitive, and affective variables which interact to influence individual differences and personality coherence.

Former Course Number [3390]

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 2340 or PSYC 2380.

PSYC4400 - Principles of Psychological Testing

Credits: 3

Encompasses basic concepts, principles and procedures of psychological testing, with a lecture, discussion, laboratory project approach. Emphasizes nature and uses of test reliability, validity, norms and transformations, selecting and evaluating tests, test interpretation models and professional ethics in test use. Lecture three hours per week.

Prerequisite: A grade of C or better in 6 hours of psychology and STAT 2050 or STAT 2070.

PSYC4740 - Advanced Social Psychology

Credits: 3

Concentrates on critical assessment of interpersonal behavior. Students are expected to become familiar with data gathering, analysis and reporting procedures commonly used in contemporary social psychology.

USP 2003-2014 Code U3WC

Prerequisite: A grade of C or better in PSYC 2000 and PSYC 2380.

PSYC4860 - Seminar

Credits: 1-6

Course consists of extended and in-depth discussions of particular topics in psychology. Topics vary semester to semester. Class format may include lecture, group discussion, and group activities. Reading assignments will draw heavily from scientific literature and may include journal articles, textbooks, or book chapter.

Prerequisite: 9 hours in psychology.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

A total of 18 hours at the 3000 level or higher are required

Also Required

Also required are

- 6 hours of anthropology, communication/journalism, criminal justice, economics, political science, or sociology;

LIFE1003 - Current Issues in Biology

Credits: 4

Emphasizes central themes of biology - cell biology, genetics, evolution, ecology - and scientific methodology by focusing on current issues in biology. Fundamental concepts are addressed through classroom and laboratory activities and discussions. This course is intended for non-science majors. Students cannot receive duplicate credit for LIFE 1010 or LIFE 1020.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1003]

OR

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STEM Course

One approved 3-4 credit hour STEM course:

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1100 - Computer Science Principles and Practice

Credits: 3

Introduces use of computers for algorithmic problem solving. Studies scope, major contributions, tools and current status of computer science. Presentation of computer science principles; use of software packages and evaluation of their effectiveness; and elementary programming.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: C or better in MATH 1400 or in any University Studies QB or Level 4 or higher on Mathematics Placement Exam.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

- ZOO 2040

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

- ZOO 2041

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal

specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

MICR4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed PATB 4001.

Dual Listed MICR 5001.

Prerequisite: STAT 2050.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

STAT2000 - Statistics and the World

Credits: 3

Discusses statistical reasoning and methods as related to today's society. Emphasizes ideas rather than specific techniques. Focuses on real examples of the use (and misuse) of statistics. Includes sampling, experimentation, descriptive statistics, elementary probability and statistical inference.

USP 2003-2014 Code U3QB,U3Q

Prerequisite: grade of C or better in MATH 0921 or level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600 or concurrent enrollment in MATH 1080.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.

Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

Additional Requirements

A major requires a minimum of 33 semester hours and may not exceed 60 hours in psychology. Of these, 18 hours must be at the 3000 level or above. These upper-division courses must also be taken from at least two different members of the psychology department faculty listed in this *Catalog*.

Students who have an established UW GPA and who wish to change their major to Psychology, or to add Psychology as a major, will be required to have a UW GPA of at least 2.500.

For graduation, students must receive a C or better grade in all courses taken to satisfy department requirements.

Psychology courses taken 15 or more years ago will not be used to satisfy degree requirements.

Religious Studies, B.A.

Religious Studies builds skills for your future in a globalized world. You will learn to ask life's big questions, analyze how communities across time and place have addressed these questions, and communicate persuasively in your own speech and writing.

General Requirements

A major in Religious Studies requires 33 hours (11 courses) plus a second major or minor in another discipline.

For students completing their degree under the 2015 University Studies Program:

Two Required Courses: 6 Hours

RELI1000 - Introduction to Religion

Credits: 3

Introduces world religions and shared characteristics. Draws on various academic approaches to religion study, emphasizing similarities and differences among wide variety of religions.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI4000 - Theories of Religion

Credits: 3

Investigates different theories proposed to explain religion and methods used to investigate them. Pays primary attention to influential thinkers and theorists of the past century.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: RELI 1000, and 12 additional hours in Religious Studies, at least 6 of which must be at the 3000-level or above, junior standing.

Concurrent Concentration I: 9 Hours

Students should acquire a focused concentration by taking three courses (1) on a single religion, or (2) on the religions of a particular region or culture. Courses may be from a limited time period or spread across history. Students may choose from established concentrations or create their own concentration in consultation with their adviser. [Six hours must be above 3000-level.]

Concurrent Concentration II: 9 Hours

Students should take three courses in a religion, region, or culture differing significantly from that of the first concentration. [Six hours must be above 3000-level.]

Electives

Three courses in Religious Studies (see note 2 below) chosen in accordance with the student's interests. [Six hours must be above 3000-level.]

Language

Students should take three semesters of a single foreign language or demonstrate equivalent proficiency. See note 3 below.

Honors

If a student wishes to pursue an Honors designation in Religious Studies, two additional requirements must be fulfilled.

- A. A three-hour Thesis Seminar or Internship, during which a research paper is written, or other suitable research project is carried out.
- B. Demonstration of competency in a foreign language equivalent to a fourth-semester college-level course.

Notes:

1. If students majoring in Religious Studies can use its courses to satisfy requirements in a second major or minor, this is permitted.
2. Courses for the major should be drawn from those with a RELI prefix, or from a list of approved courses taught by other departments or programs. See the list of approved courses on the Religious Studies website. In each of the concentrations, only one course may be from outside RELI offerings. Two such courses may be used as electives. Occasionally, courses on religion are taught by outside departments as one-time opportunities. Students may propose these for inclusion in the major to the Religious Studies Program Director.
3. The language requirement may be satisfied with American Sign Language (ASL) or, with the approval of the department, coursework in another form of non- English communication (e.g. computer science, statistics, music composition).
4. All courses must be passed with a grade of C or better.

Sociology, B.A.

Sociology is the study of the development, interaction, and behavior of organized human groups. Sociology provides powerful insights into the social processes that shape our lives, the problems we face, and the possibilities we can envision.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Arts & Sciences College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Foundation Courses

Students must complete all Foundation Courses with a grade of C or better.

SOC1000 - Sociological Principles

Credits: 3
Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

SOC2070 - Introductory Statistics for the Social Sciences

Credits: 4
Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, STAT 2070, STAT 4220, STAT 5520.

Cross Listed STAT 2070.

USP 2003-2014 Code U3QB
USP 2015 Code U5Q
Former Course Number [2000]

Prerequisite: MATH 1000, MATH 1400 or equivalent.
OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

SOC2685 - Research Methods

Credits: 3

Max Credit 3

Introduces students to fundamental issues associated with the application of scientific methods to social science problems. Students examine research designs involving ethnographic, archival, historical, and quantitative methods and how they relate to social science issues.

Cross Listed CRMJ 2685

Restricted Criminal Justice or Sociology majors and minors

Prerequisite: CRMJ 1001 OR SOC 1000

SOC4715 - Sociological Theory

Credits: 3

Examines the emergence and development of sociological theory in the writings of thinkers such as Marx, Durkheim, and Weber. Explores continuities and discontinuities between the classical period of sociological theory and contemporary schools such as functionalism, conflict theory, neo-Marxian theories, symbolic interactionism, phenomenology, and rational choice/exchange theory.

Dual Listed SOC 5715.

Former Course Number [3700, 3900]

Prerequisite: 9 credit hours of sociology, including SOC 1000.

Core Courses:

Students must complete four courses from the following list with a grade of C or better.

SOC2350 - Race and Ethnic Relations

Credits: 3

Examines social relations among majority and minority groups by devoting particular attention to race and ethnic relations in the U. S. Encompasses sociological approach to this topic, which emphasizes power structures, economic relationships and cultural traditions historically and today. Devotes attention to social psychological issues, such as prejudice, and social structural issues, such as class inequality.

USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: SOC 1000.

SOC3110 - Self and Society

Credits: 3

Considers social behavior at the micro level, emphasizing the influence of society on the individual's thoughts, emotions and behaviors. Topics such as the development of the self over the life course, the self in social interaction, and the role of attitudes and emotions in social interaction are discussed.

Former Course Number [2110]

Prerequisite: SOC 1000 or PSYC 1000.

SOC3140 - Sociology of the Family

Credits: 3

Two major themes of the course are change experienced by the family institution and the centrality of the family in America today. Subjects that are covered include: A brief history of the family in the U. S. , kinship, family structure, mate-selection, marriage, divorce and socialization.

Former Course Number [4100, 4140]

Prerequisite: SOC 1000.

SOC3200 - Sociology of Religion

Credits: 3

Introduces various ways sociologists interpret religion. Explores the nature of relationships between religion and society.

Prerequisite: SOC 1000.

SOC3400 - Deviant Behavior

Credits: 3

Examines theory and research relevant to understanding deviant behavior in general and specific types of individual and subcultural deviancy.

Cross Listed CRMJ 3400.

Former Course Number [4200]

Prerequisite: SOC 1000.

SOC3500 - Sociology of Gender

Credits: 3

Explores gender through a cultural and structural approach. The cultural approach emphasizes the variability in social expectations for men and women across time and place; the structural approach analyzes the effect of social institutions such as family, government, education, and the economy of gender.

A&S College Core 2015 ASD

Prerequisite: SOC 1000.

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

SOC3605 - Sociology of Education

Credits: 3

An introductory overview of the principal areas of inquiry in the field. Students learn relevant theories and concepts, principal methodological approaches as well as important current issues in education. Comparative analysis may focus on historical comparisons, national/ global comparisons, U. S. regional, and/or variant educational systems at the local level.

Prerequisite: SOC 1000.

SOC3640 - Social Inequality

Credits: 3

Focuses on the structure and consequences of unequal access to political, economic and social benefits in U. S. society and the world. This course critically examines institutional arrangements that perpetuate and are supported by inequality and stratification, as well as patterns of social mobility.

A&S College Core 2015 ASD
Former Course Number [4000, 4050]

Prerequisite: SOC 1000.

SOC3880 - Political Sociology

Credits: 3

Study of political theory, political organization, political mobilization, the state, nation-building, national identity, post-nationalism, the relationship between the state and markets, historic formation of the nation-state, and the changing role of the state in a global context.

Prerequisite: SOC 1000.

SOC3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed INST 3910.
A&S College Core 2015 ASG
Former Course Number 4110

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.
Prerequisite: SOC 1000.

Elective Courses

Students must complete 9 additional hours of sociology courses with a grade of C or better. Electives may be used either to develop additional expertise in an area of interest or to broaden the student's sociological training.

Spanish B.A.: Language-Linguistics Track

Requirements

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

OR

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

SPAN3060 - Third Year Spanish II

Credits: 3

Intensively reviews grammar and composition-skill development. Also emphasizes specialized lexicons, written and oral translation, as well as conversational fluency.

A&S College Core 2015 ASD

Prerequisite: SPAN 3050.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course if

focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3

Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

OR

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectical variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

- additional 12 hours of electives above SPAN 2030.

Highly Recommended Electives

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed LTST 3080.

USP 2015 Code U5H

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

SPAN4070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 5070.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish

grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectal variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

It is Possible to Take

It is possible to take one class from the following:

SPPA3160 - Speech and Language Development

Credits: 4

Deals with the development of speech sound production, phonology, semantics, syntax, morphology, discourse, and pragmatics for typically-developing children from infancy to adolescence. Includes prelinguistic and paralinguistic communication, the cognitive correlates of communication, and written language. Considers the effects of sociocultural context and multiple language acquisition. Application component provides weekly experience in language sample analysis.

Former Course Number [4160]

Prerequisite: SPPA 2210 or instructor permission.

- ANTH 4775 - Language and Gender

ANTH4785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 5785.

Prerequisite: ANTH 1200 or ANTH 2000.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

Total: 31 Hours

Spanish, B.A.

As a Spanish Major, you will develop your speaking, listening, and communication skills as a Spanish speaker. You will gain a better understanding of perspectives and experiences of Spanish speaking cultures.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Tracks

The undergraduate degree in Spanish has two tracks for students to select: Culture, Literature, and Cinema Track or Language-Linguistics Track.

There are multiple entry points into the major depending on previous Spanish language experience. Students should consult a Modern and Classical Languages advisor about the appropriate placement and credit-by-exam options.

A language major usually requires 30-31 semester hours of work in a single language beyond 2030. To include a language option in the humanities/fine arts interdisciplinary program, students must complete at least 12 hours above the 2030 level.

Spanish offers two major tracks:

Spanish B.A. : Culture, Literature, and Cinema Track

Spanish B.A. : Language-Linguistics Track

Prerequisites for both Spanish Tracks

SPAN1010 - First Year Spanish I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

SPAN1020 - First Year Spanish II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: SPAN 1010 or two years of high school Spanish.

SPAN2030 - Second Year Spanish I

Credits: 4

Encompasses reading, grammar review, compositions and conversation.

USP 2015 Code U5H

Prerequisite: SPAN 1020 or three years of high school Spanish.

Language and Linguistics Track

Requirements

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

OR

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

SPAN3060 - Third Year Spanish II

Credits: 3

Intensively reviews grammar and composition-skill development. Also emphasizes specialized lexicons, written and oral translation, as well as conversational fluency.

A&S College Core 2015 ASD

Prerequisite: SPAN 3050.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course is focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3

Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

OR

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectal variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

- **PLUS** 12 hours of electives from the following:

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed LTST 3080.

USP 2015 Code U5H

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

SPAN4070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 5070.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

It is possible to take one class from the following:

SPPA3160 - Speech and Language Development

Credits: 4

Deals with the development of speech sound production, phonology, semantics, syntax, morphology, discourse, and pragmatics for typically-developing children from infancy to adolescence. Includes prelinguistic and paralinguistic communication, the cognitive correlates of communication, and written language. Considers the effects of sociocultural context and multiple language acquisition. Application component provides weekly experience in language sample analysis.

Former Course Number [4160]

Prerequisite: SPPA 2210 or instructor permission.

ANTH4785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 5785.

Prerequisite: ANTH 1200 or ANTH 2000.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

Culture, Literature, and Cinema Track

Requirements

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN2140 - Introduction to Reading

Credits: 3

This course introduces a varied selection of readings and other cultural media in an immersive, intensive language class. Through the study of short stories, media articles, films, etc. , students learn cultural aspects of the Spanish-speaking world and are able to practice and improve their communicative abilities.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2030 or equivalent.

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

OR

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

SPAN3100 - Survey of Spanish Literature

Credits: 3

Studies Spanish literature from the Middle Ages to the end of the 17th century.

Prerequisite: SPAN 2140 or equivalent. SPAN 3140 strongly recommended.

OR

SPAN3110 - Survey of Contemporary Spanish Literature

Credits: 3

Studies Spanish literature from the 18th to the 21st century. SPAN 3110 is a continuation of SPAN 3100, which studies Spanish literature from the Middle Ages to the end of the 17th century. In order to take 3110, students do not need to take SPAN 3100. SPAN 3140 strongly recommended.

Prerequisite: SPAN 2140 or equivalent.

OR

SPAN3120 - Survey of Spanish American Literature

Credits: 3

Surveys Spanish American literature from colonial period to the present.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or equivalent.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course is focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3

Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semantics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

- **PLUS** 12 hours of electives from the following:

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3200 - Spanish Culture and Civilization

Credits: 3

Studies the evolution of Spanish culture through its main artistic, sociological and intellectual expressions.

Prerequisite: SPAN 2040, SPAN 2140.

SPAN3220 - Spanish-American Cultures in Context

Credits: 3

Introduction to the Spanish-speaking cultures of Latin America and the United States through a historical overview and a focus on contemporary politics and culture.

Prerequisite: SPAN 2040 or SPAN 2140 or consent of instructor.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

Studio Art, B.A.

The B.A. in Studio Art degree prepares students for further studies or careers in the studio arts and arts-related fields including art therapy, illustration, arts administration, design, and art education.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Studio Art** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Minimum Course Requirements for Art Majors

In addition to the university and college requirements listed above and in this Catalog, all students majoring in art must complete the following:

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular units, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.

Art History Core: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Studio Core (Minimum): 12 Hours

12 credits chosen from the below. At least one course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramic class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Upper Division Studio Electives: 12 Hours

12 credits of any upper division studio art classes

Foreign Language: 8 Hours

8 Hours of any Foreign Language:

LANG1010 - First Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010.

Art History Electives: 6 Hours

6 credits beyond ART 2010 and ART 2020, with at least 3 units at upper division level

Additional Requirements

B.A. IN STUDIO ART DEGREE

The B.A. in Studio Art degree is available to students who are preparing for further studies or careers in the arts and arts-related fields, such as art education, graphic design, art therapy, illustration, botanical illustration and forensic illustration. Students work with their academic advisers to select courses from the USP and elective offerings to complement art studies in their areas of interest. Students must earn a grade of C or better in all courses taken to satisfy department requirements. Courses in the major must be taken for a letter grade. In addition to the university requirement that degree candidates hold a minimum cumulative grade point average of 2.000, degree candidates for the B.A. in Studio Art degree in the Department of Visual and Literary Arts also must have a minimum 2.500 overall cumulative grade point average and a 2.500 grade point average within all major courses at the time of graduation.

Transfer Residency. A minimum of 26 hours of upper-division course work in the major is required to establish residency in the department for all transfer students. This applies to students in the B.F.A., B.A., and Art Education degree programs who transfer in 12 or more hours of art courses for the major. Students in all art programs must meet the university requirement of at least 42 hours of course work at the upper-division level (3000 and above).

Based on their goals and career plans, students in consultation with a faculty adviser select the appropriate degree plan. Students major in studio art with areas of study in one or more of the following:

- Drawing
- Painting
- Photography
- Printmaking
- Ceramics
- Sculpture
- Metalsmithing
- Visual Communication Design

Studio Art, B.F.A.

The B.F.A. in Studio Art is a professional level degree open to outstanding students through an application process who are preparing for art studies, careers and professional activity in the studio arts beyond the undergraduate level.

University Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BFA in Studio Art** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

required

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

required

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

required

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular units, one in which students are introduced to the processes, equipment, hand

tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.
required

Studio Core: 12 Hours

12 credits chosen from the below. At least one core course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input

images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramic class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural

objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Art History Core: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

Upper Division Studio Electives: 21 Hours

21 credits of any upper division studio art classes

Art and Art History Electives: 3 Hours

3 credits of any art or art history course at any level

BFA Core: 12 Hours

ART4010 - Contemporary Art: Theory/Practice

Credits: 3

Max Credit 3

Taught from the perspective of a studio artist, this course enables students to situate their art within a theoretical context. Students examine how issues in contemporary art relate to philosophical concerns through reading, discussion, and critique. Emphasis is placed on an interdisciplinary framework through which students can discuss their work.

USP 2015 Code U5C3

Prerequisite: ART 2000 , and junior standing.

required

ART4600 - Professional Practices and Strategies

Credits: 3

This course offers information to junior/senior level art majors in regards to: finding jobs in art, finding/applying for exhibition opportunities, applying/finding grant opportunities, furthering education including finding/applying for a Masters in art, and overall life possibilities after the completion of an undergraduate art degree. Writing is expected in the form of cover letters, resumes, artist statements, and project proposals.

USP 2015 Code U5C3

Prerequisite: ART 2000, junior or senior standing.

required

ART4800 - BFA Capstone I

Credits: 3

BFA Capstone I course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by creating work for their BFA exhibition.

Prerequisite: ART 2000 and 6 credits of a studio beyond Art 2000; 3.0 overall gpa; 3.25 gpa in Art/Art History; major acceptance into the BFA VCD degree or BFA in Studio Art degree.

required, offered only fall semester

ART4840 - BFA Capstone II

Credits: 3

Max Credit 3

BFA Capstone II course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by finishing work for their BFA exhibition and defending it once the artwork is completed.

Restricted BFA in Studio Art

Prerequisite: Successful completion of ART 2000 and ART 4800 , 3.0 overall GPA, 3.25 GPA in Art/Art History, and acceptance into BFA program.

required, offered only spring semester

Upper Division Art History Electives: 9 Hours

9 credits of any upper division art history classes

Foreign Language: 8 Hours

8 hours in any Foreign Language:

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

Additional Requirements

B.F.A. IN STUDIO ART DEGREE

The B.F.A. in Studio Art is a professional level degree open to outstanding students through an application process who are preparing for art studies, careers and professional activity in the studio arts beyond the undergraduate level. The B.F.A. in Studio Art degree requires a minimum of 120 hours of credits with up to seventy-eight (78) semester hours focused in studio and art history course work. All B.F.A. in Studio Art students are required to participate in the B.F.A. exhibition upon graduation. As a Professional Degree, the B.F.A. in Studio Art does not include the A&S Outside Major credit requirement.

Application

Formal application is made to the program for acceptance into the B.F.A. in Studio Art degree program. Application must be submitted at least three semesters prior to the applicant's anticipated graduation. Favorable faculty review of the application materials are required before a student is declared a candidate for the B.F.A. in Studio Art degree. Applicants must have achieved the following at the time of application to the B.F.A. in Studio Art:

- C or better in all major classes
- 3.25 GPA or above within major classes
- 3.00 or above overall UW total institutional GPA

Undergraduate majors proceed with meeting the USP requirements for the B.A. in Studio Art and balance with foundation, art history, and studio core requirements in the major until formally accepted as a B.F.A. in Studio Art candidate. Students should apply at least three semesters before graduation. Application does not automatically guarantee acceptance into the B.F.A. in Studio Art program.

Final Year

During their final year and in conjunction with the spring B.F.A. exhibition, students enroll in two sequential capstone courses: BFA Capstone I (fall) and II (spring). The courses outline the deadline and requirements for the B.F.A. exhibition as well as coordinating mentoring of B.F.A. candidates. If faculty deem their work insufficient, they reserve the right to exclude the work from the exhibition and withhold the B.F.A. degree. Students transferring to the Department of Visual and Literary Arts who have completed their foundation core and successfully passed portfolio review are eligible to apply for a B.F.A. in Studio Art after one semester in Art and Art History Program.

Theatre and Dance, Acting Performance Concentration, B.F.A.

The BFA in Acting Performance permits a total of 70-71 credits in the major. It is designed primarily for those desiring to pursue additional pre-professional training in musical theatre and or for those preparing to enter MFA graduate programs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Acting Concentration: *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1040 - Production Crew I

Credits: 0.5
Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3
Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1300 - Musical Theatre Workshop: Voice and Acting

Credits: 2
Max Credit (Max. 8)

Musical Theatre Workshop: Voice & Acting will focus on developing and strengthening the speaking and singing voice for stage, wherein students will construct performances through integration of breath and voice work.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3
First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3
Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

THEA2170 - Speech for the Actor

Credits: 3

Studies speech techniques, including the International Phonetic Alphabet and Standard American Speech for the Stage. Builds upon the Fitzmaurice Voicework technique as well as other voice methodologies.

Prerequisite: THEA 1100 and THEA 1700.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2720 - Movement for Actors I

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100.

THEA2790 - Stage Management

Credits: 3

Study of the essential elements of supervising theatrical productions. Stresses the art of organizing auditions, casts, crews, rehearsals, and performances while developing a unique professional relationship with directors, designers and actors. Students will work on a live production.

Prerequisite: THEA 1100, THEA 1200, THEA 2220.

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3740 - Acting Styles

Credits: 3

Focuses on textual analysis of plays from different periods and styles of dramatic literature. Emphasizes vocal and physical interpretation of character as represented in non-realistic styles of drama.

Prerequisite: THEA 1100 and THEA 3710.

THEA3750 - Acting for the Camera

Credits: 3

Addresses performance skills required in acting for the camera. Covers various techniques, styles, and skills necessary to be successful in the professional world of film and television as an actor. Students perform scenes for 3-camera and single camera set-ups, and become familiar with rudimentary technical skills as crewmembers for shoots. Lecture and test material cover career opportunities, union affiliations, and current trends in the film and television industry.

Prerequisite: THEA 1100 and THEA 3710. THEA 3805. Stage Lighting II.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the

20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD
Former Course Number [591]

Prerequisite: junior standing.

THEA3950 - Dialects for the Actor

Credits: 3

Introduces the actor to five major dialects for the stage. Examines sensibility, vowel and consonant changes, pitch placement and charting.

Prerequisite: THEA 1100, THEA 1700, and THEA 2170.

THEA4710 - Acting IV

Credits: 3

Max Credit 3

Involves intensive work at an advanced level dealing with individual actor's problems through the medium of scene study.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 3710

THEA4720 - Auditioning and Professional Issues

Credits: 3

Introduces actors to process of finding, preparing and executing successful audition material, including monologues, songs and dance combinations. Exposes actors to business aspects of the theatre world, including resumes, photos, contracts, unions, internships, apprenticeships, Equity Membership Candidacy programs, URTA's and professional actor training graduate programs. Culminates preparation for final semester auditions for the company/school of choice.

Prerequisite: THEA 1100, THEA 3710 and THEA 3740.

THEA4730 - Movement for Actors II

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100 and THEA 2720 .

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

THEA4940 - Theatre History II

Credits: 3

Second semester of a one-year series. Continues THEA 4930.

Prerequisite: THEA 4930.

- Foreign Language Credits: 8
A&S Global Credits: 3
A&S Diversity Credits: 3

Three Hours From the Following:

THEA1410 - Beginning Ballet I

Credits: 1

Introduces principles and practices of classical ballet technique.

USP 2015 Code U5H

Prerequisite: THEA 1410 or instructor permission.

THEA1430 - Beginning Modern I

Credits: 1

Introduces principles and techniques of modern dance.

USP 2015 Code U5H

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA1480 - Beginning Jazz Dance I

Credits: 1

Explores basic jazz dance techniques and related principles of jazz dance composition.

USP 2003-2014 Code H

Theatre and Dance, B.A.

The University Studies Program 2015

Tracks:

- Theatre and Dance, Theatre Track, B.A.
- Theatre and Dance, Dance Track, B.A.

University Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Theatre and Dance, Dance Performance Concentration, B.F.A.

The BFA in Dance Performance is a professionally oriented degree for students interested in a career of performing or choreographing and permits a total of 71-74 credits in the major. Admission to the BFA is by application only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Dance Performance Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1021 - Academic and Professional Issues in Dance

Credits: 1

Introduces freshman to the discipline of dance and academic study at the University of Wyoming. Key intellectual and literacy concepts will be introduced, including, but not limited to: critical thinking and analysis, knowledge of the discipline, career options, diversity of the discipline, university and region.

USP 2003-2014 Code U3I,U3L

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1405 - Introduction to Pilates Training

Credits: 1

Max Credit (Max. 2)

An introduction to Pilates based training, including mat work and exercises on the Reformer.

Prerequisite: consent of instructor.

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2050 - Theatre Practice

Credits: 1-2

Encompasses individually supervised practical training in performance and production.

Prerequisite: consent of instructor.

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques;

concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

OR

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

OR

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2200 - Backgrounds of Dance

Credits: 3

Surveys ethnic and theatrical dance forms from primal society to 20th century. Examines the place of the arts as a reflection of the culture.

USP 2003-2014 Code U3CA,U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

THEA2410 - Intermediate Ballet I

Credits: 1.5
Max Credit (Max. 3)

A first year, first semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary, and principles of classical ballet.

USP 2015 Code U5H
Prerequisite: Admission by permission only.

THEA2420 - Intermediate Ballet II

Credits: 1.5
Max Credit (Max. 3)

A first year, second semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary and principles of classical ballet.

USP 2015 Code U5H
Prerequisite: Admission by permission only.

THEA2430 - Intermediate Modern I

Credits: 1.5
Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H
Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA2440 - Intermediate Modern II

Credits: 1.5
Max Credit (Max. 3)

A first year, second semester modern dance technique class for dance majors and minors. Mastering vocabulary and principles will be augmented with a deeper understanding of historical techniques and their application to contemporary dance.

USP 2015 Code U5H

Prerequisite: THEA 2430. Limited to dance majors and minors; admission by permission only.

THEA2450 - Intermediate Tap I

Credits: 1

Continued studies in techniques and principles of tap dance and tap dance composition.

Prerequisite: THEA 1450.

THEA2480 - Intermediate Jazz I

Credits: 1

Continued studies in techniques and principles of jazz dance and jazz dance composition.

USP 2015 Code U5H

Prerequisite: THEA 1480. Instructor permission required.

THEA3021 - Foundations of Dance Pedagogy

Credits: 1

Introduces students to basic theories and practices of dance pedagogy. Lecture and discussion will be balanced with peer teaching and coaching, observation of lessons and integration within a dance classroom situation with some teaching responsibilities and development of a portfolio with lessons and resources for teaching.

Prerequisite: sophomore standing in the department of Theatre and Dance; successful completion of THEA 3420 or THEA 3440.

THEA3100 - Kinesiology for Dance

Credits: 3

Encompasses seminar in current kinesiology research for dancers. Includes practicum based projects, lectures and supplementary materials.

Prerequisite: ZOO 2040.

THEA3410 - Adv/Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester ballet technique class for dance majors and minors. Emphasis is placed on improving technical skills and learning more advanced steps. Includes research into one discipline of ballet.

Prerequisite: successful completion of THEA 2440 and admission by permission only. Limited to dance majors and minors.

THEA3420 - Adv/Intermediate Ballet II

Credits: 1.5
Max Credit (Max. 3).

Second semester, second year ballet technique class for dance majors and minors. Emphasizes broadening the dancer's movement vocabulary while refining acquired technical skills. Dancers begin work in study of Baroque dance terms.

Prerequisite: successful completion of THEA 3410 or equivalent required. Limited to dance majors and minors; admission by permission only.

THEA3430 - Adv/Intermediate Modern I

Credits: 1.5
Max Credit (Max. 3)

A second year, first semester, intermediate level modern dance technique class for dance majors and minors. Continued training in classical modern dance and continued historical survey of modern dance will be augmented by rhythmic analysis and compositional forms.

Prerequisite: successful completion of THEA 2440 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3440 - Adv/Intermediate Modern II

Credits: 1

A second year, second semester, modern dance technique class with continuing studies of sequential modern dance technique at the intermediate level, introduction of Laban effort/shape theory, compositional forms, improvisation and additional rhythmic analysis.

Prerequisite: THEA 3430 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3480 - Adv/Intermediate Jazz I

Credits: 1
Max Credit (Max. 2)

An intermediate jazz technique class. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation and incorporate them into class compositions.

Prerequisite: THEA 2480.

THEA3490 - Advanced Jazz I

Credits: 1
Max Credit (Max. 2)

An advanced class in jazz technique and performance. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation as well as incorporate them into class compositions.

Prerequisite: THEA 3480.

THEA4001 - Historical Dance

Credits: 2

Max Credit (Max. 2)

Historical dance forms in the "Noble Style" dating from the 15th through 18th Centuries. Class work covers the relationship of musical forms to the specific step vocabulary and dances of each period, deportment, period costume as it relates to movement, social environment, period style with an emphasis on reconstruction of 17th and 18th Century dances from Feuillet notation.

Prerequisite: THEA 3440.

- *Plus 8 credits total in any combination of THEA 4010 and THEA 4030*

THEA4010 - Advanced Ballet

Credits: 1-3

Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3

Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

THEA4200 - 20th Century Dance

Credits: 3

Intensely studies dance in 20th Century, emphasizing contemporary movement in modern, ballet, jazz and musical theatre dance. Examines social, political and aesthetic trends influencing dance theory and performance.

USP 2003-2014 Code U3CA,U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2200.

THEA4250 - Beginning Dance Composition

Credits: 2

Presents and criticizes movement studies based on various approaches to composition. Explores experimentation in choreography.

Prerequisite: THEA 2420, THEA 2440.

THEA4260 - Intermediate Dance Composition

Credits: 2-3

Prerequisite: THEA 4250 and consent of instructor.

THEA4700 - Auditioning and Careers in Dance

Credits: 1

Designed for dance majors as a culminating course in preparation for final semester auditions and applications for companies and graduate schools. Through this course, students will set career goals, create an audition portfolio, and gain exposure to the many challenges and opportunities in dance.

Prerequisite: senior standing, THEA 1021, and one semester of THEA 4010 or THEA 4030.

- THEA4880 - Advanced Theatre Practice Credits: 1

THEA4880 - Advanced Theatre Practice

Credits: 1-2

Prerequisite: 12 hours in theatre and consent of instructor.

THEA4950 - Senior Thesis

Credits: 3

Encompasses senior research project under faculty member guidance and supervision.

Prerequisite: senior standing.

OR

THEA4960 - Senior Project

Credits: 1-3

Max Credit (Max. 3)

Exercise in the practical application of production, centered on a UW production, either main stage or studio. It may deal with design in scenery, costumes, properties, sound, makeup, playwriting, technical direction, directing, dance pedagogy, or choreography. The project is intended to be a "real" exercise in theatrical production.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

- LIFE 1000 Credits: 4

OR

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

OR

ANTH1100 - Introduction to Biological Anthropology

Credits: 4

Basic concepts relating to the origin, evolution and biological nature of the human species.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

- Foreign Language Credits: 8
 - First Aid/CPR Credits: 0
- A&S Global Credits: 3
A&S Diversity Credits: 3

Theatre and Dance, Dance Science Concentration, B.F.A.

The BFA in Dance Science permits 78 credits in the major and is a professionally oriented degree for students interested in a career in research or science. The degree provides summation and synthesis of dance training. Admission by application only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Dance Science Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1021 - Academic and Professional Issues in Dance

Credits: 1

Introduces freshman to the discipline of dance and academic study at the University of Wyoming. Key intellectual and literacy concepts will be introduced, including, but not limited to: critical thinking and analysis, knowledge of the discipline, career options, diversity of the discipline, university and region.

USP 2003-2014 Code U3I,U3L

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1405 - Introduction to Pilates Training

Credits: 1

Max Credit (Max. 2)

An introduction to Pilates based training, including mat work and exercises on the Reformer.

Prerequisite: consent of instructor.

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2050 - Theatre Practice

Credits: 1-2

Encompasses individually supervised practical training in performance and production.

Prerequisite: consent of instructor.

THEA2200 - Backgrounds of Dance

Credits: 3

Surveys ethnic and theatrical dance forms from primal society to 20th century. Examines the place of the arts as a reflection of the culture.

USP 2003-2014 Code U3CA,U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

THEA2410 - Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary, and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2420 - Intermediate Ballet II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2430 - Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA2440 - Intermediate Modern II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester modern dance technique class for dance majors and minors. Mastering vocabulary and principles will be augmented with a deeper understanding of historical techniques and their application to contemporary dance.

USP 2015 Code U5H

Prerequisite: THEA 2430. Limited to dance majors and minors; admission by permission only.

THEA2480 - Intermediate Jazz I

Credits: 1

Continued studies in techniques and principles of jazz dance and jazz dance composition.

USP 2015 Code U5H

Prerequisite: THEA 1480. Instructor permission required.

THEA3021 - Foundations of Dance Pedagogy

Credits: 1

Introduces students to basic theories and practices of dance pedagogy. Lecture and discussion will be balanced with peer teaching and coaching, observation of lessons and integration within a dance classroom situation with some teaching responsibilities and development of a portfolio with lessons and resources for teaching.

Prerequisite: sophomore standing in the department of Theatre and Dance; successful completion of THEA 3420 or THEA 3440.

THEA3100 - Kinesiology for Dance

Credits: 3

Encompasses seminar in current kinesiology research for dancers. Includes practicum based projects, lectures and supplementary materials.

Prerequisite: ZOO 2040.

THEA3410 - Adv/Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester ballet technique class for dance majors and minors. Emphasis is placed on improving technical skills and learning more advanced steps. Includes research into one discipline of ballet.

Prerequisite: successful completion of THEA 2440 and admission by permission only. Limited to dance majors and minors.

THEA3420 - Adv/Intermediate Ballet II

Credits: 1.5

Max Credit (Max. 3).

Second semester, second year ballet technique class for dance majors and minors. Emphasizes broadening the dancer's movement vocabulary while refining acquired technical skills. Dancers begin work in study of Baroque dance terms.

Prerequisite: successful completion of THEA 3410 or equivalent required. Limited to dance majors and minors; admission by permission only.

THEA3430 - Adv/Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester, intermediate level modern dance technique class for dance majors and minors. Continued training in classical modern dance and continued historical survey of modern dance will be augmented by rhythmic analysis and compositional forms.

Prerequisite: successful completion of THEA 2440 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3440 - Adv/Intermediate Modern II

Credits: 1

A second year, second semester, modern dance technique class with continuing studies of sequential modern dance technique at the intermediate level, introduction of Laban effort/shape theory, compositional forms, improvisation and additional rhythmic analysis.

Prerequisite: THEA 3430 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3480 - Adv/Intermediate Jazz I

Credits: 1
Max Credit (Max. 2)

An intermediate jazz technique class. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation and incorporate them into class compositions.

Prerequisite: THEA 2480.

- *Plus 2 credits total in any combination of THEA 4010 and THEA 4030*

THEA4010 - Advanced Ballet

Credits: 1-3
Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3
Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

THEA4200 - 20th Century Dance

Credits: 3
Intensely studies dance in 20th Century, emphasizing contemporary movement in modern, ballet, jazz and musical theatre dance. Examines social, political and aesthetic trends influencing dance theory and performance.

USP 2003-2014 Code U3CA,U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2200.

THEA4250 - Beginning Dance Composition

Credits: 2

Presents and criticizes movement studies based on various approaches to composition. Explores experimentation in choreography.

Prerequisite: THEA 2420, THEA 2440.

THEA4260 - Intermediate Dance Composition

Credits: 2-3

Prerequisite: THEA 4250 and consent of instructor.

THEA4880 - Advanced Theatre Practice

Credits: 1-2

Prerequisite: 12 hours in theatre and consent of instructor.

THEA4990 - Research in Theatre

Credits: 1-3

Prerequisite: 6 hours in area of research and consent of instructor.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

KIN4020 - Motor Behavior

Credits: 3

Provides undergraduate majors in kinesiology and health the foundation of motor learning and control theories to be applied to decisions related to the enhancement of human performance.

Prerequisite: C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; and 2.750 GPA.

OR

KIN3034 - Lifespan Motor Development

Credits: 3

Studies lifespan motor development. Emphasizes developmental periods of infancy through adolescence. Gives attention to observation and analysis of motor behavior and movement performance of individuals across lifespan.

Former Course Number [PEPR 3034]

Prerequisite: grade of C or better in PSYC 1000; junior standing; 2.750 GPA.

KIN3037 - Sport Psychology

Credits: 3

Studies psychological theories and techniques applied to sport to enhance the performance and personal growth of athletes and coaches. Emphasizes the influence of personality, anxiety, motivation, social factors, and psychological skills training.

Former Course Number [PEPR 3037]

Prerequisite: Admitted to the last two years of one of the programs in DK&H.

OR

KIN3038 - Exercise Psychology

Credits: 3

Studies psychological theories for understanding and predicting health-oriented exercise behavior, including psychological intentions for increasing exercise participation and adherence. Emphasizes psychological and psychobiological responses to exercise.

Prerequisite: grade of C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; 2.750 GPA.

- Foreign Language Credits: 8
A&S Global Credits: 3
A&S Diversity Credits: 3

Additional Upper-division Required Course Work

(minimum 6 hours from the following courses):

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3040 - Teaching Human Anatomy

Credits: 3

Students develop communication and teaching skills while expanding their knowledge in anatomy. Under faculty instruction, each student develops lecture and laboratory lessons for all human anatomy systems. Under direct faculty supervision, each student demonstrates their teaching skills through preparation of videotape segments and actual laboratory teaching experience in the lower-division human anatomy course.

Former Course Number [PEPR 3040]

Prerequisite: 2.750 GPA and grade of B or better in KIN 2040 and consent of instructor.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

PSYC3120 - Cognitive Psychology

Credits: 3

Deals with higher mental processes that are primarily unique to human beings from theoretical and research orientations. Emphasizes interrelationships between various cognitive processes and continuity of those processes with perceptual and non-cognitive activities. Discusses how information is processed and remembered.

When Offered (Normally offered spring semester)

Former Course Number [4120]

Prerequisite: A grade of C or better in 6 hours of psychology including PSYC 1000.

PSYC3250 - Health Psychology

Credits: 3

Provides overview of growing partnership between psychology and health care, including history of psychology in health care; theoretical foundations of health and illness; intervention and research techniques; stress and high risk behaviors (e. g. , substance abuse, eating behaviors, AIDS); psychology's contribution to improving outcomes and quality of life in chronic and life-threatening behaviors.

Cross Listed NURS 3250.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4070 - Motivation

Credits: 3

Covers classic and contemporary theories and research concerning motivation and the pursuit of goals. Discusses the study of motivation from a variety of perspectives, including biological, environmental, and psychological. Considers the role of emotion in motivational processes.

Prerequisite: C or better in 6 hours in psychology.

Theatre and Dance, Design Tech Management Concentration, B.F.A.

The BFA Design Tech Management permits 69-70 credits in the major and is a professionally oriented degree for students interested in pre-professional theatre design, technology and management or graduate study.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Design Tech Management Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1050 - Beginning Drawing and Painting

Credits: 3

An introductory drawing and painting technique course for students to achieve a working knowledge of a variety of mediums that cross the disciplines of scenic, costume, and lighting design. Form, perspective, texture and basic color theories will be explored.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2150 - Drafting for Design

Credits: 3

Introduces Design and Technical students to the basics of hand drafting and numerous drafting techniques and conventions. After completing this course, students will be well prepared for scenic and lighting design courses.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2250 - Computer Aided Design I

Credits: 3

Building on skills and techniques learned in THEA 2150 Drafting for Design, the course introduces and provides students with training on commonly used software, that may include CAD, 3D-modeling, and photo editing software. Skills acquired will be built upon in later courses.

Prerequisite: THEA 2150 or by permission of instructor.

THEA2790 - Stage Management

Credits: 3

Study of the essential elements of supervising theatrical productions. Stresses the art of organizing auditions, casts, crews, rehearsals, and performances while developing a unique professional relationship with directors, designers and actors. Students will work on a live production.

Prerequisite: THEA 1100, THEA 1200, THEA 2220.

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

THEA2990 - Period Style for Theatre I

Credits: 3

First semester of a one-year survey. Studies antiquity to the Renaissance with an overview of the architecture, décor, clothing, arts and culture as related in their use and understanding of Western drama. The social, economic, and political histories of each period will be discussed as well. THEA 2990 and THEA 2995 should be taken in sequence.

THEA2995 - Period Style for Theatre II

Credits: 3

Second semester of a one-year survey. Studies Renaissance to Contemporary with an overview of the architecture, decor, clothing, arts and culture as related in their use and understanding of Western drama. The social, economic, and political histories of each period will be discussed as well. THEA 2990 and 2995 should be taken in sequence.

Prerequisite: THEA 2990 or permission of instructor.

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create

and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3805 - Stage Lighting 2

Credits: 3

Max Credit 3

Analyze proposed productions in terms of period, style, theatre limitations and instrument inventories. Determine appropriate design solutions in written descriptive analyses that result in 2-D drawings of the design. Produce all supporting paperwork including drafting a plan view, section view, instrument schedules, magic sheets and proposed cue lists. Instructor permission required.

Prerequisite: THEA 2800

THEA3810 - Scene Design I

Credits: 3

An in-depth study of idea development from script analysis through design conception using different types of theaters and source material. The design process will cover research, drawing, drafting, model making, and rendering.

Prerequisite: THEA 2150 and THEA 2220 or by permission of instructor.

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

THEA3850 - Design and Technology Seminar

Credits: 2

Introduces designer/technician to process of preparing successful interview material, including a professionally developed portfolio. Exposes designer/technician to business aspects of the theatre world, including resumes, letters of inquiry and application, contracts, unions and professional organizations, internships, apprenticeships, URTAs and professional design/technical training programs. Culminates in junior End-of-the-Year Evaluations.

Prerequisite: junior standing in the BFA Program with Design/Technical emphasis.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD

Former Course Number [591]

Prerequisite: junior standing.

THEA4810 - Scene Design II

Credits: 3

Building on previous coursework, this course will focus on further development of the individual creative and design processes, honing research and presentation skills, and refinement of artistry and craftsmanship. Strong emphasis will be on the presentation of ideas and the advancement of the portfolio.

Prerequisite: THEA 2250 and THEA 3810.

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4850 - Stage Costuming II

Credits: 3

Explores costume design, emphasizing various rendering techniques. Emphasis is placed on the portfolio.

Prerequisite: THEA 3820.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

THEA4940 - Theatre History II

Credits: 3

Second semester of a one-year series. Continues THEA 4930.

Prerequisite: THEA 4930.

Foreign Language Credits: 8

A&S Global Credits: 3

A&S Diversity Credits: 3

Recommended Electives:

THEA2145 - Costume Construction

Credits: 3

Teaches the basic skills and terminology that are used in costume construction. Teaches hand and machine sewing focusing on techniques used to stitch historical and modern costumes as well as basic knowledge of fabric.

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

THEA2810 - Scenic Painting for the Theatre

Credits: 3

Introduces the art of scenic painting by the hands-on use and instruction of a variety of scenic paints, application on select construction materials, the use of unique tools and techniques commonly used to paint scenery for the stage. Safe use and proper handling of such material are addressed.

Prerequisite: THEA 2220.

THEA2900 - Sound Design for Theatre and Dance

Credits: 3

Examines the basic aspects of sound design for the theatre, dance, entertainment and film worlds. Topics covered include recording, sampling, live mixing, playback, and non-linear editing through several software packages.

Prerequisite: THEA 2220.

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Theatre and Dance, Musical Theatre Performance Concentration, B.F.A.

The BFA in Musical Theatre Performance permits a total of 60-70 credits in the major. It is designed primarily for those desiring to pursue additional pre-professional training in theatre and or for those preparing to enter MFA graduate programs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

The following are the required courses for a Bachelor of Fine Arts in Performance (Musical Theatre):

THEA1040 - Production Crew I

Credits: 0.5
Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3
Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1300 - Musical Theatre Workshop: Voice and Acting

Credits: 2
Max Credit (Max. 8)

Musical Theatre Workshop: Voice & Acting will focus on developing and strengthening the speaking and singing voice for stage, wherein students will construct performances through integration of breath and voice work.

THEA1360 - Fundamentals of Music for Theatre Majors

Credits: 3
Basics of music theory to include music notation, rhythm, pitch, scales, key signatures, triads, and basic ear training and keyboard skills, specific to the needs of Musical Theatre. Assumes little or no music theory background.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3
First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

THEA2170 - Speech for the Actor

Credits: 3

Studies speech techniques, including the International Phonetic Alphabet and Standard American Speech for the Stage. Builds upon the FitzmauriceVoicework technique as well as other voice methodologies.

Prerequisite: THEA 1100 and THEA 1700.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set

construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2300 - MT Workshop: Scene Study

Credits: 1
Max Credit 1

Study and analysis of written aspects of Musical Theatre (Book, Lyrics, Music) with an emphasis on translating analysis into tangible aspects of musical theatre performance. Study and practice outside of class, as well as rehearsals with assigned scene partner(s) is required.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1300

THEA2340 - Musical Theatre Voice Lesson

Credits: 1
Max Credit (Max. 8)

Solo instruction in singing techniques and performance styles associated with Musical Theatre. Includes demonstration, brief lecture, discussion, and active participation through singing, analyzing, movement, and performance.

THEA2720 - Movement for Actors I

Credits: 2
This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100.

THEA2790 - Stage Management

Credits: 3
Study of the essential elements of supervising theatrical productions. Stresses the art of organizing auditions, casts, crews, rehearsals, and performances while developing a unique professional relationship with directors, designers and actors. Students will work on a live production.

Prerequisite: THEA 1100, THEA 1200, THEA 2220.

THEA3300 - MT Workshop: Production

Credits: 1-2
Max Credit 2

Focusing on solos, duets and/or large and small ensemble pieces, instruction will include music preparation,

choreography, blocking, acting, character study and performance. Additional scene study, rehearsals outside of class times, mock auditions, and study of materials will be required. The course will be repeated twice for credit.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1300

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3740 - Acting Styles

Credits: 3

Focuses on textual analysis of plays from different periods and styles of dramatic literature. Emphasizes vocal and physical interpretation of character as represented in non-realistic styles of drama.

Prerequisite: THEA 1100 and THEA 3710.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD

Former Course Number [591]

Prerequisite: junior standing.

THEA3950 - Dialects for the Actor

Credits: 3

Introduces the actor to five major dialects for the stage. Examines sensibility, vowel and consonant changes, pitch placement and charting.

Prerequisite: THEA 1100, THEA 1700, and THEA 2170.

THEA4330 - History of American Musical Theatre

Credits: 3

History of the American Musical from its inception to today. Emphasis on developments and literature.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at the 3000-level.

THEA4710 - Acting IV

Credits: 3

Max Credit 3

Involves intensive work at an advanced level dealing with individual actor's problems through the medium of scene study.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 3710

THEA4720 - Auditioning and Professional Issues

Credits: 3

Introduces actors to process of finding, preparing and executing successful audition material, including monologues, songs and dance combinations. Exposes actors to business aspects of the theatre world, including resumes, photos, contracts, unions, internships, apprenticeships, Equity Membership Candidacy programs, URTA's and professional actor training graduate programs. Culminates preparation for final semester auditions for the company/school of choice.

Prerequisite: THEA 1100, THEA 3710 and THEA 3740.

THEA4730 - Movement for Actors II

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100 and THEA 2720 .

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

- Foreign Language Credits: 8
- Plus two additional dance courses in an area of choice.
A&S Global Credits: 3
A&S Diversity Credits: 3

Plus 3 Hours From the Following:

THEA1410 - Beginning Ballet I

Credits: 1

Introduces principles and practices of classical ballet technique.

USP 2015 Code U5H

Prerequisite: THEA 1410 or instructor permission.

THEA1430 - Beginning Modern I

Credits: 1

Introduces principles and techniques of modern dance.

USP 2015 Code U5H

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA1480 - Beginning Jazz Dance I

Credits: 1

Explores basic jazz dance techniques and related principles of jazz dance composition.

USP 2003-2014 Code H

Theatre and Dance, Theatre/English Concentration, B.F.A.

The BFA in English Theatre permits 60-70 credits in the major field. It is designed primarily for students who seek additional professional education and certification, or for those who wish to enter MFA graduate programs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Theatre/English Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2150 - Drafting for Design

Credits: 3

Introduces Design and Technical students to the basics of hand drafting and numerous drafting techniques and conventions. After completing this course, students will be well prepared for scenic and lighting design courses.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3740 - Acting Styles

Credits: 3

Focuses on textual analysis of plays from different periods and styles of dramatic literature. Emphasizes vocal and physical interpretation of character as represented in non-realistic styles of drama.

Prerequisite: THEA 1100 and THEA 3710.

THEA3810 - Scene Design I

Credits: 3

An in-depth study of idea development from script analysis through design conception using different types of theaters and source material. The design process will cover research, drawing, drafting, model making, and rendering.

Prerequisite: THEA 2150 and THEA 2220 or by permission of instructor.

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD

Former Course Number [591]

Prerequisite: junior standing.

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4830 - Directing II

Credits: 3

Focuses on creative process of developing directorial concepts, establishing the world and style of the play, working with the actor, and functioning as a designer. Includes exercises that analyze different directorial approaches, as well as the audition and casting process. Culminates one-act mounted production performed before invited audience.

Prerequisite: THEA 4820 and written permission of instructor.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

THEA4940 - Theatre History II

Credits: 3

Second semester of a one-year series. Continues THEA 4930.

Prerequisite: THEA 4930.

- ENGL 2000 Credits 6
 - ENGL 4000 Credits: 9
 - ENGL 4110 Credits: 3
- OR**
- ENGL 4120 Credits: 3
 - Foreign Language Credits: 8
A&S Global Credits: 3
A&S Diversity Credits: 3

Visual Communication Design, B.F.A.

The B.F.A. in Visual Communication Design is a professional level degree open to outstanding students through an application process who are preparing for design studies, careers and professional activity in design beyond the undergraduate level.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BFA in Visual Communication Design** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA
required

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories

based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

required

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

required

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular units, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.

required

Studio Core: 12 Hours

12 credits chosen from the below. At least one course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramics class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Art History and Design Theory Core: 9 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

required

Upper Division Art History - 20th and 21st Century: 6 Hours

* six hours in ART 4740 and ART 4770

ART4740 - 20th Century European Art

Credits: 3

Studies 20th-century European art from 1900 to 1945. Covers the 2-D and 3-D art of Expressionism, Cubism, the Bauhaus, Dada and Surrealism, and other important movements in the first half of the 20th century.

When Offered (Normally offered spring semester)

Prerequisite: ART 2010 and ART 2020.

required

ART4770 - Contemporary Arts Seminar

Credits: 3

Studies the major movements in the visual arts from 1945 to the present. Investigate major theories, stylistic movements, and key artists since WWII with a special focus on the increasing globalization of art during this era.

When Offered (Normally offered fall semester of every other year)

Prerequisite: ART 2010 and ART 2020.

required

VCD Core: 12 Hours

ART2110 - Type I: Thinking with Type

Credits: 3

Max Credit 3

Examines history and structure of type as a form of communication and art. Students will reference type as visual expression, data visualization, messaging, and representative of power, political, and socio-economic movements. Explorations in type as a concept and critical expression will explore the fields of graphic design and computer visualization.

Prerequisite: ART 1115

required

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

required

ART2122 - VCD II Visual Programming

Credits: 3

Max Credit (Max. 9)

Explores digital art principles in Web spaces through the understanding and use of design tools and techniques. Creative approaches consist of informed planning, thoughtful concepting, strategic wire frame development and

creative execution. Projects include explorations of HTML, CSS, and visual programming, and time-based media and image manipulation.

When Offered (Normally offered spring semester)

Former Course Number [3110]

Prerequisite: ART 1110 and ART 1115.

required

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

Upper Division VCD: 15 Hours

ART3112 - Type: Type, Images, and Narrative

Credits: 3

Examines the experimental use of type, its history, structure and background in reference to visual expression, data visualization, messaging, representative power, and time-based and site-specific explorations. Advanced explorations in type as concept and critical expression will explore the fields of graphic design and computer visualization.

When Offered (Offered spring semester)

Former Course Number [2110]

Prerequisite: ART 2000 and ART 2112.

required

ART3120 - VCD III: Visual Making

Credits: 3

Studies advanced graphic design preparation, idea generation, conceptualization, and critical thinking. Sustainable design problems include print and package design and an exploration of historical impact of design for reproduction through analog and digital means. Contemporary socio-cultural issues will be emphasized along with design as an agent for positive change.

When Offered (Offered fall semester)

Prerequisite: ART 2000 and ART 2112.
required

ART3150 - VCD IV: Visual Imaging in Time

Credits: 3

Explores digital video, sound and site-specific experiments. Students learn and use experimental digital design tools and techniques to develop site-specific time-based individual and collaborative works. Students also collaborate and install works on campus, town and other venues. Projects include video and sound design and editing, graphic arts, computer graphics and digital art history.

Former Course Number [4140]

Prerequisite: ART 2000, and ART 2112 or ART 2122.

required

ART4120 - VCD VI: Senior Design Studio

Credits: 3

Specialized research for the advanced design student who will develop a mature voice and sense of design. Individual projects are determined by student interest with the instructor in order to best prepare students for industry careers and graduate school. Students are encouraged to explore new to them, and emerging approaches.

When Offered (Normally offered fall semester)

Prerequisite: ART 2000, ART 2112, ART 2122.
required

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

OR

ART4425 - Graphics Internship

Credits: 3

This course allows graphic design students to better understand real-world design practices, learn about industry standards, and discuss career opportunities and preparedness. Students will be expected to secure internships and meet with an intern advisor regularly, to gain a strong understanding of the graphic design industry.

Prerequisite: ART 2000, ART 2112, and ART 2122.

BFA Core: 12 Hours

ART4010 - Contemporary Art: Theory/Practice

Credits: 3

Max Credit 3

Taught from the perspective of a studio artist, this course enables students to situate their art within a theoretical context. Students examine how issues in contemporary art relate to philosophical concerns through reading, discussion, and critique. Emphasis is placed on an interdisciplinary framework through which students can discuss their work.

USP 2015 Code U5C3

Prerequisite: ART 2000 , and junior standing.
required

ART4600 - Professional Practices and Strategies

Credits: 3

This course offers information to junior/senior level art majors in regards to: finding jobs in art, finding/applying for exhibition opportunities, applying/finding grant opportunities, furthering education including finding/applying for a Masters in art, and overall life possibilities after the completion of an undergraduate art degree. Writing is expected in the form of cover letters, resumes, artist statements, and project proposals.

USP 2015 Code U5C3

Prerequisite: ART 2000, junior or senior standing.
required

ART4800 - BFA Capstone I

Credits: 3

BFA Capstone I course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by creating work for their BFA exhibition.

Prerequisite: ART 2000 and 6 credits of a studio beyond Art 2000; 3.0 overall gpa; 3.25 gpa in Art/Art History; major acceptance into the BFA VCD degree or BFA in Studio Art degree.
required, offered only fall semester

ART4840 - BFA Capstone II

Credits: 3
Max Credit 3

BFA Capstone II course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by finishing work for their BFA exhibition and defending it once the artwork is completed.

Restricted BFA in Studio Art

Prerequisite: Successful completion of ART 2000 and ART 4800 , 3.0 overall GPA, 3.25 GPA in Art/Art History, and acceptance into BFA program.
required, offered only spring semester

Upper Division Studio Electives: 9 Hours

9 credits of any upper division studio art classes

Foreign Language: 8 Hours

* 8 credits in any foreign language:

LANG1010 - First Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010.

Additional Requirements

B.F.A. in Visual Communication Design

Designers explore a variety of visual communication design topics dealing with diverse messages and audiences. Students interested in pursuing a career in design, including visual communication design, graphic design, motion graphics, animation, digital media, etc. may apply into the B.F.A. in Visual Communication Design. Students planning

to graduate in four years with a B.F.A. in Visual Communication Design should complete their Foundation Core in their Freshman year and take the appropriate Studio Core classes in their sophomore year. As a Professional Degree, the B.F.A. in Visual Communication Design does not include the A&S Outside Major credit requirement.

Students must earn a grade of C or better in all courses taken to satisfy department requirements. Courses in the major must be taken for a letter grade. To obtain a B.F.A. in Visual Communication Design degree in the Department of Visual and Literary Arts students must have a minimum 3.00 overall UW-total institutional GPA, and a 3.25 GPA in all major courses at the time of graduation.

The Visual Communication Design degree provides students with a human-centered approach to making and thinking as designers. Students learn through digital and hand's-on-making design challenges to develop critical narrative skills and refine their ability to think conceptually. Individual projects and research prepare each student to think flexibly in an international community that is continually being influenced by new ideas, tools, and technologies. The Visual Arts Building, design computer classroom, and design and fabrication studio facilities offer undergraduate students ample research, design, and production space and access to cutting-edge technology, and open-source and industry standard software and tools for design exploration.

Application

Formal application is made to the program for acceptance into the B.F.A. in Visual Communication Design degree program. Application must be submitted at least three semesters prior to the applicant's anticipated graduation. Favorable faculty review of the application materials are required before a student is declared a candidate for the B.F.A. in Visual Communication Design degree. Applicants must have achieved the following at the time of application to the B.F.A. in Visual Communication Design:

- C or better in all major classes
- 3.25 GPA or above within major classes
- 3.00 or above overall UW total institutional GPA

Undergraduate majors proceed with meeting the USP requirements for the B.A. in Studio Art and balance with foundation, art history, and studio core requirements in the major until formally accepted as a B.F.A. in Visual Communication Design candidate. Students should apply at least three semesters before graduation. Application does not automatically guarantee acceptance into the B.F.A. in Visual Communication Design program.

Final Year

During their final year and in conjunction with the spring B.F.A. exhibition, students enroll in two sequential capstone courses: BFA Capstone I (fall) and II (spring). The courses outline the deadline and requirements for the B.F.A. exhibition as well as coordinating mentoring of B.F.A. candidates. If faculty deem their work insufficient, they reserve the right to exclude the work from the exhibition and withhold the B.F.A. degree. Students transferring to the Department of Visual and Literary Arts who have completed their foundation core and successfully passed portfolio review are eligible to apply for a B.F.A. in Visual Communication Design after one semester in the Art and Art History Program.

Wildlife and Fisheries Biology and Management, B.S.

Provides a solid foundation in the theory and techniques involved in the management, conservation, and captive propagation of wildlife and fish populations. Includes both classroom and field experiences in a Rocky Mountain setting.

Additional Information

Wildlife and Fisheries Biology and Management is a professional degree designed to prepare students for state, federal, and other positions in resource management and conservation biology. The degree provides students with knowledge of the natural world, understanding of processes governing dynamics of wildlife and fish populations, as well as an appreciation of human-mediated effects on wildlife and fish populations. A student graduating with this degree will be familiar with the theory of resource management as well as with methods used to determine population status, habitat quality, and conservation. In Wyoming the abundance of wild animals and pristine habitats provide a unique natural laboratory for studying the responses of wildlife and fish populations to changing climates and habitats.

A student graduating with a degree in WFBM will have comprehensive knowledge of wildlife and fisheries biology and management, will have earned a degree that is compatible with the requirements for professional certification with the American Fisheries Society or the Wildlife Society, and will have a range of knowledge and skills that are valuable to potential employers.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3

A&S Core: Global Awareness Course

Foundation Courses

(MATH 1450 may substitute for MATH 1400 and MATH 1405)

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences.

Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

OR

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and

vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

Data Science course

Choose ONE course from the following:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1100 - Computer Science Principles and Practice

Credits: 3

Introduces use of computers for algorithmic problem solving. Studies scope, major contributions, tools and current status of computer science. Presentation of computer science principles; use of software packages and evaluation of their effectiveness; and elementary programming.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: C or better in MATH 1400 or in any University Studies QB or Level 4 or higher on Mathematics Placement Exam.

COSC1200 - Computer Information Systems

Credits: 3

Introduces computers and information processing, computer systems and hardware, computer software, information processing systems, information systems and information resource management. Uses word processing, data base language and electronic spreadsheet program in hands-on exercises.

Prerequisite: passing of Mathematics Placement Examination at Level 2 or equivalent.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

Core Required Courses

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4970 - Internship in Wildlife Management

Credits: 1

Max Credit (Max. 1)

Provides practical field experience in resource management for undergraduate credit.

Prerequisite: consent of instructor.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Options

Complete Terrestrial OR Aquatic Option

Aquatic Option

A minimum of 10 of the AQUATIC OPTION requirements listed below (ZOO 4330 and ZOO 4440 and ZOO 4430 and Restricted Electives) must be exclusive to the WFBM major.

REQUIRED COURSES

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

Restricted Electives

15 Credits of Electives from the following list:

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

- BOT 0000:5999
- ENR 0000:5999
- REWM 0000:5999

Terrestrial Option

A minimum of 10 of the TERRESTRIAL OPTION requirements listed below (BOT 4700 and ZOO 4300 and Restricted Electives) must be exclusive to the WFBM major.

REQUIRED COURSES

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

Restricted Electives

14 Credits of Electives from the following list:

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

- BOT 0000:5999
- ENR 0000:5999
- REWM 0000:5999

Zoology, B.S.

Zoology majors explore form, function, behavior, ecology, evolution and conservation of animals and hone analytical, writing, and research skills for diverse careers from graduate school to state and federal agencies, consulting, and nonprofits.

Additional Information

Zoology is the study of animals: their structure, physiology, development and evolution. One of the enduring fascinations of zoology is that we can learn so much about ourselves and our environment by studying what our fellow creatures do.

At the end of this program students will have a comprehensive knowledge of zoology, will be well prepared for graduate education, and will be equipped to enter any of the many employment opportunities that are available.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3

A&S Core: Global Awareness Course

Foundation Courses

(MATH 1450 may substitute for MATH 1400 and MATH 1405)

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences.

Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences.

Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

OR

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

OR

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

OR

CHEM3020 - Environmental Chemistry

Credits: 3

Environment and modern environmental problems in terms of chemical structures and reactions. Chemical principles of equilibrium, kinetics, and thermodynamics are used to help understand our changing environment. Topics include toxicological chemistry, aquatic chemistry, atmospheric chemistry, and green chemistry.

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 2230; and QA course.

OR

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

OR

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

OR

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

OR

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Advanced Zoology Course

* if more than one of the required courses is completed, additional courses can count towards the Zoology Approved Core Electives below.

One of:

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

Zoology Approved Core Electives

A minimum of 10 of 18 Zoology Approved Core Electives must be exclusive to the ZOOL major.

Choose a total of 18 credits from:

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT4664 - Special Topics in Evolution

Credits: 1-4

Max Credit (Max. 6)

Advanced topics in evolutionary biology are engaged by studying primary research and topical synthesis in the current literature.

Dual Listed BOT 5664.

Prerequisite: LIFE 3500 or equivalent.

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

- GEOG 3150

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

ENTO4682 - Insect Anatomy and Physiology

Credits: 5

Studies structure and function of the insect body, particularly emphasizing the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 5682.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: ENTO 1000.

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

PATB4170 - Diseases of Wildlife

Credits: 3

Introduction to wildlife diseases of the Rocky Mountain region and North America. Emphasis on infectious, parasitic, traumatic, toxic, and other disease agents with coverage of mechanisms of disease, epidemiology, and disease impacts on wildlife populations and species. Significant discussion of zoonotic diseases and diseases at the wildlife/domestic animal interface.

Dual Listed PATB 5170

When Offered (Offered spring semester of even numbered years)

A&S College Core 2015 12 hours of biological or zoological sciences.

Former Course Number [4120]

- PATB 4310
- PATB 4360

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

Minor

African American and Diaspora Studies Minor

Thematic tracks in the major or minor are optional:

- History
- Culture & Aesthetics
- Politics & Law
- Rhetoric & English
- Religion & Philosophy
- Media Studies

Minor Requirements

The minor in African American and Diaspora Studies consists of 21 credit hours:

- 9 credit hours of core course requirements
- 9 credit hours of electives (excludes core courses)
- 3 credit hours of senior thesis seminar (AAST 4975, Capstone)

Aging Studies Minor

Background Check

Students seeking the minor in Aging Studies will be required to obtain a background check. Please contact us for specific information.

Program Plan

Complete the Program Plan of Study with both your major academic advisor and your minor advisor.

A minor in aging studies requires 18 credit hours. These must include the following:

Core Courses

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment.

Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

HLSC4985 - Health Sciences Internship

Credits: 1-6
Max Credit (Max. 6)

Gives students an opportunity to gain practical experience in a health care field of their choice. The intense relationship with a mentor allows the student to become socialized into a health care field, gain practice skills, and relate to other health care professionals in an interdisciplinary way.

When Offered (Offered fall, spring and summer)

Prerequisite: completion of all other degree requirements.

Elective Courses - 9 Credits

- 6 credits must be outside student major

Academic Standards

At least 12 credit hours in a minor must be from courses that are not being counted toward the student's major. No grade below a C is acceptable for courses applied to the minor.

American Politics Minor

The American Politics minor delves into the mechanics of politics in the United States by studying historical and current implications.

Requirements

A minor in American Politics requires

POLS1000 - American and Wyoming Government

Credits: 3
Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

POLS4850 - Seminar in American Politics and Institutions

Credits: 3
Max Credit (Max. 6)

Includes reading and research on selected U. S. government and politics problems.

Dual Listed POLS 5850.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 9 hours of political science including POLS 1000 and consent of instructor.

OR

POLS4840 - Seminar in Public Law

Credits: 3
Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

- 12 hours from an approved list of courses, with a minimum of 9 hours at the 3000-level or above.

Approved American Politics Minor Courses

POLS2000 - Current Issues in American Government

Credits: 3

Examines current political topics in the U. S. Focuses on key public policy problems, policy-making process and the final policy choice. Students must keep abreast of political events on daily basis and apply basic concepts in American government to current affairs.

USP 2003-2014 Code U3CS

Prerequisite: POLS 1000.

POLS2070 - Politics of State and Local Government

Credits: 3

Studies politics, organizations, structures and processes of American state and local governments.

Prerequisite: POLS 1000.

POLS2410 - Introduction to Public Administration

Credits: 3

Deals with executive branches of governments in the U. S. : national, state and local. Considers organizational, political and policy-making aspects of each. Discusses administration in other forms of government, such as interstate compacts

and regional agreements.

Prerequisite: POLS 1000.

POLS2430 - Parties, Interest Groups and Elections

Credits: 3

Studies nature and functions of political organizations in American democracy. Discusses origins and evolution of American parties, causes of interest group development, political socialization, political participation and voting behavior, as well as activities of interest groups within American society and political system. Emphasizes current trends regarding role of parties versus interest groups.

USP 2003-2014 Code U3CS

Prerequisite: POLS 1000.

POLS2450 - Politics and Media

Credits: 3

Examines the media's coverage of current events, governmental institutions and electoral campaigns. Discusses effect of media on individuals' opinions and behavior.

Prerequisite: POLS 1000.

POLS2490 - Topics In:

Credits: 1-3

Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

POLS3520 - Voting and Participation in America

Credits: 3

Examines the ways citizens participate in government, including campaigning, donating money, and voting. Topics include mobilization by parties and campaigns, social and demographic differences in participation, explanations of voting behavior, civic responsibility, and the role of participation in a democracy.

Prerequisite: POLS 1000.

POLS3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed COJO 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

POLS4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed INST 4330.

Dual Listed POLS 5330.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4420 - Seminar in Public Administration

Credits: 3

Max Credit (Max. 6)

Includes reading and research in selected public administration topics.

Dual Listed POLS 5420.

Prerequisite: POLS 1000 and consent of instructor.

POLS4430 - United States Presidency

Credits: 3

Analyzes office of president, its roles, development, relationships with other governmental agencies and problems in the contemporary world.

Dual Listed POLS 5430.

Prerequisite: POLS 1000.

POLS4435 - Presidential Elections

Credits: 3

Examines the process of electing the U. S. president. Topics include the roles of presidential primaries, caucuses, and conventions; campaign strategies; media coverage; citizen participation; the electoral college; and reforms.

Dual Listed POLS 5435.

Prerequisite: POLS 1000.

POLS4520 - Public Opinion

Credits: 3

Deals with natures of a public in democracy and means of forming and manipulating public opinion. Emphasizes role of public opinion as essential ingredient of the policy-making process in popular government.

Dual Listed POLS 5520.

Prerequisite: POLS 1000.

POLS4530 - U.S. Congress

Credits: 3

Analyzes aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 5530.

Prerequisite: POLS 1000.

POLS4550 - Internship in Government

Credits: 1-6

Integrates practical political experience with academic knowledge. Students are expected to participate in specifically assigned duties and observe broader activities of the sponsoring organization; then, reflect upon this participation and observation in the form of written assignments. Internship credit can be earned for work in political campaigns, Wyoming Legislature or government services.

Prerequisite: 9 hours of political science.

POLS4560 - Washington Semester Program

Credits: 15

Provides students with paid internships in Washington, D. C. , in either congressional offices or federal agencies. Selection into the program is very competitive and is made the semester prior to service.

Prerequisite: POLS 1000 and 6 additional hours of political science courses.

POLS4710 - Topics in

Credits: 1-3

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

POLS4720 - Workshop in Practical Politics

Credits: 1-3

Familiarizes or strengthens participants in techniques of political effectiveness. Includes political organization, campaigning and persuasion. Guest speakers include public officials and experts in the field of practical politics.

Prerequisite: 9 hours of political science.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

POLS4850 - Seminar in American Politics and Institutions

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected U. S. government and politics problems.

Dual Listed POLS 5850.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 9 hours of political science including POLS 1000 and consent of instructor.

American Studies Minor

Students may minor in American Studies through a program of 24 credit hours of study, with credit hours evenly distributed between lower and upper division courses, which include at least 3 courses in American Studies (with the AMST course prefix), at any level (except AMST 1101), in consultation with and depending on approval by a faculty advisor in American Studies. Coursework for the minor may be matched with a student's major requirements in related disciplines and fields.

Anthropology Minor

Students will gain introductory training in at least two of the subfields of Anthropology combined with three or four upper division courses.

Introductory Courses

The minor for non-anthropology majors requires two of the introductory courses:

ANTH1100 - Introduction to Biological Anthropology

Credits: 4

Basic concepts relating to the origin, evolution and biological nature of the human species.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ANTH1300 - Introduction to Archaeology

Credits: 3

Explores ways in which prehistoric material remains can provide an understanding of the cultural way of life. General background in archaeological method and theory is used to examine case studies from throughout the world, based on themes such as ceramic technology and artistry development, growth of early civilizations and North American prehistory.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5PN

A&S College Core 2015 ASG

ANTH2000 - Introduction to Linguistic Anthropology

Credits: 3

Demonstrates the interrelationship of language, human biology, and culture at the introductory level. Linguistic anthropological methods and theories are used to examine linguistic behaviors used throughout the world.

USP 2003-2014 Code U3L

USP 2015 Code U5C2

Prerequisite: ANTH 1100, ANTH 1200 or ANTH 1300.

Electives

- 11-12 hours of electives from 2000, 3000, or 4000-level anthropology courses with no more than 3 hours at the 2000-level.

Art History Minor

The Art History Minor introduces students to the discipline of Art History in a 21 credit hour sequence.

Art History Sequence: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Lower Division Requirement: 3 Hours

ART2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ANTH 2700/HIST 2700.
USP 2003-2014 Code U3CH

OR

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

Other Traditions: 3 Hours

Including but not limited to Art & Architecture of Medieval Islam, Japanese Art History, Meso-American Art History

ART3720 - Art and Architecture of Medieval Islam

Credits: 3

Studies the art and architecture produced by Islamic societies from the time of the Prophet Mohammed to the time of the Crusades (7th-14th centuries CE), and the geographic scope surrounds the Mediterranean Sea, including the Near Middle East, northern Africa, and Spain.

Former Course Number [2720]

Prerequisite: USP WA and WB courses.

Art History Electives at the 3000/4000-level: 9 Hours

Art History Electives at the 3000/4000-level (including additional Other Traditions) Credits: 9

Total Credits: 21 Hours

Asian Studies Minor

The Asian Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of an Asian region or a single country. The program emphasizes a social science approach to the study of Asian history, politics, society, and culture with options to include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Asia is defined first and foremost as a geographic entity to include Western,

Northern, Central, South and East Asian areas. Thus, for example, countries such as modern Turkey and areas such as the 'Middle East' can rightly be included in 'Asia' alongside areas more traditionally understood as part of Asia such as China and India.

Course Requirements (18 Credits)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 Credit Hours)

All Asian Studies Minor students must complete one of two required Gateway courses depending on their primary area of interest within Asia.

INST2230 - Introduction to Asian Studies

Credits: 3

Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

OR

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

Asian Studies Area Courses (15 Credit Hours)

Asian Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved Asian Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition to the approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Asian Studies Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to review the International Studies Newsletter each semester to see what Asian Studies Area courses are currently being offered.

Approved Asian Studies Area Courses

- ART 2720 - Introduction to the Art and Culture of Islam

ART4650 - International Study of Art

Credits: 3

Students will respond creatively to the historical, cultural and aesthetic experience in the country of travel and will use journaling, drawing, and collection of visual material to continue a more in-depth response upon return. Course sections will vary regarding structure/context. All sections will include studio and/or art historical curriculum.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: ART 4635.

CHIN1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

CHIN2041 - Contemporary and Traditional Chinese Culture

Credits: 3

Designed to provide those with a serious interest in China and Chinese language with a cultural context for learning Chinese language. Incorporates economic and social material to give students a clear view of Chinese culture with an emphasis on Chinese language instruction.

Prerequisite: CHIN 2030.

CHIN3160 - See Movies, Touch China

Credits: 3

This course combines exploration of classical and contemporary Chinese cultures through prominent Chinese films. The audio-video materials selected will be discussed in their historical context. Students will explore the transformations China has undergone, and will seek to understand the Chinese mindset.

USP 2003-2014 Code [(none)< >H]

Prerequisite: COM1.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

OR

RELI2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

Cross Listed HIST 2320.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4

Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

- HIST 3210 - The Islamic World in the Premodern Era

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

GWST4335 - Women and Islam

Credits: 3

Examines women's lives in Islamic societies from the seventh century to the present in the Middle East and throughout the world. Themes include women's position in Islamic law, society and culture, Western images of Muslim women, veiling and Islamist movements, theoretical readings on power, gender and agency.

Cross Listed HIST 4335 and RELI 4335.

Dual Listed GWST 5335.

Prerequisite: 9 hours of HIST, WMST, INST, or RELI.

- HIST 4520 - Modern Far East: China, Japan and India

INST2230 - Introduction to Asian Studies

Credits: 3

Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

INST3100 - Chinese Society

Credits: 3

Reviews origins and consequences of Chinese revolution in comparative and cultural perspectives. Discusses influence of historical traditions and social structure on individual lives and behavioral patterns.

Cross Listed SOC 3100.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000.

OR

SOC3100 - Chinese Society

Credits: 3

Reviews origins and consequences of Chinese revolution in comparative and cultural perspectives. Discusses influence of historical traditions and social structure on individual lives and behavioral patterns.

Cross Listed INST 3100.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000.

INST3400 - Politics and Society of Turkey

Credits: 3

Examines the history of Turkey with an emphasis on its relationship with the Western world. Major topics include the Ottoman Empire; Ataturk and the founding of the Republic of Turkey; Turkey's role in the Cold War, Kurdish and other minority populations; the changing Turkish political landscape, the evolution of Islamist politics; and recent relations with the United States and European Union.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: INST 1200/POLS 1200 or POLS 1250 and INST 2310/POLS 2310 or permission of instructor.

INST4200 - China and Globalization

Credits: 3

The economic reforms in China have been political, cultural, and above all, global processes. Understanding these processes of economic reform tells us much about the role of government, culture, and globalization in the transition from socialism to capitalism, as well as about China's future role in the world.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/INST 1250 or HIST 2041 or SOC 3100.

INST4250 - East Asia Society and Economy

Credits: 3

Designed to explore key issues to the historical development of Asian countries from both comparative and international political economy perspectives. Distinctive political, social, and economic characteristics of these nations will be analyzed.

Dual Listed INST 5250.

USP 2003-2014 Code U3G

INST4560 - Global Cities

Credits: 3

Globalization accelerates urbanization processes and creates a new type of city: the global city. This course investigates the debates over global cities, urban culture, new urban landscapes, urban planning practices, and social disparity. Using case studies from around the world, this class explores the diversity of global city formation processes.

Cross Listed GEOG 4560.

Dual Listed Dual listed with INST 5560.

USP 2015 Code U5H

Prerequisite: 9 hours of international studies or geography.

INST4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the 'lens' of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed MKT 4590.

Dual Listed INST 5590.

Prerequisite: advanced business standing.

OR

LANG2150 - Manga: History and Culture

Credits: 3

Manga is one of the most important art forms to emerge from Japan. Its importance as a medium of visual culture and storytelling cannot be denied. Through reading and examination of texts, students will understand the relevance of comics in Japanese society.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: COM1.

LANG3105 - Major Themes in Chinese and Japanese Literature

Credits: 3

Explores mindsets of two rich and ancient civilizations, China and Japan. Considers distinctive characters of each civilization, while illuminating basic elements that we share with these peoples.

Prerequisite: ENGL 1010.

LANG3140 - Anime: History and Culture

Credits: 3

An introduction to the history, development, and cultural significance of Japanese animation. Through the examination of a variety of anime genres, students will gain insight into contemporary Japan as well as important historical periods. We will read analyses of particular anime, emphasizing the unique characteristics of the art and the mystery of its popularity in the US.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Prerequisite: completion of WA.

LANG4800 - Advanced Instruction In: (TOPIC)

Credits: 1-3

Max Credit (Max. 12)

Advanced study and projects designed to meet special needs and interests of students, to be selected in consultation with a suitable member of the faculty.

Prerequisite: consent of instructor.

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS4230 - Governments and Politics of Asia

Credits: 3

Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 5230.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

RELI2040 - Religions of the Middle East: Judaism, Christianity and Islam

Credits: 3

Analyzes origins and early years of three major religions that arose in the Middle East: Judaism, Christianity and Islam. Looks at historical development, political and cultural context, and structure of each religion.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

RELI2050 - Religions of Asia

Credits: 3

Introduces students to the religions of Asia. Primary focus on Hinduism and Buddhism, but also addresses several smaller religions. Emphasis on beliefs, sacred texts and tales, practices, ethics and worship, as well as historical development and contemporary issues.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI2315 - History of Non-Western Religions

Credits: 3

Max Credit 9

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed HIST 2315.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed PHIL 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

OR

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

RELI3340 - Mysticism, Yoga, and Enlightenment in the East

Credits: 3

Explores Hindu and Buddhist concepts of enlightenment and the means for reaching them through mysticism and yoga. Study the texts and beliefs and their translation into practice.

Prerequisite: WB and CH.

- RELI 3344 - Gods, Avatars, Heroes, and Mystics
- SOC 3050 - Japanese Society

Optional Asian Study Abroad Component

Asian Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Asia to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards fulfillment of the Asian Studies Area Course requirement on the approval of the student's designated minor advisor. Optional Asian Foreign Language Component Asian Studies Minor students are also strongly encouraged to learn an Asian foreign language as part of their progression towards completion of the Minor. Accordingly, up to eight (8) lower-division (1000-2000) credit hours of an Asian foreign language may be counted towards fulfillment of the Asian Studies Area Course requirement. 'Asian' languages at UW include Japanese, Chinese and Arabic. However, Asian Studies Minor, students need not necessarily be limited to the three languages currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be fulfilled by other Asian language instruction at UW, other relevant in-country summer intensive programs, or language-focused study abroad programs.

Astronomy Minor

Complete

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR2320 - General Astronomy II

Credits: 4

Covers the properties of stars, stellar atmospheres and stellar evolution, interstellar matter, galaxies and cosmology including models of the universe, the Big Bang, and dark energy. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

Additional Requirements

Students minoring in Astronomy gain exposure to the principles of astronomy, physics, and mathematics. They learn to think critically and evaluate, interpret, and solve problems related to astronomical, as well as other technical and general scientific topics

Biology, Minor

Students may combine courses in biology, botany, zoology, physiology, and other biological sciences to meet the requirements of the minor.

Biology minor - additional information

Students who are majoring in Biology may not declare a Minor in Biology. Elective credit hours used towards the BIOL minor must be in courses not being counted towards a student's major. A grade of "C" or better is required in all courses. At least 25% of credit hours for the BIOL minor must be earned in upper division courses.

Credit in other courses with different prefixes in the biological sciences area may be applied to the minor in Biology at the discretion of a student's minor advisor.

Required Courses:

(12 credit hours)

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Select Two of the Following:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

(or MOLB 2021 crosslisted)

Elective Courses:

(9-12 credit hours)

Select one different course from each of three of the following subject areas. One of the three courses must have a laboratory component.

Molecular/Genetics/Cell Biology:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

- ZOO 4425

Morphology/Physiology:

BOT3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Cross Listed Cross listed with: REWM 3000.

Prerequisite: LIFE 2022 or LIFE 2023.

BOT4395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 5395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes.

Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

Evolution:

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

Ecology:

- LIFE 3400

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

BOT4730 - Plant Physiological Ecology

Credits: 4

Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms.

Cross Listed RNEW 4730.

Dual Listed BOT 5730.

When Offered (Normally offered spring semester)

Prerequisite: one course in physiology and one course in ecology.

BOT4745 - Terrestrial Ecosystem Ecology

Credits: 3

Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. We study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Cross Listed ECOL 5745.

Dual Listed BOT 5745.

Prerequisite: 1 course in ecology.

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

Botany, Minor

The Botany minor provides foundational coursework in botany as well as other supporting areas of physical and life sciences and mathematics

Required Courses Credits: 11-12 Hours

BOT3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Cross Listed Cross listed with: REWM 3000.

Prerequisite: LIFE 2022 or LIFE 2023.

BOT4640 - Flora of the Rocky Mountains

Credits: 3

Field course. Acquaints students with the flora of the surrounding region. Emphasizes field identification and collection from plant communities encompassing a wide range of environments, such as grasslands, forests and alpine tundra.

When Offered (Normally offered summer session)

Prerequisite: LIFE 2023.

OR

BOT4680 - Taxonomy of Vascular Plants

Credits: 4

A study of classification principles, nomenclature rules and systematic botany literature. Plants of the Rocky Mountain region are used primarily as examples, but the course gives a comprehensive view of the characteristics and relationships of the principal plants families.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2023.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

OR

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

Elective Courses Credits: 7 Hours (Minimum)

(minimum 7 credit hours).

Choose from the following:

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

- BOT 3150
- BOT 4111
- BOT 4130
- BOT 4330

BOT4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed ENR 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT4730 - Plant Physiological Ecology

Credits: 4

Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms.

Cross Listed RNEW 4730.

Dual Listed BOT 5730.

When Offered (Normally offered spring semester)

Prerequisite: one course in physiology and one course in ecology.

BOT4745 - Terrestrial Ecosystem Ecology

Credits: 3

Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. We study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Cross Listed ECOL 5745.

Dual Listed BOT 5745.

Prerequisite: 1 course in ecology.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

Total Credits for Botany Minor: 18 Hours

Ceramics Minor

The Ceramics Minor introduces students to the discipline of Ceramics in a 24 credit hour sequence.

Required Courses: 9 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

OR

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

Studio Elective Courses in Ceramics: 12 Hours

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

ART3410 - Ceramics III/I

Credits: 3

Studies development of ceramic form through multiple construction methods. Problems are designed to develop fluidity and versatility in the different processes introduced in the beginning class. Glaze exploration and development are introduced. Emphasizes design, conceptual development, and professional practices.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: completion of Foundation Core, ART 2000, ART 2410, ART 2420 and consent of instructor based on portfolio review.

ART3420 - Ceramics III/II

Credits: 3

A second semester continuation of the development of ceramic form through multiple construction methods. Problems are designed to develop fluidity and versatility in the different processes introduced in the beginning classes. Glaze exploration and development are introduced. Emphasizes design, conceptual development, and professional practices.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: completion of Foundation Core, ART 2000, ART 2410, ART 2420, and consent of instructor based on portfolio review.

Art History Survey Elective: 3 Hours

Choose one from

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Chinese Minor

A Minor in Chinese consists of a minimum of 18 credit hours, including successful completion of 10 credit hours of Chinese language and culture courses at and above CHIN2040 on campus and 9 credit hours of an intensive summer study in China.

Prerequisites

Completion of:

CHIN1010 - First Year Chinese I

Credits: 4

Fundamentals of grammar, conversation, and reading. Introduction to Chinese culture through the language.

USP 2015 Code U5H

CHIN1020 - First Year Chinese II

Credits: 4

Fundamentals of grammar, conversation, and reading. Introduction to Chinese culture through the language.

USP 2015 Code U5H

Prerequisite: CHIN 1010 or equivalent.

CHIN2030 - Second Year Chinese I

Credits: 4

Grammar, composition, conversation and more vocabulary in Chinese.

Prerequisite: CHIN 1020 or equivalent.

Requirements

CHIN2040 - Second Year Chinese II

Credits: 4

Further studies in grammar composition, conversation and more vocabulary in Chinese.

Prerequisite: CHIN 2030 or CHIN equivalent.

CHIN3055 - Business Chinese

Credits: 3

Comprehensive course on business language skills. For students with proficiency in Mandarin at the Intermediate Mid

level or higher. Focus is on language functions for the workplace. Productive skills, both spoken and written, will include the composition of extended frequently-used business documents

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: CHIN 3050 or equivalent.

CHIN3160 - See Movies, Touch China

Credits: 3

This course combines exploration of classical and contemporary Chinese cultures through prominent Chinese films. The audio-video materials selected will be discussed in their historical context. Students will explore the transformations China has undergone, and will seek to understand the Chinese mindset.

USP 2003-2014 Code [(none)< >H]

Prerequisite: COM1.

Or

CHIN4070 - Business Chinese II

Credits: 3

Apply previously acquired skills in complex Chinese language and business topics to the thorough analysis of case studies in Chinese business scenarios. Students will be able to read, discuss, and reach conclusions based on case studies of international companies in China and Chinese companies in international markets.

Prerequisite: CHIN 3055.

Study Abroad

Summer Study in China is required for completion of 9 credit hours of coursework:

CHIN2041 - Contemporary and Traditional Chinese Culture

Credits: 3

Designed to provide those with a serious interest in China and Chinese language with a cultural context for learning Chinese language. Incorporates economic and social material to give students a clear view of Chinese culture with an emphasis on Chinese language instruction.

Prerequisite: CHIN 2030.

CHIN3050 - Intermediate Composition and Conversation

Credits: 3

Develop abilities to read and write complex Chinese texts with an intermediate level of understanding, including texts in both conversational and narrative styles. Reading and writing skills will build considerably on the skills learned in two years of university study in Chinese language.

Prerequisite: CHIN 2040 or equivalent.

CHIN3065 - Intermediate Composition and Conversation II

Credits: 3

Students will not only understand and construct complex speech and writing but will gain the ability to do so effectively to persuade, discuss and communicate accurately with native Chinese speakers. Students will be able to relate topics such as personal experience, daily routine, reports, opinions and judgment in well-written Chinese paragraphs.

Prerequisite: CHIN 3050 or equivalent.

Total: 19 Hours

Note: Study abroad is required for completion of 12 credit hours of coursework for this minor.

Classical Civilizations Minor

As a Classical Civilizations Minor, you will develop an interdisciplinary understanding of Classical Greek and Roman material, intellectual, and cultural traditions that have helped shape western systems and values.

Requirements

CLAS2020 - Classical Greek Civilization

Credits: 3

Examines some of the most important developments of ancient Greek culture. Includes development of government in the city-states, with particular attention to Athenian democracy; tragedies of Aeschylus, Sophocles and Euripides; comedies of Aristophanes; crisis of values of the Peloponnesian War; and philosophy of Plato.

USP 2003-2014 Code U3C, U3WB

USP 2015 Code U5H

Prerequisite: WA or COM1.

OR

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

CLAS2040 - Classical Roman Civilization

Credits: 3

Examines some of the most interesting political, legal, artistic, literary, and engineering developments of the Republic and Principate (510 BC-AD 212) These include representational government, citizens' rights, sanctioned violence,

Rome's infrastructure, and major literary works of oratory, comedy, history, epic, and philosophy.

USP 2003-2014 Code U3CH, U3WB

Prerequisite: WA or COM1.

OR

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

Electives

12 hours chosen from Classics 3000-level or above; PHIL 3120, PHIL 4020, or PHIL 4030:

CLAS3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed HIST 3050/POLS 3050.

Prerequisite: WB or COM2.

CLAS3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed HIST 3160/PHIL 3160.

Prerequisite: WB or COM2.

CLAS4230 - Greek Tragedy

Credits: 3

Reading and discussion of major plays by Aeschylus, Sophocles, and Euripides, together with examination of the performance and social context of Greek drama, its use of traditional myths, and selected issues in contemporary scholarship on the tragedies.

Cross Listed ENGL 4230/THEA 4230.

Prerequisite: WB or COM2.

CLAS4270 - Classical Epic Poetry

Credits: 3

Reading and discussion of major works of Greek and Latin epic poetry, centered on Homer and Vergil. Also includes consideration of the background of these works (both mythological and historical) and the development of the epic tradition in the ancient world.

Cross Listed ENGL 4270.

Prerequisite: WB or COM2.

CLAS4975 - Independent Study

Credits: 1-4

Max Credit (max. 12)

Specialized study in aspects of Greek or Roman civilization of interest to the student, with topic and plan of work to be worked out by the student and the instructor together.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 6 hours of Classics courses or consent of instructor.

CLAS4990 - Topics in Classical Civilization

Credits: 1-4

Max Credit (max. 12)

Study in depth of special areas in ancient civilization that are not covered in regularly offered courses.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 6 hours of Classics courses or consent of the instructor.

PHIL3120 - Ancient Greek Philosophy

Credits: 3

Surveying some of ancient Greek philosophy. Begins with the works of the earliest extant philosophical thinkers, the pre-Socratics. Remainder of focus on Plato and Aristotle.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL4020 - Plato

Credits: 3

Detailed examination of selected dialogues of Plato.

Dual Listed PHIL 5020.

Prerequisite: PHIL 3120.

PHIL4030 - Aristotle

Credits: 3

Detailed examination of selected works of Aristotle.

Dual Listed PHIL 5030.

Prerequisite: PHIL 3120.

Other courses about ancient Mediterranean cultures that are not taught under Classics may be submitted for approval to the Classics section head.

Up to 6 hours of Latin at the 3000-level or above may be counted as electives:

LATN3110 - Vergil, The Aeneid I

Credits: 3

Reading portions of the Aeneid and consideration of its literary interpretation.

Former Course Number [2110]

Prerequisite: LATN 2030 or equivalent.

LATN3120 - Vergil, The Aeneid II

Credits: 3

Reading further portions of the Aeneid and consideration of its literary interpretation.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [2120]

Prerequisite: LATN 3110.

LATN3140 - Caesar

Credits: 2

Acquaints students with war-memoir genre of Latin literature.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3150 - Livy

Credits: 3

Reading portions of Livy's historical works, and consideration of the history he covers and how the Romans viewed their past.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3160 - Ovid

Credits: 2

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3990 - Independent Study

Credits: 1-4

Books or texts of special interest to the student, selected in conjunction with the instructor; independent reading and reports.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4110 - Horace

Credits: 3

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4115 - Latin Philosophers

Credits: 3

An introduction to Latin philosophical traditions. Readings will be selected either from one author, such as Lucretius (ca. 99-55 BCE) or Seneca the Younger (ca. 4 BCE-65 CE), or from different authors about a given theme.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

Total: 18 Hours

Communication Minor

Required: 12 Hours

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2015 Code U5H

Former Course Number COJO 1040

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3040 - Advanced Communication Theory

Credits: 3

Considers nature of human communication theories. Analyzes problems in developing communication theory based on current social science methods.

Prerequisite: COMM 1000 and COMM 1040.

Electives: 6 Hours

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

COJO3190 - Cross-Cultural Communication

Credits: 3

Studies human communication processes within the context of various cultures and subcultures. Opportunity for field study of the effect of culture on communication behavior.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: COMM 1040 and junior standing.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3520 - Communication Technology and Society

Credits: 3

Studies role of communication technology in functioning of society. Examines history of effects on personal growth, self-concept, world view, creative thinking, personal relationships and social processes.

Prerequisite: COMM 1000 or COMM 1040.

COJO3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed POLS 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

COJO3900 - Family Communication

Credits: 3

This course will assist students in a study of the concept of family from a communication perspective. The goals of the course include:

Prerequisite: COMM 1040.

COJO4020 - Mass Media and Society

Credits: 3

Studies ethical and related problems of mass communication from contemporary and historical viewpoints. Critical analysis of the performance of the mass media.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4030 - Advanced Interpersonal Communication

Credits: 3

Studies research and theory in interpersonal relationships; formation and maintenance of friendships; marriages; and group relationships.

Prerequisite: COMM 1040 and 6 hours in the department.

COJO4050 - Communication and Conflict

Credits: 3

Studies research and theory concerning communication in conflict development and management. Examines forms of conflict, including occurrences in interpersonal, group, organizational and cultural contexts.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 4061

Dual Listed COJO 5061

USP 2015 Code U5C3

Prerequisite: COMM 1040 and junior standing.

COJO4140 - Nonverbal Communication Studies

Credits: 3

Critical analysis of current studies in the area of nonverbal communication. Students are required to complete an independent study of some aspect of nonverbal communication relevant to interests.

Dual Listed COJO 5140.

Prerequisite: junior standing.

COJO4250 - Advanced Organizational Communication

Credits: 3

Studies communication processes in political, educational, industrial, medical and nonprofit organizations. Emphasizes in-depth analysis of theories and methods of organizational research and practice.

COJO4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 4260.

Dual Listed COJO 4260.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

COJO4620 - Intergroup Communication

Credits: 3

The course will provide an overview of theory and research on intergroup relations to demonstrate how communication both affects and reflects our social group memberships. The objective is to provide students with the theoretical foundation to view various contexts of communication through an "intergroup lens. "

Dual Listed COJO 5620.

Prerequisite: COMM 1000 or COJO 1400.

COJO4640 - Communication Apprehension/ Competence

Credits: 3

This course examines theoretical explanations, research findings, and interventions. Students are required to develop research projects aimed at helping people cope with communication fear or anxiety in various contexts.

Dual Listed COJO 5640.

Prerequisite: COMM 1000 or COMM 1040.

COJO4210 - Special Topics in Communication

Credits: 1-3

Intensive study of such special problems and topics in human communication processes as gender relations, power dynamics, family and political communication. Content varies.

Dual Listed COJO 5210.

Prerequisite: COMM 1040 and 9 hours in the department.

Total: 18 Hours

Creative Writing Minor

The Creative Writing Minor teaches the fundamentals of creating original work while providing opportunities for the exploration of blended genres and interdisciplinary work. A minor in Creative Writing complements majors from a wide array of departments and colleges.

Creative Writing Minor

Minor in Creative Writing. The creative writing minor consists of six courses (18 hours) in creative writing and literature. Four of these courses will be in creative writing (12 hours) and must adhere to the following sequence: CW 1040 Intro to Creative Writing, two Lower Division Creative Writing courses (at the 2000-level), and an Upper Division course (4050). In addition, two courses will be in literature (6 hours). All courses must be completed with grades of C or better.

This minor is intended to be used with any major and must be designed in conjunction with a creative writing advisor. Each course must be passed with a grade of C or better.

Criminal Justice Minor

A minor in criminal justice requires 18 semester hours in criminal justice. All courses must be completed with a grade of C or better.

Required Courses

CRMJ1001 - Introduction to Criminal Justice

Credits: 3

Introduces the American criminal justice system. Examines nature of crime and describes historical and philosophical foundations of law enforcement agencies, criminal courts and correctional institutions. Discusses major issues facing the criminal justice system.

Former Course Number [2120]

CRMJ2210 - Criminal Law

Credits: 3

Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

CRMJ2400 - Criminology

Credits: 3

Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed SOC 2400.

Prerequisite: SOC 1000.

OR

SOC2400 - Criminology

Credits: 3

Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed CRMJ 2400.

Former Course Number [3300]

Prerequisite: SOC 1000.

CRMJ3110 - Criminal Courts and Processes

Credits: 3

Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ3350 - Correctional Theory and Practice

Credits: 3

Examines the various components of the correctional complex from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current correctional practice and will be called upon to critically evaluate this research and its implications for correctional policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 2685.

CRMJ3490 - Issues in Policing

Credits: 3

Examines the various components of policing from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current policing practice and will be called upon to critically evaluate this research and its implications for policing policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, CRMJ 2685.

Dance Minor

Required Courses

THEA1021 - Academic and Professional Issues in Dance

Credits: 1

Introduces freshman to the discipline of dance and academic study at the University of Wyoming. Key intellectual and literacy concepts will be introduced, including, but not limited to: critical thinking and analysis, knowledge of the discipline, career options, diversity of the discipline, university and region.

USP 2003-2014 Code U3I,U3L

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA2200 - Backgrounds of Dance

Credits: 3

Surveys ethnic and theatrical dance forms from primal society to 20th century. Examines the place of the arts as a reflection of the culture.

USP 2003-2014 Code U3CA,U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

THEA4250 - Beginning Dance Composition

Credits: 2

Presents and criticizes movement studies based on various approaches to composition. Explores experimentation in choreography.

Prerequisite: THEA 2420, THEA 2440.

Ballet Technique: 5-6 Credit Hours

Four (4) Consecutive Classes in Ballet Technique.* Choose From:

THEA1410 - Beginning Ballet I

Credits: 1

Introduces principles and practices of classical ballet technique.

USP 2015 Code U5H

Prerequisite: THEA 1410 or instructor permission.

THEA1420 - Beginning Ballet II

Credits: 1

Continues studies in classical ballet technique. Instructor permission required.

USP 2015 Code U5H

Prerequisite: THEA 1410.

THEA2410 - Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary, and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2430 - Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA3410 - Adv/Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester ballet technique class for dance majors and minors. Emphasis is placed on improving technical skills and learning more advanced steps. Includes research into one discipline of ballet.

Prerequisite: successful completion of THEA 2440 and admission by permission only. Limited to dance majors and minors.

THEA3420 - Adv/Intermediate Ballet II

Credits: 1.5
Max Credit (Max. 3).

Second semester, second year ballet technique class for dance majors and minors. Emphasizes broadening the dancer's movement vocabulary while refining acquired technical skills. Dancers begin work in study of Baroque dance terms.

Prerequisite: successful completion of THEA 3410 or equivalent required. Limited to dance majors and minors; admission by permission only.

THEA4010 - Advanced Ballet

Credits: 1-3
Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

Modern Technique: 5-6 Credit Hours

Four (4) Consecutive Classes in Modern Technique.* Choose from:

THEA1430 - Beginning Modern I

Credits: 1
Introduces principles and techniques of modern dance.

USP 2015 Code U5H

THEA1440 - Beginning Modern II

Credits: 1
Continues studies in modern dance techniques.

USP 2015 Code U5H

Prerequisite: Prerequisite THEA 1430 or instructor permission.

THEA2430 - Intermediate Modern I

Credits: 1.5
Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary

dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA2440 - Intermediate Modern II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester modern dance technique class for dance majors and minors. Mastering vocabulary and principles will be augmented with a deeper understanding of historical techniques and their application to contemporary dance.

USP 2015 Code U5H

Prerequisite: THEA 2430. Limited to dance majors and minors; admission by permission only.

THEA3430 - Adv/Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester, intermediate level modern dance technique class for dance majors and minors. Continued training in classical modern dance and continued historical survey of modern dance will be augmented by rhythmic analysis and compositional forms.

Prerequisite: successful completion of THEA 2440 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3440 - Adv/Intermediate Modern II

Credits: 1

A second year, second semester, modern dance technique class with continuing studies of sequential modern dance technique at the intermediate level, introduction of Laban effort/shape theory, compositional forms, improvisation and additional rhythmic analysis.

Prerequisite: THEA 3430 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3

Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

Jazz or a Mix of Jazz and Tap Class: 2 Credit Hours

Two (2) Consecutive Classes in Jazz or a Mix of Jazz and Tap Classes.* Choose from: 2

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA1480 - Beginning Jazz Dance I

Credits: 1

Explores basic jazz dance techniques and related principles of jazz dance composition.

USP 2003-2014 Code H

THEA2450 - Intermediate Tap I

Credits: 1

Continued studies in techniques and principles of tap dance and tap dance composition.

Prerequisite: THEA 1450.

THEA2480 - Intermediate Jazz I

Credits: 1

Continued studies in techniques and principles of jazz dance and jazz dance composition.

USP 2015 Code U5H

Prerequisite: THEA 1480. Instructor permission required.

THEA3480 - Adv/Intermediate Jazz I

Credits: 1

Max Credit (Max. 2)

An intermediate jazz technique class. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation and incorporate them into class compositions.

Prerequisite: THEA 2480.

THEA3490 - Advanced Jazz I

Credits: 1
Max Credit (Max. 2)

An advanced class in jazz technique and performance. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation as well as incorporate them into class compositions.

Prerequisite: THEA 3480.

Elective at 3000-4000 level: 2-3 Credit Hours

Suggested:

THEA4010 - Advanced Ballet

Credits: 1-3
Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3
Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

THEA4001 - Historical Dance

Credits: 2
Max Credit (Max. 2)

Historical dance forms in the "Noble Style" dating from the 15th through 18th Centuries. Class work covers the relationship of musical forms to the specific step vocabulary and dances of each period, deportment, period costume as it relates to movement, social environment, period style with an emphasis on reconstruction of 17th and 18th Century dances from Feuillet notation.

Prerequisite: THEA 3440.
OR

THEA4200 - 20th Century Dance

Credits: 3

Intensely studies dance in 20th Century, emphasizing contemporary movement in modern, ballet, jazz and musical theatre dance. Examines social, political and aesthetic trends influencing dance theory and performance.

USP 2003-2014 Code U3CA,U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2200.

Minor Total 17.5-22.5

Digital Media Minor

The Digital Media Minor introduces students to the discipline of Digital Media in a 25 credit hour sequence.

Required Courses: 22 Hours

ART 2110: Type 1: Thinking with Type - 3 credits

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

OR

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice

with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2122 - VCD II Visual Programming

Credits: 3

Max Credit (Max. 9)

Explores digital art principles in Web spaces through the understanding and use of design tools and techniques. Creative approaches consist of informed planning, thoughtful concepting, strategic wire frame development and creative execution. Projects include explorations of HTML, CSS, and visual programming, and time-based media and image manipulation.

When Offered (Normally offered spring semester)

Former Course Number [3110]

Prerequisite: ART 1110 and ART 1115.

ART3112 - Type: Type, Images, and Narrative

Credits: 3

Examines the experimental use of type, its history, structure and background in reference to visual expression, data visualization, messaging, representative power, and time-based and site-specific explorations. Advanced explorations in type as concept and critical expression will explore the fields of graphic design and computer visualization.

When Offered (Offered spring semester)

Former Course Number [2110]

Prerequisite: ART 2000 and ART 2112.

OR

ART3150 - VCD IV: Visual Imaging in Time

Credits: 3

Explores digital video, sound and site-specific experiments. Students learn and use experimental digital design tools and techniques to develop site-specific time-based individual and collaborative works. Students also collaborate and install works on campus, town and other venues. Projects include video and sound design and editing, graphic arts, computer graphics and digital art history.

Former Course Number [4140]

Prerequisite: ART 2000, and ART 2112 or ART 2122.

Art History Survey Elective: 3 Hours

Choose one from

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 25 Hours

Drawing Minor

The Drawing Minor introduces students to the discipline of Drawing in a 21 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART3052 - Life Drawing I

Credits: 3

An advanced drawing course working from a life model with an emphasis on composition, monochromatic media, drawing techniques and the skeletal and muscular construction as related to action and proportion in the human figure. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding.

When Offered (Normally offered fall semester)

Prerequisite: ART 2000 and ART 2005.

Studio Elective Courses in Drawing: 6 Hours

*6 credits chosen from the following...

ART3005 - Drawing III

Credits: 3

An advanced drawing course applying the fundamentals of drawing to creative individual problems in figure, still life, and/or landscape composition. Structured yet open assignments, lectures and critiques develop formal, conceptual, expressive, and technical understanding. Course may be repeated for a maximum of 6 credit hours.

When Offered (Offered spring semester).

Prerequisite: ART 2000 and ART 2005.

ART4005 - Drawing IV

Credits: 3

An advanced drawing course exploring conceptual, expressive, personal and technical limits of process and media. Individually proposed projects lead to a coherent body of work. Open discussion and structured critiques develop personal and technical understanding. Repeatable for a maximum of 9 credit hours.

Prerequisite: ART 2000 and ART 3005.

ART4052 - Life Drawing II

Credits: 3

An advanced drawing course building upon figure construction fundamentals with heavy emphasis on composition, personal expression, wet and dry media, and color with pastels. Lectures, drawing sessions and critiques develop formal, conceptual, expressive and technical understanding. May be repeated for a maximum 9 credit hours.

When Offered (Normally offered spring semester)

Prerequisite: ART 2000 and ART 3052

ART3250 - Watercolor Painting I

Credits: 3

Investigates watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 1130, 2000 and ART 2210.

ART3260 - Illustration I

Credits: 3

This is an introductory Illustration course. This primary class objective is to develop conceptual skills through a variety

of media traditionally used in fine art illustration and a variety of illustration problems and projects. This class is designed to further your interest in illustration and initiate portfolio development.

Prerequisite: ART 2000.

ART4250 - Watercolor Painting II

Credits: 3

Advanced investigation of watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000 and ART 3250.

ART4260 - Illustration II

Credits: 3

This is the second level Illustration course for students who have had ART 3350. Students will continue to develop conceptual skill in creating narrative illustrations for a variety of projects. The majority of the semester will be dedicated to developing a single project: Graphic Novelization or book illustrations. Students will be focusing on character development, narrative arc, and compelling imagery using materials appropriate for their project.

A&S College Core 2015 ASG

Prerequisite: ART 2000 and ART 3260.

ART4975 - Independent Study and Research

Credits: 1-3

Research options in all creative areas. Students work independently and provide demonstrated ability and background knowledge to carry out self-directed research or creative activity in the research area. Arrangements regarding curricular obligations and meeting times are made with the instructor in advance.

Prerequisite: ART 2000 and 12 hours of art in research area and prior consent of instructor.

Art History Survey Elective: 3 Hours

Choose one from

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 21 Hours

Environmental Values Minor

The minor in Environmental Values explores the vital link among the natural sciences, humanities, and the social sciences in grappling with environmental challenges.

Course Requirements

The minor in Environmental Values may be added to any bachelor's program at UW.

The minor requires a total of 18 credit hours, including at least one course within each of four areas of concentration. At least 12 of these credits must be outside the primary major, and nine of these credits must be at or above the 3000-level. A three-hour, core course (either Phil 2330 Environmental Ethics or Phil 2345 Natural Resource Ethics) is required of all students.

Core Course

A three-hour, core course is required of all students.

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

Areas of Concentration:

(note: the courses listed below are provided as examples of the type of courses that meet the various areas of concentration. Other courses may be approved on a course by course basis in consultation with the Philosophy Department Undergraduate Advisor.)

Aesthetics

Expressing ourselves through the performing, visual and literary arts:

GEOG4500 - The American Landscape

Credits: 3

This course trains students to interpret patterns and processes of contemporary landscapes of the Americas (North, Central, and South America) by viewing those landscapes historically. We investigate the relationship between landscape, politics, and economy, or, more generally, the relationship between landscape as a geographical form and cultural politics in the hemisphere. Students are introduced to research techniques and methodologies in historical geography.

Cross Listed Cross listed with GEOG 5500, INST 4500, INST 5500

Former Course Number [G&R 4500]

Prerequisite: 6 credits of international studies or social science coursework

THEA2400 - Vertical Dance I

Credits: 1

An introduction to vertical dance including safety issues, beginning rigging and performance.

Prerequisite: consent of instructors.

THEA3400 - Vertical Dance II

Credits: 1

A continuing course in vertical dance emphasizing the math and physics of the rigging; safety and design, choreography and research in the field.

Prerequisite: completion of THEA 2400 and consent of instructors.

Culture

Viewing human meaning and purpose in historical and contemporary terms:

NAIS3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the Plains region of the U. S. from prehistory to the present.

Cross Listed HIST 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL4480 - Regional Literature of the US: The West

Credits: 3

Encompasses major themes and writers in western American literature.

Prerequisite: 6 hours of 2000-level literature courses.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

Ethics

Considering right and wrong via critical and systematic thinking and doing:

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy.

Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3

Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.

Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

Policy

Exploring laws, regulations, and public discourse in American society:

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECE 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

NAIS4340 - Natural Resource Management on Western Reservations

Credits: 3

Examines natural resource management techniques on western reservations. Focus is on the management and planning of water, grazing, extractive industries, and forestry. Fieldwork on the Wind River Indian Reservation is included.

Cross Listed GEOG 4340.

Prerequisite: 6 hours of 2000-level NAIS courses.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOG 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

Ethics Minor

A minor in Ethics enhances and compliments any major, such as education, health sciences, law, business, engineering, computer science, political science, or communication.

Course Requirements

A minor in Ethics requires a minimum of 18 hours. One course from each of the three areas plus a capstone course.

A Student Takes One Course in Each of These Areas:

1. Ethical Theory

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

2. Applications

(determined on a course by course basis in consultation with the Philosophy Department Undergraduate Advisor)

3. Scientific, Historical and Social Analysis

(determined on a course by course basis in consultation with the Philosophy Department Undergraduate Advisor)

Capstone Course

The capstone course is an independent study normally taken during a student's senior year. The course integrates the student's different areas of study in the ethics minor into a project or thesis. Any professor in any college can sponsor this independent study. Capstone topics must be approved by the ethics minor advisor. (determined in consultation with the Philosophy Department Undergraduate Advisor)

Electives

The other two courses are approved electives, (2 courses from Areas 1, 2 or 3 -- each from a different area).

European Studies Minor

The European Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of a European region or a single country. The program emphasizes a social science approach to the study of modern European history, politics, society, and culture with options to include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Europe is defined first and foremost as a geographic entity running from the Atlantic to the Urals and from Scandinavia to the Mediterranean and the Caucasus Mountains. Courses that transcend these boundaries should include the study of Europe in a prominent way to count toward the minor.

All required courses for the major must be passed with a grade of C or better. A course cannot simultaneously fulfill more than one major requirement.

Course Requirements (18 Hours)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 Credit Hours)

All European Studies Minor students must complete one of two required Gateway courses, either:

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.

USP 2015 Code U5C2

OR

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

European Studies Area Courses (15 Credit Hours)

European Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved European Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition to the approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to review the International Studies Newsletter each semester to see what European Studies Area courses are currently being offered.

Approved European Studies Area Courses

- A&S 2200 - British Life and Culture

FREN2130 - Contemporary French Culture

Credits: 3

Designed as an introduction to contemporary French culture. It gives students an in-depth insight into contemporary French life. It also deals with issues affecting the French-speaking world in general: Quebec, Africa, New Caledonia, Switzerland, Monaco, etc.

USP 2015 Code U5H

Prerequisite: FREN 1020 or equivalent.

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

- FREN 4085 - Studies in French Culture

GERM3006 - 20th Century German Culture and Civilization

Credits: 3

Major political, ideological and cultural developments in Germany between 1871 and the present. An interdisciplinary approach (history, art history, film and literature) allows students to explore and assess a nation's culture and civilization as well as far-reaching events (WWI, WWII and the Holocaust) from various perspectives.

USP 2003-2014 Code U3CH, U3WC

Prerequisite: junior standing.

GERM3150 - German History and Culture

Credits: 3

Taught in English, this class engages students both theoretically and practically with German history and culture throughout the ages from the Middle Ages to today. Reading content is complemented with outings to culturally and historically significant sites in Germany as part of a summer study abroad program.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WA or equivalent.

- GERM 4265 - Divided Nation: Politics and Culture in Germany 1945 - 1990

GERM4285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities. Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the Americanization of German culture, minorities in contemporary Germany.

Dual Listed GERM 5285.

Prerequisite: WB.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

- HIST 4190 - Europe: 1930 - Present
- HIST 4195 - European Economic History

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

- HIST 4280 - France Since 1814

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.

USP 2015 Code U5C2

INST4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed POLS 4330.

When Offered (Normally offered once a year)

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

POLS4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed INST 4330.

Dual Listed POLS 5330.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

- SOC 4330 - The World System

INST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed HIST 4380.

Dual Listed INST 5380.

Prerequisite: 9 hours of HIST or INST.

INST4881 - International Social Welfare and Social Development

Credits: 3

Examines the basic framework of social welfare analysis and social development programming in the international arena, employing a multinational comparative analysis approach to explore the wide array of responses to social need across the globe. Students employ multinational comparative analyses to an area of social concern.

Cross Listed SOWK 4881.

Dual Listed INST 5881.

Prerequisite: POLS 1000; ECON 1010 recommended.

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS3220 - Government and Politics of Russia and FSU

Credits: 3

Examines the political, economic and identity transitions of Russia and other states of the former Soviet Union during the post-communist era. Explores how current challenges relate to past Soviet practices.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS4215 - European Union

Credits: 3

Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed INST 4215.

Dual Listed POLS 5215.

Former Course Number [4220]

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

- RELI 4150 - Christianity, Jews and Muslims in Iberia

SPAN3220 - Spanish-American Cultures in Context

Credits: 3

Introduction to the Spanish-speaking cultures of Latin America and the United States through a historical overview and a focus on contemporary politics and culture.

Prerequisite: SPAN 2040 or SPAN 2140 or consent of instructor.

Optional European Study Abroad Component

European Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Europe to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards fulfillment of the European Studies Area Course requirement on the approval of the student's designated minor advisor.

Optional European Foreign Language Component

European Studies Minor students are also strongly encouraged to learn an European foreign language (other than English) as part of their progression towards completion of the Minor. Accordingly, up to eight (8) lower division (1000-2000) credit hours of an European foreign language may be counted towards fulfillment of the European Studies Area Course requirement. 'European' languages at UW include French, German, and Spanish. However, European Studies Minor students need not necessarily be limited to the three languages currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be fulfilled by other European language instruction at UW, other relevant in-country summer intensive programs, or language-focused study abroad programs.

French Minor

As a French Minor, you will develop your speaking, listening, and communication skills as a French speaker. You will gain a better understanding of perspectives and experiences of French speaking cultures.

Requirements

FREN2040 - Second Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

Electives

- 9 hours chosen from French at the 3000 or 4000 level.
- Minors are encouraged to take one to two 4000 level courses with a traditional course load consisting of one 3000 level course and two 4000 level courses
- Elective courses include:

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

FREN3990 - Independent Study

Credits: 1-4

Books or periodicals of special interest to the student, selected in consultation with a member of the staff; independent reading and reports.

Prerequisite: FREN 2030.

FREN4080 - Studies in the French Language

Credits: 3

Max Credit (Max. 9)

The topics explored under this general heading include: translation, history of the French language, French of the media and conversation.

Dual Listed FREN 5080.

Prerequisite: FREN 3060.

FREN4100 - A Survey of French Literature I

Credits: 3

A study of French Literature and civilization from the Middle Ages through the 18th century.

Prerequisite: FREN 2140 or equivalent.

FREN4110 - A Survey of French Literature II

Credits: 3

A study of French Literature and civilization from the 19th century to the present.

Prerequisite: FREN 2140 or equivalent.

FREN4120 - Medieval French Literature

Credits: 3

A survey of medieval French literature: epic, courtly poetry, Arthurian romance, theatre and the poetry of Villon.

Dual Listed FREN 5120.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4140 - 17th Century French Literature

Credits: 3

A survey of representative works from the major literary genres from the formative period to classicism and its aftermath.

Dual Listed FREN 5140.

USP 2003-2014 Code U3WC

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4200 - Introduction to Research

Credits: 3

Senior seminar on a topic varying from year to year.

USP 2015 Code U5C3

Prerequisite: COM2 (FREN 3050), Survey I and II courses (FREN 4100 and FREN 4110).

FREN4250 - 19th Century French Literature

Credits: 3

Development of romanticism from Rousseau on with excerpts from Chateaubriand and romantic poets like Hugo and Vigny. The period of realism-naturalism focuses on novels of Flaubert and Zola, while the symbolist school of poetry is represented by Baudelaire, Verlaine and Rimbaud.

Dual Listed FREN 5250.
Former Course Number [4150]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4260 - 20th Century French Literature

Credits: 3

The era since 1900 is divided into four parts: pre-World War I, between the wars, post-World War II and the New Wave. These periods are represented by authors including Valery, Proust, Malraux, Saint-Exupery, Camus, Sartre and others.

Dual Listed FREN 5260.
Former Course Number [4160]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4350 - Studies in French and Francophone Literatures

Credits: 3

An intensive study of a topic, period or author (pertaining to French or Francophone literature), to be selected according to interest and currency).

Dual Listed FREN 5350.
Prerequisite: FREN 3060; FREN 4100 and FREN 4110 strongly recommended.

FREN4990 - Advanced Independent Study

Credits: 1-3

Special projects designed to meet the needs of individual students, designed in consultation with instructor.

Prerequisite: FREN 3050 and consent of instructor.

Total: 18 Hours

Gender and Women's Studies Graduate Minor

Provides advanced, interdisciplinary, intersectional training in feminist and gender theory and praxis. This minor offers crucial knowledge and skills to students pursuing a wide range of graduate degrees and professional paths.

Requirements

A total of 12 credit hours are required to complete the Graduate Minor in GWST. This includes the following:

GWST5710 - Feminist Theoretical Perspectives

Credits: 3

Intensive introduction to the epistemology and application of a wide range of trans-historical, trans-cultural, and trans-national feminist theories. Students will be asked to apply self-selected feminist theories to their own thesis work and graduate fields, as well as to current examples of sex, gender, gender performance, and gendered coding in American media.

Prerequisite: graduate standing.

- An additional 9 credit hours of GWST electives, including 6 credits at the 5000-level.
- When practical, students should include a GWST faculty member on their thesis, dissertation or Plan B committees. Students in professional programs without a culminating research project can meet this requirement through alternative means.

Additional Information

Contact the program director, Dr. Michelle Jarman (mjarman@uwyo.edu), to discuss individual plans of study.

Gender and Women's Studies Minor

Provides foundational knowledge in historical and contemporary issues related to sex, gender, and sexuality. Upon completion, students will be able to apply intersectional feminist and gender theories to interdisciplinary research and practice.

Requirements

Students must complete 18 hours of GWST course work. Nine of the required hours must be 3000-level or above. At least 15 credit hours must be completed with a grade of "C" or better.

Core Course: 3 Credits

Complete at least ONE of the following core courses.

Note: some of these courses have prerequisites, so taking a lower and upper level course from this list is recommended, but not required:

GWST1080 - Intro Gender & Women's Studies

Credits: 3

This course serves as an introduction to the field of Gender and Women's Studies. Students will examine a range of GWST topics, gain knowledge of gender, feminist, and intersectional theories, and learn to apply course concepts and frameworks to analyses of socio-political and representational issues, primarily in U.S. contexts.

Cross Listed ENGL 1080.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST2000 - Introduction to LGBTQ/NS Studies

Credits: 3

Lesbian, Gay, Bisexual, Transgender, Queer and New Sexuality Studies (LGBTQ/NS) explores the interdisciplinary study of sexuality and its importance to the organization of social relations and social institutions. Primary among its concerns is the study of the lives, the politics, and the creative work of sexual minorities.

USP 2003-2014 Code U3C, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

- GWST 3XXX Gender, Race, Sex & Soc Systems

Note: will be offered Spring 2023

GWST4700 - Feminist Theories

Credits: 3

Surveys contemporary feminist theories and places those theories within the framework of social, literary, and artistic criticism. Uses feminist theories to address questions such as nature of meaning in literature and artistic forms; construction of science; and identity of the individual as these phenomena are affected by gender construction.

When Offered (Offered once a year)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 12 hours of women's studies.

Note: If taken prior to Fall 2022, these courses may also satisfy this requirement: GWST 3710, Gender & Humanities; GWST 2500, Gender & Society; GWST 1900, Women & Leadership.

Electives: 15 credit hours

The additional 15 credit hours can be selected from the complete slate of GWST electives, including those listed above.

Note: a minimum of 12 credit hours in the minor must be exclusive of hours earned in the student's major.

Additional Information

Students in the GWST minor and major are encouraged to work with a faculty advisor to develop an individualized plan of study. Contact the program director, Dr. Michelle Jarman (mjarman@uwyo.edu), for more information.

Geology Minor

A minor in geology is intended for those students majoring in other programs who are interested in complementing their degree with a broader understanding of geology and the earth sciences.

Required Courses

Students are required to take 18 hours of coursework in the Department of Geology and Geophysics including one GEOL 1000-level course (3-4); one GEOL 2000-level course (3-4); **and fulfill the remaining credit hours (10-12) with GEOL 2000-level or higher courses in consultation with their adviser.** A grade of C or better is required in each of these courses.

GEOL1005 - Earth History

Credits: 4

Reviews the evolution of the Earth including: the creation of the Universe, formation of a layered earth, development and history of continents, controls on climate change, and the origin and evolution of life. Class introduces basic geologic, chemical, physical and biologic concepts used to decipher Earth history.

USP 2003-2014 Code U3S

OR another 1000-level GEOL course

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

OR another 2000-level GEOL course

AND fulfill remaining credits with 2000-level or higher GEOL courses in consultation with their adviser.

German Minor

As a German Minor, you will develop your speaking, listening, and communication skills as a German speaker. You will gain a better understanding of perspectives and experiences of German speaking cultures.

Requirements

GERM2040 - Second Year German II

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5H

Prerequisite: GERM 2030 or three years of high school German.

GERM3050 - Third Year German I

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3060 - Introduction to German Literature

Credits: 3

Introduces literature of Germany. Analyzes major literary types and elements of criticism. Emphasizes compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Prerequisite: GERM 3050.

Electives

- 9 hours chosen from German at the 3000 or 4000 level.

GERM3006 - 20th Century German Culture and Civilization

Credits: 3

Major political, ideological and cultural developments in Germany between 1871 and the present. An interdisciplinary approach (history, art history, film and literature) allows students to explore and assess a nation's culture and civilization as well as far-reaching events (WWI, WWII and the Holocaust) from various perspectives.

USP 2003-2014 Code U3CH, U3WC

Prerequisite: junior standing.

GERM3050 - Third Year German I

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3150 - German History and Culture

Credits: 3

Taught in English, this class engages students both theoretically and practically with German history and culture throughout the ages from the Middle Ages to today. Reading content is complemented with outings to culturally and

historically significant sites in Germany as part of a summer study abroad program.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WA or equivalent.

GERM3990 - Independent Study

Credits: 1-4

Focuses on books or periodicals of special interest to the student selected in consultation with a staff member; independent reading and reports.

Prerequisite: GERM 2030.

GERM4070 - Fourth Year German

Credits: 3

Emphasizes weekly compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Dual Listed GERM 5070.

When Offered (Offered every other year)

Prerequisite: GERM 3060.

GERM4080 - German-English and English- German Translation

Credits: 3

Encompasses written translation exercises based on contemporary and relevant texts in both English and German. Addresses specific translation problems arising in both English and German, when translating into the other language.

When Offered (Offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: GERM 3050 and/or GERM 3060.

GERM4100 - A Survey of German Literature I

Credits: 3

Studies German literature and civilization from the Middle Ages to the 17th century.

Dual Listed GERM 5100.

Prerequisite: GERM 2140 or equivalent.

GERM4145 - Weimar Classicism

Credits: 3

Introduces student to Weimar Classicism, one of the crucial periods in German literature and culture. Explores the

foundation of the movement, its cultural and historical contexts, aesthetic and philosophical principles, and significant works during this period. Primary language for instruction for this course is German.

Dual Listed GERM 5145.

Prerequisite: GERM 2140 or equivalent.

GERM4180 - German Poetry

Credits: 3

Surveys poetry from the Middle Ages to the present. Emphasizes poetry after 1600. Treats formal elements and genre categories.

Dual Listed GERM 5180.

Prerequisite: GERM 2140.

GERM4200 - Introduction to Research

Credits: 3

Max Credit 9

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2015 Code U5C3

Prerequisite: 12 hours of 4000-5000-level courses.

GERM4240 - German Literature of the Romantic Period

Credits: 3

Introduces the philosophical bases of German Romanticism and analyzes representative works of prose and poetry.

Dual Listed GERM 5240.

Prerequisite: GERM 2140 or equivalent.

GERM4255 - 19th Century German Novellas

Credits: 3

Studies a wide selection of significant German novellas from the period when this genre flourished in the German-speaking world, with a popularity unparalleled in the rest of Europe. Examines the form's origins, evolution, reception, and theory.

Dual Listed GERM 5255.

Prerequisite: GERM 2140 or equivalent.

GERM4275 - Contemporary Migration Literature

Credits: 3

Introduces students to a range of recent cultural production by artists identified with immigrant communities or communities of color. Topics examined include intersections of gender, race, nation, culture, and class; experiences of different minorities; question of national and transnational identity, self-representation, immigration, multiculturalism and integration debates. Course is taught in German.

Dual Listed GERM 5275.

Prerequisite: GERM 2140 or equivalent.

GERM4285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities. Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the Americanization of German culture, minorities in contemporary Germany.

Dual Listed GERM 5285.

Prerequisite: WB.

GERM4990 - Advanced Independent Study

Credits: 1-3

Encompasses special projects designed to meet needs of individual students, designed in consultation with instructor.

Prerequisite: GERM 2140 and consent of instructor.

Total: 18 Hours

History Minor

Only 18 credit hours of classes to learn professional skills vital to any career. Critical thinking, effective written and oral communication, and multi-perspective analysis highlight History's benefits in whatever profession you pursue.

Requirements

The history minor requires at least 18 credit hours of History courses, 9 hours of which must be Upper-Division (3000 and 4000 level) courses. These courses must be taken for letter grades with a minimum earned grade of C. For assistance in tailoring the minor content, contact the Department of History.

HIST1101 - FYS: Hamilton's America: Beyond the Musical

Credits: 3

Over the last few years, Hamilton: An American Musical has taken the world by storm. Taking the musical as a starting point, we will consider the real Alexander Hamilton's life and times; the relationship between history, memory, storytelling, and art; and the newfound love of an historical figure who was, in his own time, less than universally popular. This course fulfills the First-Year Seminar (FYS) requirement of the 2015 University Studies Program.

USP 2015 Code U5FY

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

HIST1210 - United States History I

Credits: 3

Surveys U. S. history 1607-1865. Together with HIST 1220, it is the foundation on which all U. S. history courses offered by the department are based. Students cannot receive credit for both HIST 1210 and HIST 1211 .

USP 2003-2014 Code U3VT

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1220 - United States History II

Credits: 3

Surveys U.S. history from reconstruction to recent past. Together with HIST 1210, it is the foundation for all U. S. history courses offered by the department. Students cannot receive credit for both HIST 1220 and HIST 1221.

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester
USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1250 - History of Wyoming

Credits: 3

A study of Wyoming from its beginning to the present. Students cannot receive credit for both HIST 1250 and HIST 1251.

USP 2003-2014 Code U3VT

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1290 - History of the U.S. West

Credits: 3

An introductory survey of the American West, with consideration of developments in both the 19th and 20th centuries.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

HIST2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed ENR 2030.

USP 2003-2014 Code [(none)< >H]

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST2060 - Topics in History

Credits: 2-3

Max Credit 6

Discusses special topics that fall outside traditional chronological and geographical framework of history; content varies from semester to semester in accordance with faculty interest and student demand.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2105 - Medieval Europe in Film

Credits: 3

Historical depictions in films help to shape people's view of the past. Uses commercial films to study major themes in the development of western European civilization between 500 and 1500. Students view, discuss and write about films, learning to evaluate films historically and to view films critically, developing media literacy.

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

HIST2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed RELI 2225.

USP 2015 Code U5H

HIST2230 - The History of Russia to 1855

Credits: 3

General survey of modern Russian history from earliest times to 1855.

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed RELI 2250.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2252 - American Religious History II (1865 to 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed RELI 2252.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed INST 2280.
USP 2015 Code U5C2

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

HIST2315 - History of Non-Western Religions

Credits: 3

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed RELI 2315.
USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H
A&S College Core 2015 ASG

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

HIST2360 - African-American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed AAST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

HIST2370 - Chicano History: Origins to 1900

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2370/GEOG 2370.
USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2380 - Latin American History 1500 to 2000

Credits: 3

Provides introduction to Latin American history, from colonial contacts to the present. Explores important themes and connections across the colonial and modern periods, such as race, national identity, foreign involvement, indigenous peoples' role in nation-states, religion, social movements, economic systems, and globalization.

USP 2003-2014 Code U3G
USP 2015 Code U5H

HIST2385 - Chicano History : 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

HIST2390 - US West Between the World Wars

Credits: 3

Examines two pivotal decades (1918-1942) in the US West that encompasses prosperity, Depression, and reform, through the use of historical documents, art, film, literature, and music.

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4
Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

HIST2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed ECON 2500.

HIST2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in long-distance trade.

Cross Listed ANTH 2600.

USP 2015 Code U5H

HIST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/AMST 2700/ANTH 2700.

USP 2003-2014 Code U3CH

HIST2705 - Museology II

Credits: 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes. Cross listed between Anthropology, History, American Studies, and Art.

Cross Listed AMST 2705 / ANTH 2705 / ART 2705

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research.

Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/POLS 3050.

Prerequisite: WB or COM2.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/PHIL 3160.

Prerequisite: WB or COM2.

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000 or RELI 2225/HIST 2225.

HIST3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500 - 1500 CE, concentrating on the Latin West. It examines the growth of Christian institutions and practices, the Church's role as sole governing entity, along with conflicts with secular governments as they developed in later centuries.

Cross Listed RELI 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

HIST3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: RELI 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

HIST3275 - World Christianities

Credits: 3

Examines the development of Christianity primarily in Africa, Asia and South America.

Cross Listed RELI 3275

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WB and CH

HIST3300 - Secret History of Science

Credits: 3

Explores developments in science from prehistory to the present. It focuses on the lesser-known men and women who contributed to science, as well as on seemingly superstitious beliefs that were nonetheless important to advances in knowledge.

Restricted Restricted to junior standing or higher.

Prerequisite: 6 hours in HIST or 6 hours of PN coursework, or a combination of both.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

HIST3500 - Colonial America

Credits: 3

This course covers the history of European colonization from roughly 1492 to 1763. Our geographic focus will be on the (future) United States, but will also learn how transatlantic forces influenced its people.

Prerequisite: 12 hours of HIST courses or permission of instructor.

HIST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations

between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia, and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed AAST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/HIST 2360.

HIST3880 - Comparative History

Credits: 3

Explores comparative history from a variety of topics, such as colonialism, memory, nationalisms, frontiers, or cultural history. This course will introduce students to at least one of these themes from at least two regions, time periods, or groups of people to understand patterns and change in human societies through time.

Prerequisite: 6 hours of HIST.

HIST3900 - Historical Archaeology

Credits: 3

This course introduces students to the field of historical archaeology, the archaeological and archival study of literate societies. Students will be introduced to the history of the discipline, a survey of contemporary historical archaeological practice.

Cross Listed ANTH 3900

Former Course Number [none < > none]

Prerequisite: ANTH 1300

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000

Dual Listed HIST 5000

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West

from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

HIST4060 - Independent Study

Credits: 1-3

Max Credit 6

Credit not to exceed 6 hours maximum, to be arranged in either European or American history. Primarily for juniors and seniors who can profit from independent work with minimal supervision.

Prerequisite: 12 semester hours in history; written permission of instructor required.

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using

original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

HIST4100 - Early Medieval Europe

Credits: 3

Studies development of European civilization from decline of Rome to 12th century.

Dual Listed HIST 5100.

Prerequisite: 9 hours of HIST.

HIST4110 - The High Middle Ages

Credits: 3

Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 5110.

Prerequisite: 9 hours of HIST.

HIST4112 - History of the Medieval City

Credits: 3

After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000 Europe began its rise to world prominence and cities contributed to that rise. Examines development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 5112.

Prerequisite: 9 hours of HIST.

HIST4113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what some would call heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed RELI 4113.

Dual Listed HIST 5113.

Prerequisite: 9 hours of HIST or RELI.

HIST4120 - Europe During the Renaissance

Credits: 3

Intensely studies European history in 14th and 15th centuries.

Prerequisite: 9 hours of HIST.

HIST4130 - Europe During the Reformation

Credits: 3

Intensely studies European history in the 16th century.

Prerequisite: 9 hours of HIST.

HIST4140 - Europe During the Age of the Baroque

Credits: 3

Intensely studies European history in 17th century.

Prerequisite: 9 hours of HIST.

HIST4150 - Europe During the Age of the Enlightenment

Credits: 3

Intensely studies European history in 18th century.

Prerequisite: 9 hours of HIST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed RELI 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

HIST4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed RELI 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 5305.

USP 2003-2014 Code U3G

Prerequisite: 9 hours of HIST, INST, or POLS.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 4380.

Dual Listed HIST 5380.

Prerequisite: 9 hours of HIST or INST.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

HIST4405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African and Asian people from pre-contact through the mid-19th century.

Dual Listed HIST 5405.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 5406

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST.

HIST4410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 5410.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 5415.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 5425.

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4450 - The Civil War and Reconstruction

Credits: 3

Studies crisis of the Union, 1861-1877. Examines experiences of both the North and South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 5450.

Prerequisite: 9 hours of HIST.

HIST4460 - Post-Civil War America: The Gilded Age

Credits: 3

Intensively covers economic, cultural and political developments which marked the U.S. in post-Civil War era, such as rise of industry, emergence of distinctive national culture and party struggles shaping America's Gilded Age.

Dual Listed HIST 5460.

Prerequisite: 9 hours of HIST.

HIST4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed NAIS 4462.

Dual Listed HIST 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

HIST4463 - American Indian History 1783 to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied moving west.

Cross Listed NAIS 4463.

Dual Listed HIST 5463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural, social and political forms that help create an American Indian identity.

Cross Listed NAIS 4464.
Dual Listed HIST 5464.
USP 2003-2014 Code U3D
Prerequisite: 9 hours of HIST or NAIS.

HIST4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed NAIS 4466.
USP 2003-2014 Code U3D
Prerequisite: 9 hours of HIST, NAIS, or ANTH.

HIST4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed NAIS 4468.
USP 2003-2014 Code U3D
Prerequisite: 9 hours of HIST or NAIS.

HIST4470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U. S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between depression of the 1890s and that of the 1930s.

Dual Listed HIST 5470.
Prerequisite: 9 hours of HIST.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.
Former Course Number [4670]

Prerequisite: 9 hours of HIST.

HIST4480 - Growth of Modern America, 1929 to 1960

Credits: 3

Studies political and diplomatic developments in the U.S. in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasizes economic crisis, growth of government, reform traditions, anti-communism and civil rights.

Dual Listed HIST 5480.

Prerequisite: 9 hours of HIST.

HIST4485 - U.S. Latino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U.S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives' responses are stressed.

Cross Listed LTST 4485/INST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Cross Listed LTST 4492.

Dual Listed HIST 5492.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST or INST.

HIST4494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and

government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 5494.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or INST.

HIST4495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 5495.

Former Course Number [4720]

Prerequisite: 9 hours of HIST or INST.

HIST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed LTST 4496.

Dual Listed HIST 5496.

Former Course Number [4800]

Prerequisite: 9 hours of HIST or INST.

HIST4505 - The Old South, 1820 to 1861

Credits: 3

Studies history of the South from emergence of southern identity to the Civil War. Emphasizes southern society and culture.

Dual Listed HIST 5505.

Former Course Number [4500]

Prerequisite: 9 hours of HIST.

HIST4510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 5510.

Former Course Number [4950]

Prerequisite: 9 hours of HIST.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

HIST4530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 5530.

Former Course Number [4630]

Prerequisite: 9 hours of HIST.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

HIST4540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 5540.

Former Course Number [4640]

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

HIST4560 - American Social History in the 20th Century

Credits: 3

Explores history of social mobility and conflict in 20th century. Emphasizes impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting and architecture.

Dual Listed HIST 5560.

Prerequisite: 9 hours of HIST.

HIST4582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed INST 4582.

Dual Listed HIST 5582.

Prerequisite: 9 hours of HIST or INST.

HIST4610 - Seminar Topics in the History of Wyoming I

Credits: 3

An intensive research and writing course dealing with topics in the period before statehood in 1890.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4620 - Seminar Topics in the History of Wyoming II

Credits: 3

Allows students to do intensive research and writing dealing with topics in Wyoming history from 1890 to present.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4965 - Senior Thesis

Credits: 3

Working closely with a faculty advisor, a history major will develop a research proposal that, after approval by the History department faculty, will lead to in-depth research and writing, producing a minimum 50-page thesis that demonstrates an excellent grasp of historical methods and a high degree of writing skill.

Prerequisite: 12 hours of HIST; senior class standing; HIST major.

HIST4990 - Topics in _____

Credits: 1-6

Max Credit (Max. 12)

Affords students opportunity to study in-depth various topics in history not offered in regular courses or independent study.

Former Course Number [4080]

Prerequisite: 9 hours of HIST.

Human and Animal Physiology Minor

Physiology is the science of how the body functions in health and disease. A minor in physiology provides additional background for students in a variety of majors.

Human and Animal Physiology minor - requirements

Requirements for the minor in human and animal physiology (AHPY) include a minimum of 18 credit hours. Courses counted towards one minor may not be counted towards another. A grade of C or better is required in all courses.

Required Courses

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

At Least One of These Three:

* if more than one of the three required courses is completed, additional courses can count towards Physiology Core elective courses requirement below.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

Elective Courses

Physiology Core Electives. At least three courses from:

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4260 - Mammalian Endocrinology

Credits: 3

Introduces principles of endocrinology, role of endocrine systems in regulating metabolism, growth, reproduction and lactation in mammals.

Dual Listed ANSC 5260.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010, ZOO 3115, or equivalent.

ANTH4210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 5210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular, circulatory, and

respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3038 - Exercise Psychology

Credits: 3

Studies psychological theories for understanding and predicting health-oriented exercise behavior, including psychological intentions for increasing exercise participation and adherence. Emphasizes psychological and psychobiological responses to exercise.

Prerequisite: grade of C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; 2.750 GPA.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

KIN4042 - Advanced Biomechanics

Credits: 3

Provides understanding of biomechanical theories and the application of biomechanical measurements to human movement in sports, training, and rehabilitation. Emphasis on using equipment to collect biomechanical data to answer research and clinical questions. Lecture and data collection topics include electromyography, force, balance, kinematics, and kinetics.

Prerequisite: C or better in KIN 3042, minimum 2.750 GPA.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

NEUR4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed ZOO 4295.

Dual Listed NEUR 5295.

Prerequisite: ZOO 4280.

NEUR5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed ZOO 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed ZOO 5295.

Dual Listed NEUR 4295.

NEUR5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms will be covered in addition to the basic neurophysiology of nerve cells.

Cross Listed ZOO 5685.

Prerequisite: one course in physiology, chemistry, physics.

NEUR5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

PATB4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed MICR 4130

Dual Listed PATB 5130

When Offered (Normally offered spring semester)

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

PATB4140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action and their effects on various organisms including man and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 5140

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: 9 hours of biological science (e.g., physiology), 4 hours chemistry, 3 hours biochemistry.

PATB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed MOLB 4400

Dual Listed PATB 5400

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

PSYC3250 - Health Psychology

Credits: 3

Provides overview of growing partnership between psychology and health care, including history of psychology in health care; theoretical foundations of health and illness; intervention and research techniques; stress and high risk behaviors (e. g. , substance abuse, eating behaviors, AIDS); psychology's contribution to improving outcomes and quality of life in chronic and life-threatening behaviors.

Cross Listed NURS 3250.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

PSYC4080 - Physiological Psychology

Credits: 4

Examines physiological mechanisms of behavior, strongly emphasizing neural and hormonal processes. Includes fundamentals of neuroanatomy and evolution of the nervous system, basic neurophysiology, sensory and motor processes, as well as the physiology of emotion, motivation, learning and memory. Lecture three hours per week. Laboratory two hours per week.

USP 2003-2014 Code U3SB

Prerequisite: A grade of C or better in 6 hours of psychology and LIFE 1000, LIFE 1003, or LIFE 1010 or an introductory zoology course.

PSYC4250 - Psychological Aspects of Chronic Illness

Credits: 3

Investigates the impact of chronic physical illnesses on diagnosed children and adults, their families, and society. Emphasizes effects of illnesses on psychological adaptation and quality of life. Should be of particular interest to helping professionals and health care workers.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 3250.

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

SOC4160 - Sociology of Aging

Credits: 3

The process of aging from the individual to the societal level is the focus of the course. Consequences of this process such as the increase in the number of elderly, retirement and health are examined from the major social institutions, the relationships between these institutions and American society as a whole.

Dual Listed SOC 5160.

Former Course Number [4150]

Prerequisite: 6 hours of sociology (including SOC 1000) and at least junior standing.

ZOO3010 - Vertebrate Anatomy, Embryology, and Histology

Credits: 4

Provides a comprehensive overview of vertebrate anatomy. The structural organization, embryological derivation, and histological organization of the major organ systems will be emphasized. The evolution and functional organization of anatomical structure will also be emphasized. Includes laboratory sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: LIFE 2022 or equivalent, and a semester of chemistry.

OR

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

- ZOO 4670

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed NEUR 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

ZOO5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms are covered in addition to the basic neurophysiology of nerve cells. The laboratory complements the lecture sequence.

Cross Listed NEUR 5685.

Prerequisite: one course in physiology, chemistry, physics.

SPPA3265 - Anatomy and Physiology of Speech, Swallowing and Hearing

Credits: 4

Introduces the student to the anatomy of the normal speech and hearing systems as well as the physiologic underpinnings of the speech (respiration, phonation, articulation), swallowing, and hearing (external, middle, and inner ear) systems. Theories of speech production and speech perception are presented.

Former Course Number [3400]

Prerequisite: KIN 2040 or consent of instructor.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

Interdisciplinary Pre-Law Minor

The minor requires 18 hours to be completed from among the following courses. Of these 18 hours, 12 must be upper division (3000 or 4000 level). In addition, 12 of the 18 hours must be outside the student's primary major, and none of these courses may be credited toward both the minor and the USP requirement. Complete one course from each of the following categories. All coursework must be completed with a grade of C or better to be counted toward the minor.

Language Comprehension & Expression: 3 Hours

COMM1030 - Interpersonal Communication

Credits: 3

Focuses on interpersonal communication settings or face-to-face interaction. Basic unit of study is, therefore, the dyad. Also includes some work in small group settings.

USP 2015 Code U5H

Former Course Number COJO 1030

OR

COJO 1030 - Interpersonal Communication Credits: 3

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

COJO4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 4061

Dual Listed COJO 5061

USP 2015 Code U5C3

Prerequisite: COMM 1040 and junior standing.

OR

ENGL4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music, and film.

Cross Listed COJO 4061.

Dual Listed ENGL 5061.

USP 2015 Code U5C3

Prerequisite: COMM 1040 and COJO 3040 or ENGL 2035.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGECE 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

Written Comprehension & Expression: 3 Hours

Any course with a USP designation of C3 may be counted in this area. However, no C3 course may be counted twice toward fulfilling this category and the USP C3 requirement or another category within the prelaw minor.

Critical Understanding of Human Institutions & Values: 3 Hours

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3500 - History of Science

Credits: 3

Historic and philosophic survey of the development of science from the ancient Greeks to the 20th century.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

OR

AMST4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed POLS 4051 / ENR 4051 / GEOG 4051 / REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

OR

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

POLS4090 - Anglo-American Jurisprudence

Credits: 3

Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 5090.

Prerequisite: 9 hours of political science or philosophy, including POLS 1000.

FCSC4113 - Consumer Issues

Credits: 3

Provides research/ applied understanding of consumer rights/ responsibilities, government/business roles, legislation, advocacy, and redress. Emphasizes introductory consumer law/legal research, critical thinking, self-reflection, and cultural examination. Ethical theories and issues examined within an interdependent world. Meets requirements for certification in family and consumer sciences education. Internship opportunities possible upon successful completion. Companion web site used.

Prerequisite: ECON 1000 or SOC 1000 or PSYC 1000; WB/COM2.

AAST4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/ social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed COJO 4260.

Dual Listed AAST 5260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [AAST 4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

OR

COJO4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/ social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 4260.

Dual Listed COJO 4260.
USP 2003-2014 Code U3D
USP 2015 Code U5C3
A&S College Core 2015 ASD
Former Course Number [4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

PHIL4300 - Topics in Ethics

Credits: 3-6
Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 5300.
Prerequisite: 6 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3
Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.
Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

Creative & Analytical Thinking: 3 Hours

CW2050 - Introduction to Fiction

Credits: 3
Max Credit (Max. 6)

Analyzes forms of fiction and the practice of creative writing at an introductory level.

Prerequisite: WA/COM1.

CW2060 - Introduction to Nonfiction

Credits: 3
Max Credit (Max. 6)

The new nonfiction course will be described according to the emphasis the individual professor chooses to impart. In general, the course will teach students to research, organize, and express themselves in a nonfiction genre, such as essay, memoir, article, biography, autobiography, etc.

Prerequisite: WA/COM1.

CW2080 - Introduction to Poetry

Credits: 3

Max Credit (Max. 6)

Analyzes forms of poetry and practice of creative writing at introductory level.

Prerequisite: WA/COM1.

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

PHIL3140 - Philosophy of Science

Credits: 3

Systematically examines philosophical problems about the nature of science, its methods of explanation, and the status of its laws.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3220 - Existentialism and Phenomenology

Credits: 3

Examines fundamental perspectives of existentialist thought, beginning with its roots in Kierkegaard and Nietzsche. Looks at a large variety of existentialist perspectives presented by Sartre, Heidegger, Buber, Jaspers and Camus. Considers the relation of Husserl's phenomenological method to existentialism.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3420 - Symbolic Logic

Credits: 3

Studies both propositional and quantificational logic, concentrating on methods of proof. Takes up such topics as identity, singular terms, intuitive set theory, and translating English sentences into symbolic notation.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3440 - Philosophy of Mind

Credits: 3

Considers topics in philosophy of mind, including the mind-body problem, emotions, attitudes, perception and psychological explanation.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3510 - Introduction to Epistemology

Credits: 3

Systematic introduction to epistemology, the philosophical study of knowledge and justified belief. Aims to answer questions such as: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? How we are to understand the concept of justification?

Prerequisite: 3 hours of philosophy, or consent of instructor.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

OR

CRMJ4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed ANTH 4230.

Prerequisite: ANTH 1100.

PHIL4420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 4420/MATH 4420.

Dual Listed PHIL 5420.

Prerequisite: PHIL 3420 or equivalent.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

OR

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

World Cultures & International Institutions: 3 Hours

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

ANTH2200 - World Culture

Credits: 3

Provides an understanding of cultural behavior of people in various geographical areas of the world. Students read ethnographies, cultural descriptions of societies, written by cultural anthropologists.

When Offered (Normally offered at least once a year)

USP 2003-2014 Code U3G, U3CS

A&S College Core 2015 ASG

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

ANTH3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed INST 3420.

Prerequisite: ANTH 1200.

OR

INST3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed ANTH 3420.

Prerequisite: ANTH 1200.

INST3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed SOC 3910.

When Offered (Offered once a year).

A&S College Core 2015 ASG

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

OR

SOC3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed INST 3910.

A&S College Core 2015 ASG

Former Course Number 4110

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

CRMJ4280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 5280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

INST4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed POLS 4340.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

Law: 3 Hours

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

CRMJ2210 - Criminal Law

Credits: 3

Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

CRMJ3110 - Criminal Courts and Processes

Credits: 3

Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the

constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

NAIS3300 - Federal Indian Law

Credits: 3

Survey of law that applies to individual Indians and tribal governments. In particular, explores the legal relationships among, and relative jurisdictions of federal, tribal, and state governments. Specific topics include civil and criminal jurisdiction, taxation, family law, hunting and fishing, and gaming regulations.

Prerequisite: NAIS 1001 or NAIS 1350.

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

CRMJ4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

OR

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

CRMJ4140 - Criminal Legal Procedure

Credits: 3

Examines the constitutional principles that safeguard the rights and liberties of criminal suspects and constrain police during the investigatory stages of the criminal justice process: arrest; search and seizure; interrogation; undercover operations; pretrial identification; and the exclusionary rule.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

CRMJ4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 / GWST 5540 .

Dual Listed CRMJ 5540.

Prerequisite: ENGL 1080/WMST/GWST 1080 , WMST/GWST 2500 , WMST/SOC 3500, or CRMJ 2400/SOC 2400.

OR

GWST4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540.

When Offered (Offered every other year)

Prerequisite: ENGL 1080/GWST 1080, WMST/SOC 3500, or CRMJ 2400/SOC 2400 , WMST/GWST 2500

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECE 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

CRMJ4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed PSYC 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

OR

PSYC4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed CRMJ 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

International Relations and Comparative Politics Minor

Requirements

A minor in International Relations and Comparative Politics requires

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

OR

POLS1250 - Introduction to Comparative Government

Credits: 3

How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.

A&S College Core 2015 ASG

POLS4870 - Seminar in International Relations

Credits: 3

Max Credit (Max. 6)

Encompasses reading and research in international law and politics.

Dual Listed POLS 5870.

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

OR

POLS4890 - Seminar in Comparative Government and Politics

Credits: 3

Max Credit (Max. 6)

Researches selected topics in comparative government and politics.

Dual Listed POLS 5890.

USP 2003-2014 Code U3G, U3WC

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

- 9 hours from an approved list of courses, with a minimum of 6 hours at the 3000-level or above.

Approved International Relations and Comparative Politics Minor Courses

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS2290 - Governments and Politics of Latin America

Credits: 3

Studies chief cultural and historical factors influencing Latin American political process. Surveys major institutions and political patterns of the region.

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS2490 - Topics In:

Credits: 1-3

Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3200 - Comparative Political Cultures

Credits: 3

Histories and experiences of various societies have shaped their values, norms, beliefs, expectations, and attitudes. This class explores how the beliefs, values, and lifestyles of various societies shape peoples' views of their place in the politics of the state and of the state's place in their daily lives.

Cross Listed POLS 3200.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/ INST 1250 or permission of instructor.

POLS3220 - Government and Politics of Russia and FSU

Credits: 3

Examines the political, economic and identity transitions of Russia and other states of the former Soviet Union during the post-communist era. Explores how current challenges relate to past Soviet practices.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3300 - Model United Nations

Credits: 1-3

Max Credit (Max. 6)

Focuses on the United Nations (UN) system and multilateral diplomacy to prepare students to participate in a Model UN simulation. Students learn to evaluate the UN system, learn strategies to address international problems, and develop skills to effectively represent a country in a role-playing exercise.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS4013 - Political Geography

Credits: 3

Geographic space is subdivided into political units to aid human interaction and to facilitate political processes. Examines the spatial organization of political space and its effects upon political processes at varying geographic scales ranging from the local to international.

Cross Listed GEOG 4013.

Dual Listed POLS 5013.

Prerequisite: Completion of USP H requirement.

POLS4215 - European Union

Credits: 3

Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed INST 4215.

Dual Listed POLS 5215.

Former Course Number [4220]

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4230 - Governments and Politics of Asia

Credits: 3

Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 5230.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4255 - Politics of Developing Nations

Credits: 3

An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed INST 4255.

Dual Listed POLS 5255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200/INST 1200 or POLS 1250/INST 1250 or POLS 2310/INST 2310, or permission of instructor.

POLS4260 - Democratization and Regime Change

Credits: 3

Examines the theoretical/empirical research on causes of democratic transition and consolidation, including new waves of democratization and prospects for democratization in other contexts. Focus is given to a variety of theoretical/methodological perspectives such as the structural, strategic, social/cultural, institutional, and economic approaches.

Cross Listed INST 4260.

Dual Listed POLS 5260.

Prerequisite: 9 hours of political science or international studies, including POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS4290 - Inter-American Relations

Credits: 3

Surveys inter-American system and idea of hemispheric unity. Analyzes major issues confronting inter-American community.

Cross Listed INST 4290.

Dual Listed POLS 5290.

Prerequisite: 9 hours of political science, including POLS 1200/ INST 1200, or POLS 1250/INST 1250, or POLS 2310/ INST 2310, or permission of instructor.

POLS4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed INST 4330.

Dual Listed POLS 5330.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 5350.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4360 - International Peace and Conflict

Credits: 3

Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed INST 4360.

Dual Listed POLS 5360.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4375 - Transitional Justice

Credits: 3

Mechanisms provide accountability for gross human rights violations and acts of mass atrocity within nations. Case studies are used to examine types of transitional justice interventions; tensions between demands of justice at local, national, and international levels; and transitional justice's role in post-conflict peace-building and reconciliation.

Cross Listed INST 4375.

Dual Listed POLS 5375.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 4445.

Dual Listed POLS 5445.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

POLS4475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 4475.

Dual Listed POLS 5475.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

POLS4600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Cross Listed CRMJ 4600.

Dual Listed POLS 5600.

When Offered (Normally offered every other year)

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS4710 - Topics in

Credits: 1-3

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

POLS4870 - Seminar in International Relations

Credits: 3

Max Credit (Max. 6)

Encompasses reading and research in international law and politics.

Dual Listed POLS 5870.

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4890 - Seminar in Comparative Government and Politics

Credits: 3

Max Credit (Max. 6)

Researches selected topics in comparative government and politics.

Dual Listed POLS 5890.

USP 2003-2014 Code U3G, U3WC

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

International Studies Graduate Minor

Students graduating with a minor in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective.

Additional Requirements

A graduate minor in international studies provides students in graduate programs other than international studies with the opportunity to acquire a basic graduate-level familiarity with international relations, global processes and cultural diversity around the world. Students acquire a foundation in intergovernmental relations and research methodology. Beyond this, students work closely with a graduate director to fashion a program of study appropriate for their interests and post-graduate plans. The minor complements several other graduate degree programs.

Prerequisites for Admission

Declaration of an international studies minor is contingent on admission to a master's or doctoral degree program. Application is in the form of a letter of interest to the director of the program, including the background, anticipated course of study, and reason for seeking the minor. An interview with the director is also required. All prerequisites for entering the graduate program in international studies as a major apply to the minor with the exception of proficiency in a second language. Students must be prepared for coursework in international studies at the graduate level and be willing to take prerequisite courses if necessary.

Course and Committee Requirements

Graduate students minoring in international studies must satisfy the requirements of their graduate major and take twelve credits of guided graduate coursework in international studies. With the approval of the department of the graduate major, these twelve hours may also count toward the major. Students are required to take at least one advanced theory course (INST 5200) and one advanced research methods course. All courses will be determined in consultation with the program director.

International Studies Minor

Students graduating with a minor in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective.

Additional Information

A minor in international studies requires 12 hours of a single foreign language and 15 hours of international studies curriculum, with a minimum of 9 hours at the 3000-level or above.

Japanese Minor

As a Japanese Minor, you will develop your speaking, listening, and communication skills as a Japanese speaker. You will gain a better understanding of perspectives and experiences of Japanese speaking cultures.

Prerequisites

JAPN1010 - First Year Japanese I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered fall semester)

USP 2015 Code U5H

JAPN1020 - First Year Japanese II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the

language.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: JAPN 1010 or equivalent.

JAPN2030 - Second Year Japanese I

Credits: 4

Encompasses reading, speaking and writing in original Japanese syllabaries, including elementary kanji characters for daily practical application.

When Offered (Offered fall semester)

Prerequisite: JAPN 1020 or equivalent.

Minor Program Requirements

A Japanese minor requires 18 credit hours of coursework which include JPN 2040 and above, and all courses required for a minor in Japanese are offered as online courses. These courses include:

JAPN3050 - Third Year Japanese I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 2040 or equivalent.

JAPN3060 - Third Year Japanese II

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 2040 and JAPN 3050 or equivalent.

JAPN2070 - Conversational Japanese Abroad

Credits: 4

Japanese language and cultural study in Japan led by UW faculty.

Prerequisite: JAPN 1020.

LANG2150 - Manga: History and Culture

Credits: 3

Manga is one of the most important art forms to emerge from Japan. Its importance as a medium of visual culture and storytelling cannot be denied. Through reading and examination of texts, students will understand the relevance of comics in Japanese society.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: COM1.

LANG3140 - Anime: History and Culture

Credits: 3

An introduction to the history, development, and cultural significance of Japanese animation. Through the examination of a variety of anime genres, students will gain insight into contemporary Japan as well as important historical periods. We will read analyses of particular anime, emphasizing the unique characteristics of the art and the mystery of its popularity in the US.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Prerequisite: completion of WA.

LANG4800 - Advanced Instruction In: (TOPIC)

Credits: 1-3

Max Credit (Max. 12)

Advanced study and projects designed to meet special needs and interests of students, to be selected in consultation with a suitable member of the faculty.

Prerequisite: consent of instructor.

LANG3105 - Major Themes in Chinese and Japanese Literature

Credits: 3

Explores mindsets of two rich and ancient civilizations, China and Japan. Considers distinctive characters of each civilization, while illuminating basic elements that we share with these peoples.

Prerequisite: ENGL 1010.

HP3151 - Modes of Understanding

Credits: 3

Max Credit (Max. 6)

Introduces study of nature and grounds of knowledge, its limits and validity. Examines epistemological basis of selected areas of academic thought. Topics vary from year to year. Required of UW Honors Program students.

Former Course Number [3150]

Prerequisite: COM1, COM2

History and Culture classes (LANG 2150, 3140, 3105, and 4800) rotate every two years, as one History and Culture class is offered a semester. Modern Japanese Society (HP/LANG 3151) is offered twice a year, with one of these classes being a study abroad opportunity.

Journalism Minor

Required Courses: 9 Hours

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

Elective Courses: 9 Hours

COMM2400 - Introduction to Photography

Credits: 3

Basic course in still photography. Includes classroom demonstrations in techniques of camera use, composition, computer software, and use of photographs, especially for communication and journalism applications.

USP 2003-2014 Code U3CA

Former Course Number COJO 2400

COJO3000 - History of American Journalism

Credits: 3

Presents history and development of American journalism from colonial times to present, emphasizing 20th century.

Prerequisite: COMM 1000.

COJO3100 - Public Affairs Reporting

Credits: 3

Practices in public affairs reporting, emphasizing local and state political organization as foundation for such reporting. Specialized reporting fields. News analysis.

Prerequisite: COMM 2100.

COJO3200 - Graphics of Communication

Credits: 3

Combines editing and design. Studies evaluation, selection and editing of magazine and newspaper news copy. Practice in publication design, including headline writing, printing methods, page layout and other display techniques.

USP 2003-2014 Code U3CA

Prerequisite: COMM 1000.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of

writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed POLS 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

COJO4020 - Mass Media and Society

Credits: 3

Studies ethical and related problems of mass communication from contemporary and historical viewpoints. Critical analysis of the performance of the mass media.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 5040.

Prerequisite: 9 hours of COJO coursework.

COJO4200 - Visual Communication

Credits: 3

The purpose of this course is to combine visual communication theory and application in order to enhance visual literacy and practical skills. Content includes analyzing visual messages, developing and producing visual messages, and understanding how audiences process and are affected by visual messages.

Dual Listed COJO 5200.

Prerequisite: 9 hours of COJO coursework.

COJO4230 - Special Topics in Mass Media

Credits: 1-3

Intensive study of problems and topics specific to the mass media, including print, broadcast, advertising, public relations, and the Internet. Course content varies and may include historical, legal, ethical, political, sociocultural, economic, and theoretical perspectives.

Dual Listed COJO 5230.

Former Course Number [4910]

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society.

Cross Listed AAST 4233 and GWST 4233.

Dual Listed COJO 5233.

USP 2003-2014 Code U3D, U3WC

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

COJO4400 - Photojournalism

Credits: 3

Studies and intensively practices reporting news and features photographically, plus essentials of advertising photography. Includes advanced camera and darkroom techniques and photo editing. Two one-hour lectures and one two-hour laboratory weekly.

Prerequisite: COMM 2400.

COJO4530 - Web Design

Credits: 3

Addresses the theory and logistics of web design and online interactivity. Students will create and maintain a professional portfolio website that showcases their communication and design talents. It is applicable to journalism, public relations, advertising, marketing, photography, and any other media-related career path that uses new media.

Dual Listed COJO 5530.

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will

also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed ENR 4700.

Dual Listed COJO 5700.

Prerequisite: COMM 1000 or ENR 1200 or ENR 1500 or ENR 2000.

Total: 18 Hours

Latin Minor

As a Latin Minor, you will develop the communication skills necessary to read an original text of Classical Latin in prose or verse as well as the cultural knowledge essential to understand and analyze it.

Requirements

LATN3110 - Vergil, The Aeneid I

Credits: 3

Reading portions of the Aeneid and consideration of its literary interpretation.

Former Course Number [2110]

Prerequisite: LATN 2030 or equivalent.

LATN3140 - Caesar

Credits: 2

Acquaints students with war-memoir genre of Latin literature.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4120 - Catullus and the Elegiac Poets

Credits: 3

Discusses Latin lyric poetry of late Republic and early Empire, excluding works of Horace and Ovid, and elegiac tradition in Latin.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4130 - Cicero

Credits: 3

Introduction to the prose of the statesman Marcus Tullius Cicero (106-43 BCE). Readings will be selected from his political speeches, correspondences, or treatises on philosophical, rhetorical, and religious topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

Electives

7 hours chosen from Latin at the 3000-level or above.

LATN3120 - Vergil, The Aeneid II

Credits: 3

Reading further portions of the Aeneid and consideration of its literary interpretation.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [2120]

Prerequisite: LATN 3110.

LATN3150 - Livy

Credits: 3

Reading portions of Livy's historical works, and consideration of the history he covers and how the Romans viewed their past.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3160 - Ovid

Credits: 2

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3990 - Independent Study

Credits: 1-4

Books or texts of special interest to the student, selected in conjunction with the instructor; independent reading and reports.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4110 - Horace

Credits: 3

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4115 - Latin Philosophers

Credits: 3

An introduction to Latin philosophical traditions. Readings will be selected either from one author, such as Lucretius (ca. 99-55 BCE) or Seneca the Younger (ca. 4 BCE-65 CE), or from different authors about a given theme.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

Total: 18 Hours

Latina/o Studies Minor

Latina/o Studies offers an undergraduate minor. The minor in Latina/o Studies requires 18 credit hours. One of those courses (3 hours) must include the required foundation courses, and the remaining courses (15 hours) can be selected from the other areas of studies listed below.

Minor Requirements

3 Hours of Foundation Course

LTST1300 - Introduction to Latina/o Studies

Credits: 3

The U. S. Latina/o immigrant experience is a particular focus of this course, including its role in the incorporation of Latinos into U. S. society. Through readings, presentations, class discussion, videos, and other activities, students examine historical and contemporary issues affecting Latinos including but not limited to immigration, language, identity, national origin, education, politics, employment, and economic mobility.

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 1300]

3 Hours of History or Social Science

LTST2370 - Chicano History : Origins to 1900

Credits: 3

General survey that traces the geographic distribution and historical processes that have shaped the life experiences, socio-economic development and cultural contributions of peoples of Mexican descent in the United States from their indigenous and Hispanic origins to the end of the 19th century. Cross list with GEOG 2370/HIST 2370.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 2370]

LTST2385 - Chicano History: 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed HIST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 2385]

LTST3800 - Chicanas/os in Contemporary Society

Credits: 3

Focuses on three major movements within the Chicana/o community; labor, nationalism, and feminism. Students will assess these three movements to determine what role they have played in transforming the social conditions and political identity of the Chicana/o and Latina/o population in the US.

Cross Listed AMST 3800/GWST 3800.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Former Course Number [CHST 3800]

Prerequisite: LTST 1100 or GWST 1080 or AMST 2010.

3 Hours of Culture, Arts, and Humanities

LTST2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanismo. Studies literature of the Hispanic Southwest, Mexican American folklore and the Chicano and post-Chicano movement.

Cross Listed ENGL 2360.

USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD
Former Course Number [CHST 2360]

Prerequisite: WA.

LTST3560 - Chicano Community Organizations

Credits: 3

Introduction to the origins, development and contemporary status of community organizations and service agencies in the Mexican American community in general and in the Wyoming and Rocky Mountain regions.

Former Course Number [CHST 3560]

Prerequisite: LTST 1100.

LTST4100 - U.S. Latina/o Theater

Credits: 3

Designed to provide an overview of United States Latina/o Theater. Through a variety of delivery methods, students are instructed on the various categories that directly impact U. S. Latina/o Theater such as political theatre, gay/lesbian theatre, border issues, race, class, gender, and sexuality.

Cross Listed WMST 4100.

Dual Listed LTST 5100.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [CHST 4100]

Prerequisite: 6 hours of LTST or WMST.

LTST4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed ENGL 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 4470]

Prerequisite: LTST 1100 and WA.

3 Hours of Gender, Race, Class, and Sexuality

LTST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed GWST 1030/NAIS 1030/AAST 1030/AMST 1030.

USP 2003-2014 Code U3D, U3I

A&S College Core 2015 ASD

Former Course Number [CHST 1030]

LTST3200 - Perspectives in Chicana Studies

Credits: 3

An interdisciplinary introduction to the study of the history, culture, gender relations, and contemporary political, economic status of Chicanas/Mexican American women. Examines the origins, development of Chicana studies as a major emphasis in Chicano/Chicana studies.

Cross Listed GWST 3200.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 3200]

Prerequisite: LTST 1100 or junior standing.

LTST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 4650/INST 4650/GWST 4650.

Dual Listed LTST 5650.

Former Course Number [CHST 4650]

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

LTST4675 - U.S. Women of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed AAST 4675/GWST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Former Course Number [CHST 4675]

Prerequisite: junior standing and/ or a combination of 3-6 hours of any level of LTST, WMST, or AAST coursework.

6 Hours of Electives

(or any courses listed above not yet taken)

LTST2060 - Special Topics in:

Credits: 3

Former Course Number [CHST 2060]

LTST3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed SPAN 3080.

USP 2015 Code U5H

Former Course Number [CHST 3080]

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

LTST4485 - USLatino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U. S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives responses are stressed.

Cross Listed HIST 4485/INST 4485.

Former Course Number [CHST 4485]

Prerequisite: 9 hours of LTST, HIST, and/ or INST related coursework.

LTST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century, especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U. S. , incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed HIST 4496.

When Offered (Normally offered fall semester)

Former Course Number [CHST 4496]

Prerequisite: 9 hours of HIST or INST.

LTST4975 - Independent Studies

Credits: 1-3

Max Credit (Max 6)

Independent study in Chicano studies research.

Former Course Number [CHST 4975]

Prerequisite: junior standing.

LTST4990 - Topics in Chicano Studies

Credits: 1-3

Max Credit (Max 6)

A special topics course through which regular and visiting faculty can explore regarding specialized or new research topics regarding Chicano studies.

Former Course Number [CHST 4990]

Prerequisite: junior standing.

Literary Studies Minor

Focuses on the study of literature, media, and culture. Courses address texts from various historical periods and regions and the work of a diverse range of voices.

Requirements

ENGL2025 - Introduction to English Studies

Credits: 3

This course provides an introduction to English Studies, covering the history of English as an academic field, the options available within it, and possible career paths. Students will also be taught the skills they need to succeed as English majors, including critical reading and writing, and literary and rhetorical analysis.

USP 2015 Code U5C2

Prerequisite: COM1; English major status.

Historical Period Classes: 6 Hours

Take any 2 of the following historical period courses:

ENGL2425 - Literatures in English I

Credits: 3

Surveys major figures and literary movements in literatures written in English through 1750.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2430 - Literatures in English II

Credits: 3

Surveys major figures and literary movements in literatures written in English 1750-1865.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2435 - Literatures in English III

Credits: 3

Surveys major figures and literary movements in literatures written in English 1865-present.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed AAST 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL3200 - Topics in: Medieval Literature

Credits: 3

Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

Upper Division Literature Courses: 9 Hours

Take 3 additional upper-division literature courses. Electives cannot be used for both the Historical Period requirement and this requirement. Please consult with department for options beyond this list.

ENGL3100 - Tribal Literatures of the Great Plains

Credits: 3

Familiarizes students with American Indian literatures of the Great Plains. The Great Plains region is the locus of much historical and contemporary significance in regard to American Indian cultures. The literature of Great Plains Indians allows students to confront and reexamine the national narratives surrounding American Indians.

Cross Listed NAIS 3100.

USP 2003-2014 Code U3D, U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of NAIS or ENGL.

ENGL3150 - World Literature

Credits: 3

Max Credit (Max. 6)

Encompasses reading and analysis of major works representative of significant periods or literary forms in the history of literature.

USP 2003-2014 Code U3CH, U3G

Prerequisite: WA and WB/COM1 and COM2.

ENGL3200 - Topics in: Medieval Literature

Credits: 3

Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3330 - Global Shakespeare in Performance

Credits: 3

Max Credit (Max. 12)

Shakespeare's works are constantly being reinterpreted around the globe, because their cultural capital invites many cultures to rebrand Shakespeare as their own. While helping us to see universal connections, recorded re-interpretations provide opportunities for viable cross-cultural analysis, as we explore and compare the hot-button cultural issues addressed through global performance.

A&S College Core 2015 ASG

Prerequisite: COM1.

ENGL3340 - Philosophy in Literature

Credits: 3

Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL 3340.

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3
Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3610 - Non-Western Women Writers

Credits: 3
Examines literature written by women in non-western cultures. The geographical region, time period, and genres of literature may vary by semester. Analyzes representations of such topics as family, marriage, sexuality, community, and colonialism as expressed in fiction, drama, literary non-fiction, and/or poetry.

Prerequisite: ENGL 1010 or GWST 1080; junior standing.

ENGL3710 - Gender: Humanities Focus

Credits: 3
Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity, and class.

Cross Listed ART 3710/GWST 3710.
USP 2003-2014 Code U3Ch
USP 2015 Code U5C2
Prerequisite: GWST 1080 or ENGL 1010.

ENGL4080 - Film Genre Studies (TOPIC)

Credits: 3
Max Credit (Max. 6)

Offers structural, film historical, and political analyses of selected major film genres.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4070 - Film Directors:

Credits: 3
Max Credit (Max. 6)

Offers an intensive examination of representative films by selected film makers.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4090 - Film and Religion

Credits: 3

Movies use religion to convey messages; they debate religious issues and use religion to debate non-religious issues. This course analyzes how film makers use religion and religious themes to transform religions into advocates for social issues and to shape religion's role in society. Popular films drawn from many genres.

Prerequisite: 6 hours of 2000-level or higher literature courses or religion courses.

ENGL4230 - Greek Tragedy

Credits: 3

Reading and discussion of major plays by Aeschylus, Sophocles, and Euripides, together with examination of the performance and social context of Greek drama, its use of traditional myths, and selected issues in contemporary scholarship on the tragedies.

Cross Listed CLAS 4230/THEA 4230.

When Offered (Offered in spring in alternate years)

Prerequisite: WB or COM2.

ENGL4270 - Classical Epic Poetry

Credits: 3

Reading and discussion of major works of Greek and Latin epic poetry, centered on Homer and Vergil. Also includes consideration of the background of these works (both mythological and historical) and the development of the epic tradition in the ancient world.

Cross Listed CLAS 4270.

Prerequisite: WB or COM2.

ENGL4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed AAST 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

ENGL4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 4455.

Dual Listed ENGL 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

ENGL4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed NAIS 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed LTST 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: LTST 1100 and WA/COM1.

ENGL4480 - Regional Literature of the US: The West

Credits: 3

Encompasses major themes and writers in western American literature.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4600 - Studies in (TOPIC)

Credits: 1-6

Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in American, English, or other literatures.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4640 - Studies in Emerging Fields and Approaches

Credits: 3

Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in emerging fields or approaches to literature written in English.

A&S College Core 2015 ASG

Prerequisite: six hours of 2000 level literature courses.

ENGL4830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed ART 4830/GWST 4830.

Dual Listed ENGL 5830.

USP 2003-2014 Code U3CA

A&S College Core 2015 ASG

Prerequisite: ART 2020, GWST 1080/ENGL 1080.

Marketing Communication Minor

The marketing communication minor is designed for College of Business and communication and journalism majors. Other majors are not recommended for this minor. For questions regarding this, please contact the minor supervisor.

Required for all Minors

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and

quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

COJO3300 - Advertising in the Media

Credits: 3

Studies fundamentals of copywriting in mediated communication. Provides information about the psychology of advertising, advertising appeals, strategy, and structure of ads and other marketing materials. Includes exercises in basic principles of copywriting for print, electronic and digital media.

Prerequisite: COMM 2100.

COJO3310 - Public Relations

Credits: 3

Studies how organizations can improve their relationships with their publics. Explores public opinion and how to research audiences. Explains different skills needed in the field, including its relationship to advertising and marketing.

Prerequisite: COMM 2100.

Emphasis

COJO Emphasis

(to be taken by non-COJO majors):

Choose Three Courses from the Following: 9 Hours

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COMM2400 - Introduction to Photography

Credits: 3

Basic course in still photography. Includes classroom demonstrations in techniques of camera use, composition, computer software, and use of photographs, especially for communication and journalism applications.

USP 2003-2014 Code U3CA

Former Course Number COJO 2400

COJO3200 - Graphics of Communication

Credits: 3

Combines editing and design. Studies evaluation, selection and editing of magazine and newspaper news copy. Practice in publication design, including headline writing, printing methods, page layout and other display techniques.

USP 2003-2014 Code U3CA

Prerequisite: COMM 1000.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO4040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 5040.

Prerequisite: 9 hours of COJO coursework.

COJO4310 - Public Relations Techniques

Credits: 3

Practical application of public relations writing, planning and program implementation. Includes exercises in writing news releases, structuring news conferences and writing preliminary and formal public relations strategies. The plans also incorporate advertising and marketing segments for external publics, newsletter design, editing and interpersonal relations.

Prerequisite: COJO 3310.

Marketing Emphasis

(to be taken by non-College of Business majors):

Choose Three Courses from the Following: 9 Hours

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4230 - Integrated Marketing Communication

Credits: 3

Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

MKT4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed INST 4540.

Prerequisite: MKT 2100 and junior class standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

MKT4910 - Topics in Marketing

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Total: 21 Hours

Metalsmithing Minor

The Metalsmithing Minor introduces students to the discipline of Metalsmithing in a 24 credit hour sequence.

Required Courses: 15 Hours

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

OR

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART3350 - Metalsmithing II

Credits: 3

Introduces intermediate approaches to fabricating small scale, non-ferrous metals through hammer-raised forming, lost-wax casting, enameling and hardware fabrication. Historical and innovative contemporary applications are fostered

through sculptural objects and jewelry-based pieces. Individual studio projects, critical discussion and presentations address aesthetic, conceptual, and technical aspects of metalsmithing.

Prerequisite: ART 2000 and ART 2350.

Studio Elective Courses in Metalsmithing: 6 Hours

ART4355 - Metalsmithing III

Credits: 3

Introduces advanced fabrication and surface techniques which build on skills developed in Metalsmithing I and II. Students propose a body of work for the semester based on individual aesthetic, conceptual and technical interests. Professional practices including resume writing, documenting, presenting and exhibiting artwork are addressed at this advanced level.

Prerequisite: ART 2000 and ART 3350.
required

ART4360 - Metalsmithing: Special Topics

Credits: 3

Focuses on a specific technique in the field of Metalsmithing for an in-depth exploration into topics such as lost-wax casting, chasing and repoussé, enameling, etc. Individual projects and critical discussion will address the special topic aesthetically, technically and conceptually.

Prerequisite: ART 2000 and ART 2350.
required

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Museum Studies Minor

The Museum Studies Minor introduces students to the discipline of Museum Studies.

Museum Studies Core: 12 Hours

- ART 2705 - Intro to Museology II Credits: 3 crosslisted as ANTH/AMST/HIST 2705

ART2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ANTH 2700/HIST 2700.

USP 2003-2014 Code U3CH

Choose One of the Following

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

Internship - 3 credits

3 credits in Internship

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

ANTH4970 - Internship

Credits: 1-12

Max Credit (Max. 12)

Allows students to gain hands-on experience, bridging the gap between anthropology as an academic discipline and anthropology as practiced in museums, public archaeology agencies, non-governmental organizations, and private consulting companies. Involves a required academic component in addition to work experience. Internship credit cannot fulfill requirements of the major.

Prerequisite: anthropology major of junior/senior standing and consent of internship director and/or department head.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

OR

- Corresponding number in student's major department

Methods Core: 6 Hours

To be chosen from the following:

AMST2400 - Introduction to Historic Preservation

Credits: 3

Online course introduces students to historic preservation theory and philosophy, the history of the preservation movement and contemporary historic preservation as practiced in the public, nonprofit and private realms. Assignments include reading, research, online discussion and lectures (podcasts, videos or PowerPoint presentations), as well as directed field work.

AMST4300 - American Culture and the Public Sector

Credits: 3

Surveys American culture studies in the public sector. Topics include history and theory of public sector humanities and social sciences; types of public sector jobs and institutions where public humanists work; and public sector work in specific fields such as museums, arts, humanities, archives, folklife, oral history, and historic preservation.

Dual Listed AMST 5300.

When Offered (Offered once a year)

Prerequisite: 12 credits in humanities or social science courses having to do with American culture.

AMST4900 - Field Studies in American Culture

Credits: 1-4

Max Credit (Max. 4)

Field Studies in American Culture: Gives students hands-on field-based training and experience in researching, documenting, and presenting aspects of American culture. Topics may include historic preservation, folklife, oral history or related fields.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 6 credits in American Studies or related field. May also be taken for graduate credit.

ANTH3300 - Ethnographic Methods in Anthropology

Credits: 3

Introduces anthropology majors to ethnographic fieldwork, the fundamental method in cultural anthropology. Students conduct fieldwork and discuss research problems including ethics and the role of the researcher. Open to students in related fields of humanities and social sciences.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: ANTH 1200.

ANTH3310 - Introduction to Anthropology Research Methods

Credits: 3

Introduces anthropology majors to use of the discipline's scientific method through problem formation, research data acquisition and research techniques used by anthropologists.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, ANTH 1200, and ANTH 1300.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

ANTH4190 - Public Archaeology

Credits: 3

A consideration of archaeological legislation, policies and regulations; compliance, heritage, and avocational archaeology, cultural resource management; curation; and professional archaeological ethics.

Dual Listed ANTH 5190

ART4790 - Art Seminar

Credits: 1-3

Special topic in art history and criticism for advanced students.

When Offered (Offered based on sufficient demand and resources)

USP 2015 Code U5C3

Prerequisite: 6 hours in art history.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL4717 - Field Course in Geology

Credits: 1-8

Reviews field observation of geologic phenomena, methods of geologic mapping and interpretation of data collected. Course includes a six-week field trip.

When Offered (Offered early summer)

Former Course Number [GEOL 5100]

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research.

Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

- HIST 4050

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and

services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

Elective Courses: 3 Hours

Students will choose course from the elective list in conjunction with their advisor, based on their area(s) of interest. Additional courses listed in the museum studies and methods cores can be chosen as electives. For a list of electives, go to www.uwyo.edu/museumstudies.

Cultural Experience / International Fieldwork

Choose one of the following:

- Study Abroad/International Field School - students may enroll or participate in an approved study abroad course or program (credit hours vary),
OR
- Foreign or Indigenous Language - students may enroll in 12 hours
OR
- A foreign language. 8 of the 12 hours must be in the same language. American Sign Language does qualify.

Music Minor: 18 Credits

A **Minor in Music** consists of 18 credit hours intended to broaden a student's musical skills as well as foster musical talents while they are pursuing a separate major. Acceptance to the minor is by audition only.

Required Courses

- **Ensembles:** Minimum 2 semesters required
- **Applied Lessons:** Complete at least 2 hours of Applied Lessons (2 semesters, minimum 30 minutes each)

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.
2 Semesters Required

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

Choose one of the following:

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

OR

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

Choose at least 3 credits from the following. Final credit hours for the minor must equal 18.

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

Native American and Indigenous Studies Graduate Minor

A graduate minor in Native American and Indigenous Studies is comprised of 12 hours with at least 6 hours at the 5000 level. It is expected that each graduate minor student and his/her graduate committee, at least one member of whom will be from NAIS, will determine the specific courses to be taken. It is recommended that one of the four classes selected be a 3 credit NAIS 5000 Independent Study. This class will provide a research experience in the discipline of Native American and Indigenous studies that may support a master's thesis or doctoral dissertation. The research expectation in NAIS can be satisfied by the 3 credit hour Independent Study and/or by the thesis or doctoral dissertation.

Students graduating with a graduate minor degree in Native American and Indigenous studies will be able to: 1) Make apparent in masters'-level research the interdisciplinary connections between Native American and Indigenous studies and the primary field of graduate study; 2) Integrate American Indian studies research methods with the research methods used in the primary field of graduate study; and 3) Demonstrate in writing the ability to understand a variety of subjects from a tribal perspective.

Native American and Indigenous Studies Minor

Students graduating with an undergraduate minor degree in NAIS will be able to: 1) Explain the concept of tribal sovereignty and how tribal sovereignty is both restricted and acknowledged by the federal trust relationship and by relationships with states; 2) Understand the development of modern tribal governments and their functions and importance in contemporary society; 3) Understand and appreciate the roles of history, culture, and politics in the development of tribal world views, world views that relate to modern life and contemporary issues of concern for

Native American and Indigenous peoples; 4) Identify historical, cultural, and political diversity and significance in Native oral traditions and written literatures; 5) Recognize stereotypes about Native American and Indigenous peoples and explain why these stereotypes were created and why they are sustained in modern society; and 6) Understand from the perspective of American Indian peoples, historical experiences and contemporary issues in North America.

Minor Requirements

The minor in Native American and Indigenous Studies requires 18 credit hours. Twelve credit hours must come from the following courses, three credit hours must be in either NAIS 1001 or NAIS 1350.

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2210 - North American Indians

Credits: 3

Comparative consideration of North American Indian culture areas at European contact period.

Cross Listed ANTH 2210.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

NAIS2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed ENGL 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA course.

- Plus six hours of NAIS elective courses

Neuroscience Minor

Neuroscience explores the nervous system structure and function. Electrical signaling of neurons provides the basis of our thoughts, perceptions, learning, movement, emotion, sleep-wakefulness, and behavior.

Additional Information

Minimum credit hours: 17. Courses counted towards one minor may NOT count towards a different minor. A grade of "C" or better is required in all coursework in the Neurosciences minor.

Required Courses

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

Elective Courses:

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

(ZOO 4735 sections must have a neurosciences aspect, consult your advisor for help selecting appropriate sections).

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed NEUR 4295.

Dual Listed ZOO 5295.

Prerequisite: ZOO 4280.

ZOO5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms are covered in addition to the basic neurophysiology of nerve cells. The laboratory complements the lecture sequence.

Cross Listed NEUR 5685.

Prerequisite: one course in physiology, chemistry, physics.

ZOO5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed NEUR 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

Painting Minor

The Painting Minor introduces students to the discipline of Painting in a 24 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

Studio Elective Courses in Painting: 9 Hours

Choose from 3000/4000-level painting courses including but not limited to:

ART3210 - Painting II

Credits: 3

Max Credit (Max. 6)

Investigates various painting techniques to create individual work. Emphasizes contemporary and classical treatment of formal, aesthetic and conceptual creative expression.

Prerequisite: ART 2000 and ART 2210.

ART4210 - Painting III

Credits: 3

Prerequisite: ART 2000 and ART 3210.

ART4220 - Painting Topics

Credits: 6

This is an advanced painting course that will cover specific painting approaches for an entire semester. Examples of topics can include Abstraction and color field, figuration, narrative painting, experimental painting media and surfaces, etc. This course will enable students to experience a more comprehensive and targeted set of painting problems for the semester. Topics will vary based on the instructor.

Prerequisite: ART 2000, ART 2210, ART 3210.

ART3250 - Watercolor Painting I

Credits: 3

Investigates watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 1130, 2000 and ART 2210.

ART4250 - Watercolor Painting II

Credits: 3

Advanced investigation of watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000 and ART 3250.

ART4655 - Outdoor Studio

Credits: 3

The emphasis in this course will be on the expressive nature of outdoor creative work. Students will need to be responsive to the natural environment through a variety of media, including watercolor, oil sticks, drawing, sculpture, photography, video, etc. This course involves travel and day trips to a variety of sites throughout the county and state.

Prerequisite: ART 2000.

ART3260 - Illustration I

Credits: 3

This is an introductory Illustration course. This primary class objective is to develop conceptual skills through a variety of media traditionally used in fine art illustration and a variety of illustration problems and projects. This class is

designed to further your interest in illustration and initiate portfolio development.

Prerequisite: ART 2000.

OR

ART4260 - Illustration II

Credits: 3

This is the second level Illustration course for students who have had ART 3350. Students will continue to develop conceptual skill in creating narrative illustrations for a variety of projects. The majority of the semester will be dedicated to developing a single project: Graphic Novelization or book illustrations. Students will be focusing on character development, narrative arc, and compelling imagery using materials appropriate for their project.

A&S College Core 2015 ASG

Prerequisite: ART 2000 and ART 3260.

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Philosophy Minor

Philosophy provides the critical thinking, logical reasoning, and innovative problem-solving skills necessary to be competitive in law, business, academia, tech, arts, and government. It also explores what it is to live a meaningful life outside a career.

Course Requirements

A minor in Philosophy requires a minimum of 18 hours (6 courses) of philosophy.

- Of the 18 hours, 12 hours must be at 3000-level or above.
- Of the 18 hours, the remaining 6 hours (2 courses) may be at any level.

Only courses in which a grade of C or better has been earned count toward the 18-hour requirement.

Photography Minor

The Photography Minor introduces students to the discipline of Photography in a 24 credit hour sequence.

Required Courses: 15 Hours

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

OR

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field

that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

Studio Elective Courses in Photography: 6 Hours

- Choose from 3000/4000-level photography courses

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Physics Minor

A minor in physics appeals to students who have an interest in physics but intend to pursue a degree in some other field.

Complete

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

At Least Two of the Following:

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 4210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

Additional Requirements

The physics minor provides students with the fundamental concepts of physics beyond the introductory level. Through rigorous hands-on experience, students deepen their understanding of foundational concepts and develop their quantitative skills.

Political Theory Minor

A minor in Political Theory offers an opportunity for interdisciplinary study.

Requirements

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

POLS4810 - Seminar in Political Philosophy

Credits: 3

Max Credit (Max. 6)

Seminar in Political Philosophy; Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 5810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

- 9 hours from an approved list of courses in political science and other disciplines, with a minimum of 6 hours at the 3000-level or above.

Approved Political Theory Minor Courses

POLS2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

POLS2490 - Topics In:

Credits: 1-3

Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/HIST 3050.

Prerequisite: WB or COM2.

POLS3610 - Classics in Environmental Thought

Credits: 3

Surveys classic texts in environmental thought from the nineteenth century through the present.

Prerequisite: POLS 1000.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS4090 - Anglo-American Jurisprudence

Credits: 3

Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 5090.

Prerequisite: 9 hours of political science or philosophy, including POLS 1000.

POLS4160 - Legal Philosophy

Credits: 3

This course examines the philosophies that undergird the law, considering both ancient and modern legal thought. Throughout the course, both historical and contemporary examples will be used to illustrate the salient differences between philosophical approaches, to better articulate our understanding of the law.

Dual Listed POLS 5160.
Prerequisite: POLS 1000.

POLS4640 - Political Philosophy: Ancient and Medieval

Credits: 3
Surveys political philosophy from Classical Greek period to Machiavelli.

Dual Listed POLS 5640.
Prerequisite: POLS 2460, or POLS 3600, or consent of the instructor.

POLS4650 - Political Philosophy: Modern

Credits: 3
Surveys political philosophy from Machiavelli through the 19th century.

Dual Listed POLS 5650.
Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS4660 - Political Philosophy: Contemporary

Credits: 3
Examines central developments in political philosophy that guide action in today's world.

Dual Listed POLS 5660.
Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS4710 - Topics in

Credits: 1-3
Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

POLS2200 - Politics of Europe and the European Union

Credits: 3
Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2
Prerequisite: POLS 1200 o r POLS 1250 o r permission of the instructor.

- SOC 3900 - Social Theory

Printmaking Minor

The Printmaking Minor introduces students to the discipline of Printmaking in a 24 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

OR

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

- An upper division drawing course beyond ART 1005

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

Studio Elective Courses in Printmaking: 9 Hours

- Choose from 3000/4000-level printmaking courses Credits: 9

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Professional Writing Minor

Focuses on the modes of written, oral, and digital communication that working professionals use in their fields. Courses address topics like grant-writing, writing for the web, and publication editing.

Requirements

Foundations Course: 3 Hours

ENGL2035 - Writing for Public Forums

Credits: 3

Introduction to professional writing that focuses on analyzing and producing texts designed to influence public opinion. Genres may include letters, editorials, web pages, pamphlets, e-mail, speeches, and position papers. Focuses on skills in collaboration and use of technology necessary for ethical, effective participation in public discourse.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: WA/COM1.

OR

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

Program Electives: 6 Hours

Take any 2 of the following courses:

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4020 - Editing for Publication

Credits: 3

Theory and practice of editing in the contexts of book, magazine, newspaper, and web-based publications. Standard editing practices for using grammar, proofreading marks, and computer editing tools.

Prerequisite: WA/COM1, WB/COM2 (ENGL 2035 and ENGL 3000 recommended).

ENGL4025 - Writing for the Web

Covers a variety of issues relevant for composing in the 21st century. As students learn to design and generate effective writing for a particular audience in a digital environment, they will also develop skills with advanced web and print research, basic HTML programming language, and standard web design software. Prerequisites: WB or COM2 and junior standing.

When Offered U3L, U3WC

USP 2003-2014 Code U5C3

Restricted Cannot be enrolled in one of the following Classes:

Freshman (FR)

ENGL4030 - Writing for Magazines

Credits: 3

Students write a variety of articles that would be appropriate for submission to a magazine. Feedback is given through class workshops and consultation with the instructor. Award-winning articles are read and discussed. The business aspect of magazine writing is also covered.

Prerequisite: COM1, COM2, and junior standing.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENGL4970 - Writing Internship

Credits: 3

Students work 6-8 hours per week as "writing interns" for a private business or public agency, performing specific writing/editing tasks for that client. Students are supported and enabled through a series of classroom sessions and individual meetings with the course instructor. Formal progress reports and a comprehensive final report are required.

Prerequisite: successful completion of ENGL 4010, ENGL 4020, or 4050.

Other Electives: 6 Hours

Courses from any discipline that relates to professional writing; consult with a Professional Writing Minor advisor.

Professional Writing Minor Capstone: 3 Hours

ENGL4000 - 21st Century Issues in Professional Writing

The capstone course in the professional writing minor and also satisfies the COM 3 USP requirement. This spring, we will spend some time constructing a theoretical framework geared toward understanding key issues in the study and practice of professional and technical communication. We'll start with some foundational material, looking at the role of rhetoric, design, and audience in increasingly digital professional writing spaces and then move to more focused study of ethics, visual rhetoric, and the impact of technology on professional communication, among other things. More traditionally academic (journal review) and professional (e.g., usability test and documentation) projects will range widely and include both individual and collaborative work done in different media for different audiences, some academic, some professional. Students will develop a final portfolio project at the end of the term.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Psychology Minor

Learn empirical approaches to understanding human behavior from biological, clinical, cognitive, developmental, neuroscientific, and social psychological perspectives. Develop skills in critical thinking, communication, and scientific research.

A minor in psychology requires 18 semester hours in psychology. These must include PSYC 1000 or equivalent and 9 hours at the 3000- level or above. A grade of C or better is required in all minor courses.

Students seeking a minor must have 12 hours exclusive to the minor and not used in the major.

Psychology, Minor in Aging Studies

Academic Standards:

At least 12 credit hours in a minor must be from courses that are not being counted toward the student's major. No grade below a C is acceptable for courses applied to the minor.

Background Check:

Students seeking the minor in Aging Studies will be required to obtain a background check. Please contact us for specific information.

Core Courses

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

PSYC3400 - Community Resources for Older Adults

Credits: 3

The purpose of this course is to raise student awareness of the needs of older adults in the community and to evaluate the continuum of long-term care resources available, service gaps, program models, and funding mechanisms. Community-based learning is required.

Prerequisite: FCSC 2110 or PSYC 1000

PSYC4970 - Aging Minor Internship

Credits: 1-6

This course provides students in the Aging Studies Minor the opportunity to experience applied aspects of aging studies in a community setting. Prior to registration the student must work with the minor advisor and instructor to identify the internship setting and complete all required paperwork.

Prerequisite: Completion of all other degree requirements

Electives

(9 credits hours - 6 credits must be outside student major)

An interdisciplinary program, current approved courses are offered through the College of Agriculture, College of Arts and Sciences, and College of Health Sciences.

Public Law Minor

A minor in Public Law offers an opportunity for interdisciplinary study.

Requirements

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

- 9 hours from an approved list of courses in political science and other disciplines, with a minimum of 3 hours at the 3000-level or above.

Approved Public Law Minor Courses

POLS2490 - Topics In:

Credits: 1-3

Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

POLS4090 - Anglo-American Jurisprudence

Credits: 3

Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 5090.

Prerequisite: 9 hours of political science or philosophy, including POLS 1000.

POLS4160 - Legal Philosophy

Credits: 3

This course examines the philosophies that undergird the law, considering both ancient and modern legal thought. Throughout the course, both historical and contemporary examples will be used to illustrate the salient differences between philosophical approaches, to better articulate our understanding of the law.

Dual Listed POLS 5160.
Prerequisite: POLS 1000.

POLS4710 - Topics in

Credits: 1-3
Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

AGEC3400 - Agricultural Law

Credits: 3
Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)
USP 2003-2014 Code U3WB
Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

COJO4500 - Mass Communication Law

Credits: 3
Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

CRMJ2210 - Criminal Law

Credits: 3
Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

CRMJ3110 - Criminal Courts and Processes

Credits: 3
Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ4140 - Criminal Legal Procedure

Credits: 3

Examines the constitutional principles that safeguard the rights and liberties of criminal suspects and constrain police during the investigatory stages of the criminal justice process: arrest; search and seizure; interrogation; undercover operations; pretrial identification; and the exclusionary rule.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed SOC 4350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

OR

SOC4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed CRMJ 4350.

Dual Listed SOC 5350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

CRMJ4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 / GWST 5540 .

Dual Listed CRMJ 5540.

Prerequisite: ENGL 1080/WMST/GWST 1080 , WMST/GWST 2500 , WMST/SOC 3500, or CRMJ 2400/SOC 2400.

OR

GWST4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540.

When Offered (Offered every other year)

Prerequisite: ENGL 1080/GWST 1080, WMST/SOC 3500, or CRMJ 2400/SOC 2400 , WMST/GWST 2500

CRMJ4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed PSYC 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

OR

PSYC4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed CRMJ 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

Public Relations Minor

Public relations is a minor that can help you in numerous fields. It is foundational for learning how to promote your organization and build relationships with many different publics to the benefit of all involved.

Required: 12 Hours

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COJO3310 - Public Relations

Credits: 3

Studies how organizations can improve their relationships with their publics. Explores public opinion and how to research audiences. Explains different skills needed in the field, including its relationship to advertising and marketing.

Prerequisite: COMM 2100.

COJO4310 - Public Relations Techniques

Credits: 3

Practical application of public relations writing, planning and program implementation. Includes exercises in writing news releases, structuring news conferences and writing preliminary and formal public relations strategies. The plans also incorporate advertising and marketing segments for external publics, newsletter design, editing and interpersonal relations.

Prerequisite: COJO 3310.

Three of the Following: 9 Hours

COMM2400 - Introduction to Photography

Credits: 3

Basic course in still photography. Includes classroom demonstrations in techniques of camera use, composition, computer software, and use of photographs, especially for communication and journalism applications.

USP 2003-2014 Code U3CA

Former Course Number COJO 2400

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3300 - Advertising in the Media

Credits: 3

Studies fundamentals of copywriting in mediated communication. Provides information about the psychology of advertising, advertising appeals, strategy, and structure of ads and other marketing materials. Includes exercises in basic principles of copywriting for print, electronic and digital media.

Prerequisite: COMM 2100.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of

writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO4040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 5040.

Prerequisite: 9 hours of COJO coursework.

COJO4200 - Visual Communication

Credits: 3

The purpose of this course is to combine visual communication theory and application in order to enhance visual literacy and practical skills. Content includes analyzing visual messages, developing and producing visual messages, and understanding how audiences process and are affected by visual messages.

Dual Listed COJO 5200.

Prerequisite: 9 hours of COJO coursework.

COJO4230 - Special Topics in Mass Media

Credits: 1-3

Intensive study of problems and topics specific to the mass media, including print, broadcast, advertising, public relations, and the Internet. Course content varies and may include historical, legal, ethical, political, sociocultural, economic, and theoretical perspectives.

Dual Listed COJO 5230.

Former Course Number [4910]

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4250 - Advanced Organizational Communication

Credits: 3

Studies communication processes in political, educational, industrial, medical and nonprofit organizations. Emphasizes in-depth analysis of theories and methods of organizational research and practice.

COJO4530 - Web Design

Credits: 3

Addresses the theory and logistics of web design and online interactivity. Students will create and maintain a professional portfolio website that showcases their communication and design talents. It is applicable to journalism, public relations, advertising, marketing, photography, and any other media-related career path that uses new media.

Dual Listed COJO 5530.

Prerequisite: COMM 1000 and 9 hours in the department.

Total: 21 Hours

Queer Studies Graduate Minor

Immerses students in advanced theoretical, historical and contemporary issues related to sexuality. Upon completion, students will be able to analyze systemic exclusion/inclusion, conduct independent interdisciplinary analysis through a queer studies lens, and apply queer theory to practice.

Requirements

A graduate minor in Queer Studies requires the completion of 12 credit hours, including AMST 5430 - Queer Theory/ GWST 5430 - Queer Theory , a minimum of 6 hours at the 5000+ level, and a capstone experience or independent study. For committee-based degree programs with queer studies content, it is expected that the student will include one committee member from Queer Studies faculty.

Faculty Advisory

An interdisciplinary, independent Queer Studies committee advises the program on curriculum, scheduling and coordination. A faculty advisor is assigned to the student on declaration of the minor.

The faculty advisory committee for the minor includes:

- Rachel Watson, Director Queer Studies, Chemistry
- Ulrich Adelt, American Studies, African American & Diaspora Studies
- Ruth Olga Bjorkenwall, Politics, Public Affairs & International Studies
- Christine Boggs, Ellbogen Center for Teaching & Learning
- Catherine R. Connolly, Gender & Women's Studies
- Danielle Renee Cover, Law
- Michelle Jarman, Disability Studies, Gender & Women's Studies
- Barbara Ellen Logan, History
- Jamie Snyder, Criminal Justice & Sociology
- Lilia Soto, American Studies, Latino/a Studies
- Jennifer Tabler, Criminal Justice & Sociology

Please contact the program director, Rachel Watson (RWatson@uwo.edu), for more information.

Queer Studies Minor

Immerses students in theoretical, historical and contemporary issues related to sexuality. Upon completion, students will be able to analyze systemic exclusion/inclusion, conduct independent interdisciplinary analysis through a queer studies lens, and apply queer theory to practice.

Requirements

The Queer Studies minor requires the completion of 18 credit hours, including GWST 2000 - Introduction to LGBTQ/NS Studies and nine or more credits at the 3000-level or above. Each semester, students, in consultation with a queer studies advisor, will choose elective courses. A capstone project or internship is required but can be variable and determined in consultation with an advisor.

Faculty Advisory

An interdisciplinary, independent Queer Studies committee advises the program on curriculum, scheduling and coordination. A faculty advisor is assigned to the student on declaration of the minor.

The faculty advisory committee for the minor includes:

- Rachel Watson, Director Queer Studies, Chemistry
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- Michelle Jarman, Disability Studies, Gender & Women's Studies
- Barbara Ellen Logan, History
- Jamie Snyder, Criminal Justice & Sociology
- Lilia Soto, American Studies, Latino/a Studies
- Jennifer Tabler, Criminal Justice & Sociology

Please contact the program director, Rachel Watson (RWatson@uwyo.edu), for more information.

Religious Studies Minor

The Minor in Religious Studies requires eighteen hours of relevant courses, all with a grade of "C" or higher. These should consist of courses as set out below:

Relevant Courses: 18 Hours

RELI1000 - Introduction to Religion

Credits: 3

Introduces world religions and shared characteristics. Draws on various academic approaches to religion study, emphasizing similarities and differences among wide variety of religions.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI4000 - Theories of Religion

Credits: 3

Investigates different theories proposed to explain religion and methods used to investigate them. Pays primary attention to influential thinkers and theorists of the past century.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: RELI 1000, and 12 additional hours in Religious Studies, at least 6 of which must be at the 3000-level or above, junior standing.

- Twelve hours of courses focusing on issues in the study of religions, nine of which should be at the 3000 level or higher. Occasionally, courses on religion are taught by outside departments as one-time opportunities. Students may propose these for inclusion in the major to the Religious Studies Program Director

Sculpture Minor

The Sculpture Minor introduces students to the discipline of Sculpture in a 24 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

Studio Elective Courses in Sculpture: 9 Hours

Choose from the following:

ART3310 - Sculptural Practices: Cast Form I

Credits: 3

Max Credit (Max. 6)

This intermediate sculptural practices course explores a wide variety of mold-making and processes including cold-casting (paper/fabric/resin casting) and both non-ferrous (bronze and aluminum) and ferrous metal (cast iron) casting techniques. Assigned projects will allow students to engage in the production of finished cast sculpture. Extensive sketchbook, artist research, and critique participation is required.

When Offered (Offered fall semester)

Prerequisite: ART 2310 and 2000.

ART3320 - Sculptural Practices: Mixed Media I

Credits: 3

Max Credit (Max. 6)

This intermediate course explores mixed media processes in sculptural practices including soft sculpture fabrication with fabric and fiber, found object manipulation, and digital processes involving 3D printing and laser cutting. Assigned projects will engage students in the production of artwork related to the topic. Extensive sketchbook, artist research, and critique participation is expected.

When Offered (Normally offered fall semester of every other year)

Prerequisite: ART 2310 and ART 2000.

ART3330 - Sculptural Practices: Assembled Form I

Credits: 3

Max Credit (Max. 6)

Investigates constructed and assembled form as an essential means of sculptural expression. Emphasizes wood construction, assembled metals and mixed media. Utilizes general carpentry techniques, a variety of welding methods (oxyacetylene, arc, M. I. G. and T. I. G.) and other means of assembling materials. Includes investigation of concepts in assemblage and exposure to classic and contemporary forms of assembled sculpture.

When Offered (Offered spring semester)

Prerequisite: ART 2310 and ART 2000.

ART3345 - Sculptural Practices: Special Topics

Credits: 3

Max Credit (Max. 9)

This course addresses specific areas of contemporary sculptural practices such as: Installation, Video/Sound manipulation, kinetic sculpture, and figure modeling. Assigned projects will engage the students in production of artwork related to the topic. Extensive sketchbook work, artist research, and critique participation is expected.

Prerequisite: ART 2310 and ART 2000.

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Sociology Minor

Sociology is the study of the development, interaction, and behavior of organized human groups. Sociology provides powerful insights into the social processes that shape our lives, the problems we face, and the possibilities we can envision.

Requirements

The sociology minor requires a total of 18 sociology credits including SOC 1000. At least 9 of these 18 hours must be upper-division sociology credits.

Only grades of C or better can be counted toward the minor. Also, students seeking a minor must have 12 credit hours exclusive to the minor and not counted toward their major.

Spanish Minor

As a Spanish Minor, you will develop your speaking, listening, reading, writing, and presentational skills in Spanish. You will gain a better understanding of perspectives and experiences of Spanish speaking cultures.

Electives

- 18 hours of electives in Spanish at the 2000-level or above (excluding SPAN 2030).
- Elective courses include:

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed LTST 3080.

USP 2015 Code U5H

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

SPAN3200 - Spanish Culture and Civilization

Credits: 3

Studies the evolution of Spanish culture through its main artistic, sociological and intellectual expressions.

Prerequisite: SPAN 2040, SPAN 2140.

SPAN3220 - Spanish-American Cultures in Context

Credits: 3

Introduction to the Spanish-speaking cultures of Latin America and the United States through a historical overview and a focus on contemporary politics and culture.

Prerequisite: SPAN 2040 or SPAN 2140 or consent of instructor.

SPAN4070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 5070.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectical variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

Total: 18 Hours

Theatre Minor

Required Courses

*THEA 2150 is a prerequisite for THEA 3810

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1100 - Acting I

Credits: 3

Acting I introduces students to the study of the actor's process with an emphasis on analyzing, rehearsing and performing scenes in front of an audience. The student will be introduced to exercises which promote creative expression. Scene work and scoring will focus on contemporary realism.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Restricted Theater majors or permission of instructor

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

OR

THEA3810 - Scene Design I

Credits: 3

An in-depth study of idea development from script analysis through design conception using different types of theaters and source material. The design process will cover research, drawing, drafting, model making, and rendering.

Prerequisite: THEA 2150 and THEA 2220 or by permission of instructor.

OR

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

- Plus 3 hours of electives in Theatre and Dance (must be 4000 level or above)

Wildlife Fisheries Biology Management Minor

Course include theory and techniques involved in the management, conservation, and captive propagation of wildlife and fish populations. Includes both classroom and field experiences in a Rocky Mountain setting.

Wildlife Fisheries Biology Management minor - requirements

Requirements for the minor in wildlife fisheries biology management (WFBM) include a minimum of 18 credit hours. Courses counted towards one minor may not be counted towards another. A grade of C or better is required in all courses.

Required Courses

9 or 11 credit hours required from the following:

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

One (1) Course From:

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

OR

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

Elective Courses

Select three (3) of the following courses, one of which must have a laboratory component:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

Zoology Minor

Explore form, function, behavior, ecology, evolution and conservation of animals and hone analytical, writing, and research skills.

Zoology Minor - requirements

Requirements for the minor in zoology (ZOOL) include a minimum of 17 credit hours. Courses counted towards one minor may not be counted towards another. A grade of C or better is required in all courses.

Required Course

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Elective Courses

Select four (4) of the following courses, one of which must have a laboratory component:

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

Graduate

American Studies, M.A.

The American Studies M.A. is an interdisciplinary cultural studies professional development degree. M.A. graduates work in public settings, including historic preservation organizations, historic sites, museums, collections, and other non-profit organizations.

Information

Graduate Study

The American Studies M.A. is an interdisciplinary professional development degree in a committed learning community that builds on students' research interests, accomplishments, experiences, and career goals working with American cultural contexts past and present. After the M.A., our alums seek further professional specialization in law, education, writing, library and information science, and other fields; pursue Ph.D.'s in academic careers in American

Studies and other scholarly areas including ethnic studies, cultural geography, literature, religious studies, anthropology, history, ethnomusicology, among others; and work professionally in public settings, including historic preservation organizations, historic sites, museums, collections, and other non-profit, community or governmental organizations.

The M.A. is a 2-year program for students enrolled full-time, culminating in a major research project, either a "Plan A" thesis, or a "Plan B" non-thesis portfolio of work. We work frequently with part-time M.A. students to accommodate other demands on students' time. We encourage the development of emergent, innovative formats and project types as valuable contributions to contemporary American studies practice, relevant to a student's professional development plans.

Because American Studies is an international field with scholars all over the world, and the U.S. has significant impacts transnationally, M.A. Students from outside the U.S. are a regular part of our M.A. cohort, and we encourage our M.A. students to consider semester exchanges abroad. The Program also supports American Studies M.A. student and faculty participation in the annual biennial international conferences.

All M.A. students complete at least 15 credit hours in American Studies courses: 2 required theory and methods courses in the Program (AMST 5500 and AMST 5510), and 3 graduate seminars in American Studies. The remainder of coursework - 12 credits for those completing a thesis, or 15 credits for those completing non-thesis portfolios - can be drawn from graduate-level coursework in any area of study. Most of our M.A. students complete 1-3 credit internships as part of their coursework, in public or organizational sites in Laramie, elsewhere in Wyoming or the U.S., and occasionally abroad as well. M.A. students' paths through their programs of study are as varied as our students.

Program Learning Outcomes

Students graduating with an M.A. in American Studies integrate their educational backgrounds, research and professional interests, and coursework at the M.A. level inside and outside American Studies, in individual programs of study, to professionally engage American cultural production and communities in preparation for professional work or advanced graduate study. Students earning the M.A. in American Studies, either completing a thesis or pursuing the non-thesis Plan B project, are prepared to:

- Interpret a variety of objects significant to the study of American cultures, including words, narratives, images, material objects, communities, built environments, identities, cross-cultural and/or international perspectives, continuities and discontinuities with the past in a range of cultural settings.
- Demonstrate professional competence in writing and speaking in error-free expository prose, authoritative oral presentation, insightful use of relevant source material reflecting critical reading skill, prose style commensurate with professional responsibility, and prose content commensurate with professional responsibility.
- Produce professional research for a well-defined community (scholarly, public, or an appropriate combination), by identifying and using primary sources, building approaches from a relevant matrix of secondary sources, and understanding scholarly traditions within the field of American Studies that supports, expands, and connects research to professional goals.
- Make effective plans for advanced graduate study or professional employment by developing competencies listed above, including the opportunity to complete appropriate internship or field course work in an area of the student's professional plans.

Program Specific Admission Requirements

Those interested in graduate study are encouraged to contact the American Studies Program (307-766-3898 or amst@uwyo.edu) for more information.

Applicants to the M.A. program do not have to have prior majors in American Studies. The American Studies program does not require the GRE in applications to our M.A. program.

The application deadline for fall enrollment is March 1. A minimum of a 3.0 undergraduate cumulative GPA is required for admission. In addition to an application, please submit the following via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>):

1. Statement of Purpose
2. A significant writing sample (usually a seminar paper or, for those coming from technical fields, a major report) that demonstrates potential for graduate study
3. Three letters of recommendation that assess the student's academic and research abilities
3. Transcripts from all undergraduate institutions and graduate programs

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Financial Aid

The American Studies M.A. is generously supported by endowment funds that allow us to award significant financial aid to M.A. students enrolled full time, through teaching, research, or community organization assistantship placements, as well as scholarship support as appropriate for students' own M.A. research.

Program Specific Degree Requirements

Graduate student must successfully complete 30 hours (for Plan B non-thesis) or 31 hours (for Plan A thesis) of graduate credit including the following:

Required Courses

(3 credit hours) AMST 5500 with a grade of B or better

(3 credit hours) AMST 5510 with a grade of B or better

(9 credit hours) graduate (5000) level AMST courses

Additional Requirements

Plan A thesis:

(12 credit hours) of graduate (5000) level courses in any field

(4 credit hours) of AMST5960 - Thesis Research

Completion of a Master's Thesis

OR

Plan B non-thesis:

(15 credit hours) of graduate (5000) level courses in any field

Completion of a non-thesis project

Completion of exam

Anthropology, M.A.

M.A. students receive training in the four subfields of anthropology, complete original research, and develop skills which foster professionalism as related to their chosen field.

Plan A (Thesis)

Any M.A. student receiving a grade of C or less in two core classes will be expelled from the program.

If not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Core-Course Sequence

Completion, with a grade of "B" or better of a four core-course sequence. This sequence will consist of

ANTH5010 - 20th Century Anthropology Theory

Credits: 3

Examines major thinkers and schools of thought in anthropology of the 20th century. Emphasis is on cultural theory within the context of the four-field approach.

Prerequisite: graduate standing in anthropology.

ANTH5015 - Archaeological Theory and Method

Credits: 3

Introduces the students to past and present archaeological theories through a literature survey of most significant topics. Addresses questions, such as: How do archaeologists go about identifying and solving problems? What do they perceive to be problems? What is the logic of archaeological arguments?

Dual Listed ANTH 4015.

Prerequisite: ANTH 1200, ANTH 1300, ANTH 3310, and at least one 4000 regional course.

ANTH5020 - Biological Anthropology

Credits: 3

Offers a graduate level overview of biological anthropology. Beginning with the history of relevant areas of human biology, provides extensive discussion of such areas as paleoanthropology, primatology, and human variation. Also includes detailed theoretical examinations of topics within hominid evolution, the concept of race and sociobiology.

Prerequisite: first year anthropology graduate student standing.

ANTH5030 - Linguistic Anthropology

Credits: 3

Demonstrates interrelationships between language, human biology, and culture. In particular, the relevance of the study of language to biological anthropology, archaeology, and cultural anthropology is emphasized. Examines classic approaches in anthropological linguistics and recent controversies such as the origin of language in human evolution.

First semester (Fall):

Students will submit form to the graduate advisor and department head identifying their thesis advisor BEFORE the graduate assistant allocation meeting (mid-late November).

Second semester (Spring):

Students will work with their advisor to select their committee, which must be formed and on-file in the department office by the end of the semester. During the core classes' final exam periods, students give a presentation to departmental faculty which outlines the general ideas for their proposed thesis.

Second semester research presentations are assessed by all department faculty in attendance at the presentation and evaluations will be given to the student's advisors. It is expected that students will work closely with their advisors to rectify any problems before they complete their thesis prospectus in the third semester.

Third semester (Fall):

Working closely with their advisor and committee, students complete a detailed prospectus and gain approval from thesis committee for MA thesis topic.

Fourth semester (Spring):

Thesis is completed and is approved by thesis committee.

Plan B (Non-Thesis)

All requirements for a Plan A except thesis, if not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Anthropology, Ph.D.

Provides students with training so to achieve academic or non-academic career goals. Students have a dissertation experience that results in professional publication. They will also have practical experience that will promote movement into careers.

Program Requirements

Student maintains a portfolio which documents teaching, internship, and research experience.

Students are encouraged to present papers at professional conferences and submit articles for publication throughout their tenure as a student. After admission to candidacy, the student is expected to research, write, and defend a dissertation based on original research (up to 48 credit hours). Students may either submit a single dissertation or a series of integrated publishable articles (30-40 pages each). The student's committee must approve this choice and decide on the number, length and content of the articles at the same time, usually at the committee hearing prior to the preliminary exams. For the final submission of the dissertation, the student must also complete an introduction and conclusion to contextualize and synthesize the integrated articles.

A Minimum of Six Content Courses: 18 Hours

A minimum of six content courses (18 hours) chosen by the student in conjunction with the student's committee. These courses are normally completed in the first two years of the Ph.D. program. In addition to anthropology courses, the other 4000/5000-level courses outside of the department may be required by the committee or chosen by the student in consultation with their committee.

First or Second Year:

Two additional courses in their first or second year

ANTH5880 - Professionalism

Credits: 3

Provides an opportunity for the integration of graduate training and career choice. Examines issues of professionalism in the discipline ranging from ethical conduct to the research process and publication.

Prerequisite: admission to the doctoral program in anthropology.

ANTH5890 - Teaching Anthropology

Credits: 3

Anthropology is increasingly relevant to many audiences. Provides practical insight and examination of controversial anthropological concepts

Prerequisite: admission to the doctoral program in anthropology.

Teaching Experience

Teaching experience, including standalone courses, after completion of the first semester of ANTH5890 - Teaching Anthropology, as well as teaching assistance to UW faculty members.

Internship Experience Credits: 6-24 Hours

Participation in an approved internship experience (6-24 credit hours). Students pursue internships in state and federal agencies, museums, contract archaeology organizations, and other organizations that offer potential career experience.

Dissertation Proposal

Committee meeting and successful completion of a dissertation proposal.

Preliminary Exams

Preliminary exams take place after the completion of 18 hours of content courses. ANTH 5880, and Teaching and Learning in Anthropology (ANTH 5890, or other as designated), normally before the end of the second year. If a student does not receive a passing grade on the preliminary exam, it can be repeated once. Failure to pass the preliminary examination the second time results in termination from the anthropology program.

Highly Recommended

International experience is highly recommended but not required, e.g. pre-dissertation summer fieldwork.

Botany, M.S.

Requirements for this degree are 26 semester hours of courses approved by the student's committee plus four hours of BOT5960 - Thesis Research.

Botany, Ph.D.

In addition to the minimum requirements set forth in this Catalog, the Department of Botany may require that a student demonstrate skills in two peripheral areas. This decision is made for individual cases by the major professor and graduate committee. These could include foreign languages, statistics, or computer science. In some cases, additional skills may be required.

Chemistry, M.S.

The MS degree introduces students to critical thinking necessary to work independently in industrial settings & prepares you for a professional career. Provides classroom training, presentation & teaching skills along with professional development

Plan A (Thesis)

In addition to fulfilling the minimum university requirements, a student must take the Career Skills course (CHEM 5000) plus one 3 hour course in each of three of the four areas (inorganic, analytical, organic, and physical), excluding special topics and research courses. These courses must be graduate courses, 5000 and above.

One departmental seminar is required to be presented on the thesis research.

Take 9 Credits

A student may also take 9 credits of any combination of

CHEM5190 - Research in Inorganic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4110/5110.

CHEM5290 - Research in Analytical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 2230, CHEM 4507.

CHEM5390 - Research in Organic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 5320.

CHEM5590 - Research in Physical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4507.

CHEM5790 - Research in Biological Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: consent of instructor.

Additional Requirements

The M.S. committee consists of the student's major professor and two other members. The M.S. Committee is responsible for advising the candidate concerning course work and research. The M.S. Committee is also responsible for the final examination of the candidate. In addition to a thesis, the M.S. candidate is also required to present a departmental seminar on the thesis topic.

A student must take the Career Skills course (CHEM 5000) plus one three-hour course in each of three of the four areas (inorganic, analytical, organic, and physical), excluding

special topics and research courses. These courses must be graduate courses, 5000 and above. A student may also take nine credits of any combination of CHEM 5190, 5290, 5390, 5590, or 5790. One departmental seminar is required on the thesis research.

A student in a M.S. program who is in good standing with a grade point average equal to a B or greater may petition to transfer into the Ph.D. program upon approval of his/her M.S. committee and recommendation of the Graduate Committee.

Chemistry, Ph.D.

Our Ph.D. program is a research degree in advanced chemistry that prepares our students for careers in academia or as leaders in industry. A Master's degree is not required; students may enter directly into the Ph.D. program.

Students May Also Take

A student may also take 12 credits of any combination of

CHEM5190 - Research in Inorganic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4110/5110.

CHEM5290 - Research in Analytical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 2230, CHEM 4507.

CHEM5390 - Research in Organic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 5320.

CHEM5590 - Research in Physical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4507.

CHEM5790 - Research in Biological Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: consent of instructor.

Area Selected as a Major

In the area selected as a major, the student will take the following as a minimum:

Analytical

CHEM5250 - Advanced Chemical Instrumentation

Credits: 3

Introduces chemistry students to the basic elements of electronics. Specific topics include networks, passive and active filters, digital electronics, logic gates, counters, flip-flops, and converters. Second half of course introduces students to experimental design, pattern recognition, factorial analysis, and multivariate statistical methods.

Prerequisite: CHEM 4230 or its equivalent.

- plus 9 hours of graduate level analytical courses

Inorganic

- 12 hours of graduate level inorganic courses

Organic

CHEM5320 - Spectroscopic Methods of Structure Determination

Credits: 3

Provides theoretical and practical treatment of spectroscopic methods for application in research. Topics include ultraviolet, infrared, and nuclear magnetic resonance spectroscopy and mass spectrometry.

Prerequisite: CHEM 2440, CHEM 4507.

CHEM5330 - Advanced Organic Chemistry

Credits: 3

Treatment of organic chemistry from the viewpoints of structure and mechanism with emphasis on structural theory of bonding, stereochemistry and the general classes of organic reactions.

Prerequisite: CHEM 2440 and CHEM 4507.

CHEM5340 - Synthetic Methods in Organic Chemistry

Credits: 3

Surveys and applies the important synthetic methods of organic chemistry with particular attention to recent developments.

Prerequisite: CHEM 5330.

- CHEM 5350

Physical

- any three graduate level physical chemistry courses

Additional Requirements

In addition to fulfilling the minimum university requirements, a student must take the Career Skills course (CHEM 5000) plus one 3 hour graduate course (5000 and above) in each of the four areas (inorganic, analytical, organic, and physical), excluding special topics, tool courses CHEM 5130, CHEM 5320, CHEM 5760, and research courses.

A student may also take 12 credits of any combination of CHEM 5190, 5290, 5390, 5590, or 5790.

Students must obtain satisfactory performance on a series of written major field cumulative examinations, including special topics.

Students must obtain satisfactory performance on a preliminary examination, part written and part oral.

Students must present a seminar based on the dissertation research. Students must also obtain one additional credit of 5000 by presenting a divisional or departmental seminar or an oral presentation at a regional or national research meeting. In addition, students must make one presentation at the annual University of Wyoming Graduate School Symposium.

Communication, M.A.

Administered by the Director of Graduate Studies, the programs are structured to facilitate completion of requirements for the M.A. degree in two years. Deficiency makeups may be required.

Research Thesis: 31 Hours

31 hour program.

Students must complete an accepted research thesis approved by the student's thesis committee.

Students must complete a minimum of 27 credit hours and 4 hours of thesis credit. A minimum of 24 hours must be within the department, with a maximum of 6 hours of independent study, 3 hours of internship credit hours, and 3 hours of 4000-level coursework.

Students Must Complete

COJO5070 - Quantitative Research Methods

Credits: 3

Design, implementation, and examination of research questions in communication with quantitative, social scientific methodologies. Attention primarily on survey design, experimental design, and quantitative content analysis. Analysis of quantitative data with statistical programs. Theories and ethical issues with quantitative research. Design and implement a quantitative study start to finish.

Prerequisite: graduate standing.

COJO5080 - Qualitative Research Methods

Credits: 3

Students study principles and issues associated with qualitative methods used in communication and media research. The class explores methods that use interpersonal communication and observation as tools for data collection and explores methods that analyze media content from a critical and qualitative perspective.

Prerequisite: graduate standing.

COJO5800 - Foundations of Communication and Journalism

Credits: 3

Examines current issues and trends in the various areas of communication and journalism that are represented within the department. Students analyze the historical roots of these issues and trends as a way of understanding the present context and future evolution of communication and journalism scholarship.

Prerequisite: first year of graduate study and acceptance into the COJO graduate program.

One of the Following Theory Courses:

COJO5061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 5061.

Dual Listed COJO 4061.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

COJO5310 - Seminar in Mass Communications

Credits: 3

The study of contemporary, historical, critical and behavioral theories of mass communication processes. Attention primarily on the social functions performed by mediated messages.

Prerequisite: graduate standing.

COJO5540 - Seminar in Communication Theory

Credits: 3

An intensive examination of various metatheoretical assumptions and theoretical models used in the study of communicative dynamics.

Prerequisite: graduate standing.

Professional Project: 33 Hours

33 hour program.

Students must complete an accepted professional project (e.g., documentary film, public relations and marketing plan, website) approved by the student's graduate committee. Students who chose the project option will be required to take 30 credit hours plus 3 hours of Graduate Project credits (for a total of 33 credit hours). A minimum of 27 hours must be taken within the department, with a maximum of 6 hours of independent study, 3 hours of internship credit hours, and 6 hours of 4000-level coursework.

Students Must Complete

COJO5070 - Quantitative Research Methods

Credits: 3

Design, implementation, and examination of research questions in communication with quantitative, social scientific methodologies. Attention primarily on survey design, experimental design, and quantitative content analysis. Analysis of quantitative data with statistical programs. Theories and ethical issues with quantitative research. Design and implement a quantitative study start to finish.

Prerequisite: graduate standing.

COJO5080 - Qualitative Research Methods

Credits: 3

Students study principles and issues associated with qualitative methods used in communication and media research. The class explores methods that use interpersonal communication and observation as tools for data collection and explores methods that analyze media content from a critical and qualitative perspective.

Prerequisite: graduate standing.

COJO5800 - Foundations of Communication and Journalism

Credits: 3

Examines current issues and trends in the various areas of communication and journalism that are represented within the department. Students analyze the historical roots of these issues and trends as a way of understanding the present context and future evolution of communication and journalism scholarship.

Prerequisite: first year of graduate study and acceptance into the COJO graduate program.

One of the Following Theory Courses:

COJO5061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 5061.

Dual Listed COJO 4061.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

COJO5310 - Seminar in Mass Communications

Credits: 3

The study of contemporary, historical, critical and behavioral theories of mass communication processes. Attention primarily on the social functions performed by mediated messages.

Prerequisite: graduate standing.

COJO5540 - Seminar in Communication Theory

Credits: 3

An intensive examination of various metatheoretical assumptions and theoretical models used in the study of communicative dynamics.

Prerequisite: graduate standing.

Creative Writing, M.F.A.

This fully-funded MFA program is dedicated entirely to prose. We teach a wide range of courses in fiction, nonfiction, and hybrid forms. We offer award-winning faculty and prepare graduates to release books with prominent commercial and small-press publishers.

Additional Information

M.F.A. students follow the guidelines for a Plan A thesis. Only those courses in which a grade of B or better has been earned may be applied to the graduate program of study. All courses must be taken for a grade unless offered for S/U only. No graduate credit is allowed for grades S and U.

The cumulative GPA must be at least 3.000 to receive a degree. Courses below 4000-level will not count toward the degree nor will they be figured in the GPA, although they will appear on the transcript.

A minimum of four Workshops (CW 5560) and/or Creative Writing Seminars (CW 5540) must be taken. These may be in any combination to reach the four-course total, typically for a total of 12-16 credit hours. We require a cross-genre component in that mix of courses.

Requirements

- Elective courses (typically taken for a total of 18 credit hours)

ENGL5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 4)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ENGL5010 - Rhetoric and Composition: History, Theory, Practice

Credits: 1-4
Max Credit (Max. 4)

Prepares graduate students to teach college composition and rhetoric at UW and beyond, with attention to the intellectual traditions that inform our writing program's pedagogy. It examines the theories that support informed writing instruction and offers classroom strategies that may be applied to any course in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

- Other electives: free to be taken in any UW program or department across campus
- Thesis Hours (5960): 4 credit hours

Total Credits: 36 Hours (Minimum)

Total credit hours must be a minimum of 36.

Criminal Justice Concentration within the M.P.A.

The Master of Public Administration Program with Criminal Justice Concentration is a professional degree designed for current and future leaders in the criminal justice field.

Plan B (Non-Thesis)

A criminal justice concentration within the master of public administration program is offered by the Criminal Justice program. Students wishing to enroll in the M.P.A. with criminal justice concentration must first be admitted into the M.P.A. program. See M.P.A. program admissions requirements for specific details.

The M.P.A. with criminal justice concentration curriculum consists of 39 credits including: 24 hours of core credit; criminal justice (4) courses; and one additional approved elective course. Students may complete the degree within two years full-time or approximately three-four years part-time. Courses are offered through distance education, which allows students to complete their degree in their community while working full-time.

Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/ electronic class discussion.

Students must maintain a graduate GPA of 3.000.

MPA Required Core Courses

POLS5000 - Survey of Public Administration

Credits: 3

Designed to introduce the beginning graduate student to the study and practice of public administration at all levels of government. Attention is also directed to specific functions and processes such as intergovernmental relations, budgeting, personnel, and regulation.

Prerequisite: graduate status and consent of instructor.

POLS5400 - Public Personnel Management

Credits: 3

Designed to integrate information about the political environment of personnel administration with problem solving exercises in such specific areas as job analysis, affirmative action, and flextime. A number of topics including the evolution of the civil service, the rights and responsibilities of governmental employees, the functions of public personnel management, and collective bargaining processes are also covered.

Prerequisite: POLS 5000.

POLS5410 - Administrative Behavior and Theory of Organization

Credits: 3

An advanced course in the theory of organization and the workings of public agencies.

Prerequisite: POLS 5000.

POLS5440 - Principles and Processes of Government Budgeting

Credits: 3

Analyzes the principles, processes and politics of the budgetary process in the U. S. It examines the various theories of budgetary decision-making, the politics of budgeting and budgetary reforms.

Prerequisite: POLS 5000 and graduate standing.

POLS5480 - Ethics In Government

Credits: 3

The student is introduced to the ethical nature and dilemmas of public administration in American constitutional

government. Such topics are addressed as source of ethical obligation, role of loyalty, application of moral philosophy, constitutional theory and ethical obligation, relation of theory and practice, and methods of ethical reflection.

Prerequisite: POLS 5000.

POLS5510 - Public Policy and Program Management

Credits: 3

An overview of governmental policy making processes in the U. S and the uses of applied policy analysis.

Prerequisite: POLS 5000.

POLS5684 - Empirical Analysis for Public Administration

Credits: 3

Designed for students in public administration to train them to make decisions based on empirical evidence in policy and management. Course draws concepts from system analysis, management science, operations research, and social science methodology to provide an understanding of various policy analysis and program management techniques across many applications.

Prerequisite: POLS 5000.

POLS5690 - Capstone in Public Management

Credits: 3

Integrates theories and concepts introduced in core and option-core courses, and emphasizes students' application of them to various administrative settings.

Prerequisite: completion of all other core and option core requirements in the MPA Program.

Criminal Justice Concentration Courses

Required Criminal Justice Concentration Courses

CRMJ5000 - Survey of Criminal Justice

Credits: 3

Provides an overview of criminal justice theory by providing critical evaluation and discussion of research in the criminal justice field. It will emphasize seminal works and review current research concerning the structure, function, operation, interaction of the criminal justice system's primary components, and future trends.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5100 - Public Policy and Crime

Credits: 3

This course is designed to take a multidimensional look at public policy issues related to the prevention and control of crime in the United States. Issues covered include the development, implementation, and evaluation of crime control policy.

Prerequisite: Admission to the MPA Program or consent of instructor.

Elective Criminal Justice Concentration Courses

*Students with little or no administration and/or criminal justice professional experience must enroll in CRMJ 5500 as one of their electives.

(students must select two of the following courses)

CRMJ5151 - Crime Causation

Credits: 3

Examines the causal mechanisms that produce crime. Theoretical perspectives and empirical research from various disciplines will be evaluated, with particular emphasis placed on social factors that may cause crime. Policy implications of the different perspectives will be discussed.

Dual Listed CRMJ 4151.

Prerequisite: graduate standing or consent of instructor.

CRMJ5280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 4280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: graduate standing.

CRMJ5500 - Internship in Criminal Justice

Credits: 3

Educationally-oriented assignments for work in selected criminal justice agencies, with tutorial types of supervision.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis

will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 4860.

Prerequisite: graduate standing or consent of the instructor.

Approved Elective Credit

One additional approved MPA elective course is required. For additional options, contact the MPA director.

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS5051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

CNSL5060 - Counseling Ethics and Professional Issues

Credits: 3

Designed to provide students with a philosophical base for making ethical decisions in the professional situations they encounter. In addition, it involves a chance to discuss many specific ethical and professional issues that are commonly encountered in the profession.

Prerequisite: program admission or consent of instructor.

STAT5220 - Advanced Design

Credits: 3

Advanced study of experimental designs, observational designs, and mixed models. Topics include fixed and random effects, factorial, split-plot and repeated measures designs, and hierarchical models. Linear model methodology and Data Science concepts will also be emphasized.

Prerequisite: MATH 5265/STAT 4265/STAT 5265, and at least one of STAT 4015/STAT 5015, STAT 4025/STAT 5025, or STAT 5210.

POLS5420 - Seminar In Public Administration

Credits: 3

Max Credit (Max. 6)

A reading and research course in selected topics in public administration.

Dual Listed POLS 4420.

Prerequisite: POLS 1000 and consent of instructor.

POLS5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 5445.

Dual Listed POLS 4445.

Prerequisite: 9 hours of international studies or social science coursework

POLS5450 - Administrative Regulation

Credits: 3

Significant points of contact between government and business are stressed. Government activities designed to regulate and aid such economic interests as business, labor, agriculture, and consumers are dealt with at length.

Prerequisite: POLS 5000.

POLS5460 - Public Administration and Law

Credits: 3

Focuses on various facets of the relationship between American public administration and law. Emphasis is placed on the emerging body of administrative law as a context for jurisprudential reasoning in administrative decision making.

Prerequisite: POLS 5000.

POLS5465 - Survey of the Nonprofit Sector

Credits: 3

This foundational course is designed to give students of diverse backgrounds a common framework for understanding the nonprofit sector in the United States and globally. Students in this course will identify and interpret key theories, issues, and challenges in the nonprofit world and will consider the implications for practice.

Dual Listed POLS 4465.

Prerequisite: graduate standing.

POLS5500 - Internship in Public Administration

Credits: 1-6

Max Credit (Max. 6)

Educationally-oriented assignments for work in selected public agencies, with tutorial types of supervision.

Prerequisite: consent of instructor.

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

POLS5530 - USCongress

Credits: 3

Analyze aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 4430

Prerequisite: POLS 1000.

POLS5540 - Public Policy Perspectives

Credits: 3

Acquaints students with the underlying structure and dynamics of public policy formulation, implementation, and evaluation at the state, local, and federal levels. Drawing on a number of analytic approaches, the course seeks to understand this complex political phenomenon in the context of the institutions that drive it.

Prerequisite: graduate standing.

POLS5600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Dual Listed POLS 4600.

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS5685 - Program Evaluation and Policy Analysis

Credits: 3

Explores techniques for analyzing and evaluating public policy choices and impacts.

Dual Listed POLS 4685.

Prerequisite: STAT 5070 or equivalent and an introductory research methods course in social science or related discipline.

POLS5710 - Topics In Political Science

Credits: 1-3

Max Credit (Max. 9)

Intended to accommodate various specialized subjects not offered as regular courses.

Prerequisite: graduate standing.

POLS5810 - Seminar in Political Philosophy

Credits: 3

Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 4810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

English, M.A.

Advanced graduate study in English Studies. Students can select from one of three tracks: literary studies; rhetoric, composition, and writing studies; or public humanities.

Required Courses

The following courses are required for all concentrations:

ENGL5010 - Rhetoric and Composition: History, Theory, Practice

Credits: 1-4

Max Credit (Max. 4)

Prepares graduate students to teach college composition and rhetoric at UW and beyond, with attention to the intellectual traditions that inform our writing program's pedagogy. It examines the theories that support informed writing instruction and offers classroom strategies that may be applied to any course in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5530 - Modern Critical Theory and Practice

Credits: 1-4

Max Credit (Max. 4)

Major trends in modern poetics and practical criticism.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ENGL5964 - Thesis Writing Workshop

Designed for students who have reached an advanced stage in the writing of the thesis. Provides targeted, personalized support from peers during the research and writing process and runs concurrently with ENGL 5965.

Prerequisite: ENGL 5960 and enrollment in a graduate degree program

ENGL5965 - Thesis Research II

Credits: 1-3
Max Credit (Max. 3)

Designed for students who have reached an advanced stage in the writing of the thesis. Also to inform students of professional genres and practices as well as academic and non-academic careers following the MA degree.

USP 2015 Code U5H

Prerequisite: ENGL 5960 and enrollment in a graduate degree program.

Electives

Additional coursework can be taken from the following courses.

ENGL5000 - Studies In:

Credits: 1-8
Max Credit (Max. 8)

Provides an opportunity for specialized seminar approaches to subjects in literature.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5020 - Public-Facing English Studies

Credits: 1-4
Max Credit (Max. 8)

Introduction to the history and theory of public intellectualism and English studies. Students develop theoretical and practical knowledge and explore alternative applications for academic research for publics beyond the classroom.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5050 - Writing in Public Genres

Credits: 1-4
Max Credit (Max. 8)

Intensive introduction to public-facing writing in English subject areas, including articles, book reviews, think pieces, TED talks, podcasts, and other genres of commentary associated with public intellectual work in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5055 - Narrative and Storytelling

Credits: 1-4
Max Credit 8

Exploration of the structure and use of narrative, stories, and/or storytelling from a variety of theoretical and disciplinary perspectives. Considers how narrative materials function as foundational to meaning making and to community building.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5061 - Rhetorical Theory and Criticism

Credits: 1-4
Max Credit (Max. 8)

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music, and film.

Cross Listed COJO 5061.

Dual Listed ENGL 4061.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5062 - Ancient Rhetorics

Credits: 1-4
Max Credit 8

Investigates contemporary problems in composition and rhetorical studies, as they are played out through ancient texts on composing and rhetoric. Course will focus on how ancient texts are enlisted in current debates/concerns over pedagogy, ethics, change, subjectivity, agency, and the social.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5063 - Feminist Rhetorics

Credits: 1-4
Max Credit 8

Analysis of influential women speakers and writers over time. Course focuses on how feminists construct arguments, frame objects of analysis, energize social justice movements, and theorize sex/gender/sexuality in relation to race, class, democracy, and suffrage. Course may include special focus on Wyoming women and suffrage.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5070 - Qualitative Methods in English

Credits: 1-4
Max Credit (Max. 8)

Advanced introduction to qualitative research methods in English and Rhetoric. Students will survey different types of qualitative methods and will learn to evaluate qualitative projects. Includes an emphasis on working with human participants and on ethics.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5071 - Qualitative Analysis

Credits: 1-4
Max Credit (Max 8)

Examination and application of different ways of making knowledge in English studies. Develops understanding of links among theory, methodology, and methods, and engages students in data analysis and evaluation of interpretive moves. "Texts" can encompass a range of artifacts, from print to video games to nonverbal behaviors.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5072 - Topics in Technical Writing

Credits: 1-4
Max Credit 8

Seminar course on one or more topics in technical communication research, theory, or industry practice. Topics may include user experience methods, women in technical communication, activity theory, ethics and technology, information design, narrative practices, workplace cultures, and technical communication and social justice.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5073 - Topics in Rhet-Comp & Tech-Com

Credits: 1-4
Max Credit 8

Seminar on key theories and foundational research in technical and professional communication. Introduces students to pedagogical approaches, topics, and tools suitable for teaching and administering undergraduate technical and professional communication courses and programs.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5074 - Studies in Civic Discourse

Credits: 1-4
Max Credit 8

Seminar focusing on communication in the public sphere. Considers definition of public(s), both terrestrial and online, and the forming of publics and counter-publics. Focuses on rhetorical needs of audiences and may include primary research or partnering with local organizations.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5075 - Non-Profit Writing and Grants

Credits: 1-4
Max Credit (Max. 8)

Non-profit writing from a rhetorical perspective. Students analyze different kinds of non-profit communication, including fundraising, mission development, social media. Participate in grant proposal development or other organizational communication activity.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5220 - Studies in Medieval Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar course in selected genres, figures, and themes in Medieval English literature.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5230 - Studies in English Renaissance Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in selected genres, figures, and themes of the sixteenth and early seventeenth centuries.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5250 - Studies in Shakespeare

Credits: 1-4
Max Credit (Max. 8)

To provide advanced students with the opportunity to study problems of text, sources, staging, theatrical history, and/or critical theory with reference to the works of William Shakespeare.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5270 - Studies in 18c English Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in selected genres, figures, and themes of restoration and eighteenth century English literature.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5280 - Studies in 19c English Literature

Credits: 1-4
Max Credit (Max. 4)

A seminar in selected genres, figures, and themes of the romantic and Victorian periods.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5290 - Studies in 20c English Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in significant writers of poetry, drama, fiction, and biography from the end of the nineteenth century to the present.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5310 - Early American Literature

Credits: 4
Seminar designed to acquaint graduate students with selected texts from the colonial period to 1800, relevant secondary works, and scholarly methods.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5320 - Studies in 19c American Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar designed to acquaint graduate students with selected principal works of American literature, relevant secondary works, and scholarly method.

Prerequisite: graduate status of 12 hours or 4000-level work.

ENGL5330 - Studies in 20c American Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in selected significant writers of poetry, drama, and prose from the end of the nineteenth century to the present.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5340 - Intellectual Currents in Modern American Literature

Credits: 1-4
Max Credit (Max. 4)

Devoted to the study of writers such as Marx and Freud and more recent American writers.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5350 - Global Literatures in English

Credits: 1-4
Max Credit (Max. 8)

Examines significant texts, authors, cultural and historical contexts, and literary and theoretical movements in postcolonial or global literatures. May involve comparative study or may be focused on a single country context.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5355 - Global Englishes

Credits: 1-4
Max Credit 8

Advanced investigation of the spread of English as the lingua franca for business, technology, research, education, and popular culture around the world. Does the spread create cross-cultural communication or intensify global economic inequality? This course explores global Englishes in their historical and present contexts, engaging the fields of linguistics, sociolinguistics, postcolonial studies, and English language teaching.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5360 - Literatures of Diversity

Credits: 1-4
Max Credit (Max. 8)

A study of literature and culture of selected minority or marginalized communities.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5455 - Slavery and Freedom

Credits: 1-4
Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 5455.

Dual Listed ENGL 4455.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5520 - History of Literacy Criticism: Enlightenment and 19th Century

Credits: 4
Historical survey of the mainstream of European literary criticism, including the critics of antiquity and the Renaissance.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5600 - Research in Writing Studies

Credits: 1-4
Max Credit 8

Introductory graduate seminar on research methods in writing studies. Course culminates in an individual research project of professional quality. Course studies books and articles that students identify as particularly powerful examples in order to understand what research is and ways to conduct such research efficiently and ethically.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3
An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed GWST 5830.

Dual Listed ENGL 4830.

Prerequisite: ART 2020, GWST 1080, ENGL 1080.

ENGL5835 - Writing Program Administration

Credits: 1-4
Max Credit 8

Seminar introduction to the field of writing program administration. Recognizing that not all universities are research institutions with large numbers of graduate students, this course approaches administration broadly, considering not only the traditional WPA, but other types of WPA work, including research, program building, developing intra-institutional relationships, and more.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5880 - Studies in Modern Fiction

Credits: 4

A study of modern fiction, examining theory and practice, and covering works of English, European, and American origin.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5885 - Studies in Popular Culture

Credits: 1-4
Max Credit 8

An interdisciplinary seminar in which students analyze and apply theories and methodologies from multiple disciplines to the study of selected texts, figures, media, and themes of popular culture.

ENGL5890 - Consumption, Markets, Cultures

Credits: 1-4
Max Credit (Max. 8)

An interdisciplinary investigation of the ways in which cultural venues curate and market stories, history, and texts. Analyzes and applies theories and methodologies from literary and cultural tourism studies, as well as marketing and consumer culture, to museums, performances, tourist sites and theme parks. This class will include hands-on field research.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 4)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ENGL5975 - Independent Studies

Credits: 1-4
Max Credit (Max. 6)

Independent study and research experience in a given topic, person, or movement in literature at an advanced level.

Prerequisite: permission of chair; graduate standing.

Additional Requirements

The concentration insures coherence in each student's graduate program; breadth is insured by a distribution of courses. Much of each student's program is taken in courses outside the concentration.

Literary Studies. Working from a variety of perspectives, this concentration focuses on the study of literature and of other culturally significant texts and materials, including, for example, film, oral materials, and political documents.

Rhetoric, Composition, and Writing Studies. This concentration emphasizes scholarship on the production of discourse, broadly conceived, and may include a focus on classical, contemporary, or cultural rhetoric; post-secondary writing pedagogy and program administration; community and adult literacy; or other subjects related to the field of writing studies.

Public Humanities. Designed for students who wish to pursue professions that may span beyond traditional academic work, this concentration prepares graduates for careers in civic, nonprofit, and community-based cultural organizations that engage the humanities, contribute to social reform, and promote the public good.

Minimum coursework required: 26 hours. Minimum thesis hours required: 4 hours See program website for course offerings in a given semester. All coursework must be at the 5000-level.

With approval of the graduate advisor, a student may take a maximum of three hours credit outside the department.

A reading list exam and a Plan A thesis with oral defense. Students may write a traditional thesis, or they may assemble a public-facing thesis portfolio. See program website for more details about thesis options. For information on the Plan B, consult with the program director.

Geology, M.S.

Plan A (Thesis)

(26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL5020 - Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geology must complete two semesters of GEOL 5200. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

Geology, Ph.D.

(42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

Completion of GEOL5020 - Fundamentals of Research is required during the first semester of residence.

All graduate students in Geology must complete two semesters of GEOL 5200. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

The Ph.D. dissertation and its defense are described in the regulations section of this *Catalog*. Specific department examination requirements are available from the department office. The candidate's committee is responsible for monitoring progress of the research, refereeing the written work, and administering the final examination.

Geology/Water Resources, M.S.

The purpose of this program is to formalize and broaden strong department offerings at the master of science level in ground water geology, natural waters geochemistry, mathematical hydrology, and fluvial geomorphology.

Admission Requirements

In addition to the department admission requirements, the undergraduate degree program earned by the incoming candidate must meet the minimum undergraduate requirements for the UW geology curriculum in mathematics, physics, and chemistry. The transcript should also demonstrate a strong background in physical geology.

Plan A Thesis Requirement

Only students with a Plan A thesis option are eligible. Students must follow the same program requirements as stated under Geology and Geophysics department section. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee.

Interdisciplinary Component

9 hours (see Water Resources degree requirements)

Coursework and Thesis

Each student must complete a minimum of 26 hours of graduate level coursework and a Plan A thesis. In addition, the following specific core courses are required for the master of science in geology/water resources and geophysics/water resources degrees.

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

One of the Following:

- GEOL 4830 - Introduction Quantitative Methods in Geology Credits: 3
OR

GEOL5050 - Introduction to Isotope Geology

Credits: 3

Understanding of atomic structure, radioactive decay, mass spectrometry, dating techniques and petrologic uses of isotopic systems. Emphasis will be placed on evaluating dating methods in relation to particular geologic problems and possible sources of error. The use of isotopes in defining magmatic sources and crustal contamination are discussed.

Prerequisite: CHEM 1020, CHEM 1110, MATH 2200, MATH 2205.

OR

GEOL4880 - Earth Surface Processes

Credits: 3

Quantitative interpretation of Earth's surface processes. Uses a quantitative approach to demonstrate how the development of landforms can be modeled.

Prerequisite: MATH 2205 (MATH 2210 preferred), PHYS 1210.

Technical/Water Quality Course

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

OR

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

Geophysics, M.S.

Plan A (Thesis)

(26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL5020 - Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geophysics must complete two semesters of GEOL 5210. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

M.S. candidates in geophysics must complete 6 hours of mathematics and three hours of physics or engineering courses at the graduate level.

M.S. candidates must take at least 12 hours of 4000- and 5000-level courses in geophysics. Recommended graduate level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

Geophysics, Ph.D.

(42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

All graduate students in geophysics must complete two semesters of GEOL 5210. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

Completion of GEOL5020 - Fundamentals of Research is required during the first semester of residence.

Ph.D. candidates in geophysics must complete at least 6 additional hours of graduate level coursework: 3 in mathematics and 3 in physics or engineering. Recommended graduate-level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering, they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Ph.D. candidates are required to take at least 12 hours of 5000-level geophysics courses exclusive of GEOL 5854. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

The Ph.D. dissertation and its defense are described in the regulations section of this *Catalog*. Specific department examination requirements are available from the department office. The candidate's committee is responsible for monitoring progress of the research, refereeing the written work, and administering the final examination.

Geophysics/Water Resources, M.S.

Admission Requirements

In addition to the department admission requirements, the undergraduate degree program earned by the incoming candidate must meet the minimum undergraduate requirements for the UW geology curriculum in mathematics, physics, and chemistry. The transcript should also demonstrate a strong background in physical geology.

Plan A Thesis Requirement

Only students with a Plan A thesis option are eligible. Students must follow the same program requirements as stated under Geology and Geophysics department section. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee.

Interdisciplinary Component

9 hours (see Water Resources degree requirements)

Coursework and Thesis

Each student must complete a minimum of 26 hours of graduate level coursework and a Plan A thesis. In addition, the following specific core courses are required for the master of science in geology/water resources and geophysics/water resources degrees.

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

One of the Following:

- GEOL 4830 - Introduction Quantitative Methods in Geology Credits: 3
OR

GEOL4880 - Earth Surface Processes

Credits: 3

Quantitative interpretation of Earth's surface processes. Uses a quantitative approach to demonstrate how the development of landforms can be modeled.

Prerequisite: MATH 2205 (MATH 2210 preferred), PHYS 1210.

OR

GEOL5050 - Introduction to Isotope Geology

Credits: 3

Understanding of atomic structure, radioactive decay, mass spectrometry, dating techniques and petrologic uses of isotropic systems. Emphasis will be placed on evaluating dating methods in relation to particular geologic problems and possible sources of error. The use of isotopes in defining magmatic sources and crustal contamination are discussed.

Prerequisite: CHEM 1020, CHEM 1110, MATH 2200, MATH 2205.

Technical/Water Quality Course

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

OR

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

History, M.A.

Wyoming's M.A. in history will open both professional and academic pathways. A student may pursue this degree as the final step in their educational journey or go on to pursue a doctoral degree and, eventually, a teaching or research position.

Program Specific Admission Requirements

General Regulations

The M.A. in History requires 18 hours of undergraduate history courses as minimum preparation for admission. The rules under which the student enters remain those governing the program for the duration of the student's continued enrollment. In accordance with university graduate regulations, students are responsible for meeting all deadlines and for fulfilling all requirements for the degree.

Application and Admissions

To be eligible for financial support in the form of a Graduate Assistantship, the Department of History must receive all materials by March 1. All other application materials must be received by the Department of History no later than May 1. The application process is now completely online. In addition to the application, applicants must upload the following documents via the UW Admissions website (www.uwyo.edu/admissions):

1. Three letters of recommendation that assess the student's academic and research abilities.
2. Transcripts from all undergraduate institutions and graduate programs.
3. A writing sample of 10-20 pages, typically either a portion of a senior thesis or an upper-level seminar paper.
4. A statement of purpose of 250-500 words, explaining the applicant's preparation, interests, and plans. Please indicate if you would like to be considered for a graduate assistantship.

Program Specific Graduate Assistantships

When applicants submit their materials to the program in History, they should indicate their wish to be considered for a Graduate Assistantship. Anyone receiving financial support must be registered as a full-time (9 hours per semester) student and must be making acceptable progress towards degree completion. Renewal of Graduate Assistantships is contingent on such progress. Support is not given for more than two academic years.

Requirements

Program Specific Degree Requirements for the History Master's Program are as follows:

Required Courses

Candidates for the Master of Arts degree are expected to complete the program in 2 years. Graduate Students are required to complete a minimum of 31 credit hours of graduate (5000) level courses. Students must complete 27 hours of coursework, of which at least 24 hours must be in History. Students will work with their advisor to plan the course of study that will include:

(3 credit hours) HIST5880 - History Theory

(12 credit hours) 5000-level, non-dual-listed courses in HIST (excluding HIST 5880)

(12 credit hours) Additional graduate-level course work, of which at least 9 credit hours must be in HIST courses.

(4 credit hours) HIST5960 - Thesis Research

Foreign Language

Students must demonstrate a reading knowledge of a foreign language appropriate to their research. In special cases, other relevant historical tools may substitute for the language requirement upon approval of the thesis adviser and the Graduate Coordinator. Generally, either of the following options may meet the language requirement:

- Passing a language exam administered by the Department of History. This must be completed by the end of the first year with the appropriate faculty.
- Completing the equivalent of the fourth semester of a language as offered at the University of Wyoming. All courses must be passed with a grade of C or better (may be taken pass/fail).

Thesis

- Graduate students will identify two "fields" of study, in consultation with their main advisor: one time/place field (such as Modern U.S. History), and one thematic field (such as Environmental History), both of which correspond to the student's thesis research.
- In the spring semester of the first year the student will publicly defend his/her thesis proposal, which must include a written research prospectus and bibliography.
- At the end of the second year the student will successfully defend the thesis before an approved Graduate Committee.

International Studies, M.A.

MA students will be able to pursue international, interdisciplinary research in order learn about global problems from a variety of historical, political, social, cultural, and economic perspectives.

Plan A (Thesis)

Students are encouraged to construct, with the adviser's approval, a program that focuses their own intellectual interests and career plans. To promote that end, students should be prepared to file a plan of study with the graduate adviser during the second semester of coursework.

No later than the second semester in residence, each student shall select a graduate committee to oversee his or her academic work. The committee will be chaired by the student's major professor and must have at least one member from outside of The School of Politics, Public Affairs, and International Studies. Students also will prepare a thesis proposal and give a presentation of their preliminary project before the International Studies faculty and complete a thesis prospectus defense with their graduate committee by the end of their second semester.

Students must pass an oral examination at the completion of their program. Normally, examination will center on the thesis, but may also encompass coursework of the candidate.

Required Coursework

Advanced Theory Course

INST5200 - Graduate Proseminar in International Studies

Credits: 3-6
Max Credit (Max. 6)

Introduces students to different interdisciplinary approaches - perspectives, theories, and paradigms - within International Studies in order to explain the economic, historical, social, cultural, and political dimensions of international processes and issues. Students explore emerging trends in the global system and the most pressing challenges facing states, societies, and peoples.

Prerequisite: graduate student status.

Research Methods Course

INST5400 - International Social Science Research Methods

Credits: 3

Introduces students to a wide variety of interdisciplinary social science methodologies that have proven especially conducive to international research.

Prerequisite: graduate standing.

Additional Information

Students take the Plan A (thesis). Students must have a minimum of 26 hours of graded non-thesis coursework and 4 hours of thesis.

Program Specific Admission Requirements

Admission is open to all students holding a bachelor's degree in any major. Foreign students, who are non-native English speakers, must pass the Oral Proficiency Interview (OPI).

Program Specific Degree Requirements

Master's Program

Students must meet three requirements:

1. Each student must take INST 5400.
2. Each student must take INST 5200.
3. Each student must demonstrate proficiency in a foreign language, accomplished in the course of the program or from previous experience or coursework. Foreign language hours do not count toward the M.A. degree.

The program also offers a joint International Studies/Environment and Natural Resources degree. See www.uwyo.edu/sppais for specific degree requirements.

Music Education, M.M.

Each of the degree programs consists of 30 semester hours of work composed of the following elements:

Plan A or Plan B

To earn a Master of Music Education, students must complete the following requirements:

Basic Music Core (11 Hours)

No more than 12 credits can be counted from 4000-level courses toward any graduate program of study.

MUSC5310 - Music Research Methods

Credits: 2

Prepares students to be knowledgeable consumers of music and interdisciplinary information. Topics include the musicology research process, information ethics, and critical analyses and integration of information sources into writing. Information literacy principles and research techniques equip students for both graduate-level music research and the post-graduate, professional world.

Prerequisite: graduate standing in music.

- Choose a total of at least THREE courses from the following (minimum 9 credits from the following two categories):
- **Upper-Division Music History** (3-6 Credits):

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin, viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC5320 - Advanced Seminar

Credits: 2-6

Max Credit (Max. 6)

Such topics as The Music of J. S. Bach, The Chamber Music of Mozart, and Contemporary Music will be pursued and will terminate in oral reports and a research paper.

Prerequisite: MUSC 5310.

- **Upper-Division Theory** (3-6 hours):

MUSC5035 - Advanced Theory

Credits: 3

To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combining historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

MUSC5340 - Advanced Composition

Credits: 1-4
Max Credit (Max. 6)

A project course to be conducted by individual appointment with the instructor. The result should be the production of a major work suitable for performance by one of the campus organizations. Evaluation is made by a faculty committee on completion and performance of the composition.

Prerequisite: 4 hours of MUSC 4040.

MUSC5350 - Advanced Analysis

Credits: 3
Consideration of the analytical techniques of Harder, Piston, and Schillinger for traditional music, of Hanson and Hindemith for modern tonal music, and of Schoenberg and Reti for serial music.

Prerequisite: graduate standing in music.

Major Area Courses (12-15 Hours)

EDRE5530 - Introduction To Research

Credits: 3
Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

MUSC5760 - Music Education Seminar

Credits: 2
A study and discussion of trends, objectives, and curricula of the various phases of music education.

MUSC5720 - Musical Supervision: Choral

Credits: 2
Examination of the administrative responsibilities of the music teacher, the music department chairman, and the district music supervisor in the public schools, as well as the responsibilities of a music festival chairman and officers of the state music educators association.

Prerequisite: graduate standing in music.

- Music education electives Credits: 5-8

Thesis Requirement (0-4 Hours)

Plan A

Four hours (the thesis must be on a music education topic)

MUSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Plan B

The thesis requirement may be fulfilled under the Plan B paper/lecture-recital as appropriate to the specific degree program. A proposal for a thesis or Plan B paper must be submitted to and approved by the student's graduate committee chair.

- Plan B paper, plus extra courses Credits: 0

Electives (4 to 7 Hours)

Require successful completion of the written comprehensive exams, which cover theory, history, and the major area.

Music Performance, M.M.

Each of the degree programs consists of 30 semester hours of work composed of the following elements

Plan B

To earn a Master of Music in Performance, students must complete the following requirements:

Basic Music Core (11 Hours Minimum)

No more than 12 credits can be counted from 4000-level courses toward any graduate program of study.

MUSC5310 - Music Research Methods

Credits: 2

Prepares students to be knowledgeable consumers of music and interdisciplinary information. Topics include the musicology research process, information ethics, and critical analyses and integration of information sources into writing. Information literacy principles and research techniques equip students for both graduate-level music research and the post-graduate, professional world.

Prerequisite: graduate standing in music.

- Choose a total of at least THREE courses from the following (minimum 9 credits from the following two categories):
- **Upper-Division Music History** (3-6 Credits):

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the

1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC5320 - Advanced Seminar

Credits: 2-6
Max Credit (Max. 6)

Such topics as The Music of J. S. Bach, The Chamber Music of Mozart, and Contemporary Music will be pursued and will terminate in oral reports and a research paper.

Prerequisite: MUSC 5310.

- **Upper-Division Theory** (3-6 hours):

MUSC5035 - Advanced Theory

Credits: 3
To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combing historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

MUSC5340 - Advanced Composition

Credits: 1-4
Max Credit (Max. 6)

A project course to be conducted by individual appointment with the instructor. The result should be the production of a major work suitable for performance by one of the campus organizations. Evaluation is made by a faculty committee on completion and performance of the composition.

Prerequisite: 4 hours of MUSC 4040.

MUSC5350 - Advanced Analysis

Credits: 3
Consideration of the analytical techniques of Harder, Piston, and Schillinger for traditional music, of Hanson and Hindemith for modern tonal music, and of Schoenberg and Reti for serial music.

Prerequisite: graduate standing in music.

Major Area Courses (16 Hours Minimum)

- MUSC 5480 - MUSC 5670 Private Lessons in major instrument or voice Credits: 8 minimum
- MUSC 5700 - MUSC 5890 Ensembles Credits: 2

MUSC5680 - Graduate Recital

Credits: 2

A recital, vocal or instrumental and consisting of selections of advanced difficulty in matters of technique and interpretation, is presented under the direction of a staff member. Quality and content of recital must be approved by a faculty committee one month before the recital date, and the faculty committee will determine the final grade.

Prerequisite: graduate standing in music and consent of instructor.

MUSC5390 - Performance Practice and Interpretation

Credits: 2

A study of the inherited traditions of correct interpretation and performance as related to the various style periods in music.

Prerequisite: graduate standing in music.

MUSC5320 - Advanced Seminar

Credits: 2-6

Max Credit (Max. 6)

Such topics as The Music of J. S. Bach, The Chamber Music of Mozart, and Contemporary Music will be pursued and will terminate in oral reports and a research paper.

Prerequisite: MUSC 5310.

- MUSC 4*** - Pedagogy (instrument specific) Credits: 2

Requirement In Lieu of Thesis

Plan B paper, or 1-hour lecture-recital

Foreign Language Requirement

(voice majors only). Singers must demonstrate acceptable proficiency in singing in Italian, German, French, and English.

Electives (0 to 3 hours)

Require successful completion of the written comprehensive exams, which cover theory, history, and the major area.

Philosophy, M.A.

Program Specific Degree Requirements

Plan A (Thesis)

31 hours of graduate credit

27 hours of graduate coursework

4 hours of thesis research

Proof of proficiency in formal logic (through first-order predicate logic with identity) by either passing the department's course (3420) or some other course judged to be its equivalent with a grade B or better or by completing a test with a grade B or better at the end of the second semester.

First year paper at the beginning of the third semester.

Defense of a thesis prospectus by the end of the third semester.

In any cases of deficiency, the department may require remedial work before admission to M.A. candidacy.

Physics, M.S.

Thesis planning, development, and production guided by the committee chair and graduate committee.

The University of Wyoming Master of Science in Physics program prepares students for a wide range of exciting physics-related careers

Requirements

Plan A (Thesis)

- 26 hours of graduate coursework, 20 of which must be in PHYS/ASTR at the 5000-level
- 4 hours of PHYS 5960

Plan B (Non-Thesis)

- 30 hours of graduate coursework, 24 of which must be in PHYS/ASTR at the 5000-level

Physics, M.S.T.

The Master of Science in Teaching is designed for graduate students preparing to teach in secondary schools or in community colleges. It includes a small, carefully designed component in psychology and education as well as a supervised teaching experience. This program will require a thesis project based on experience in the classroom.

Thesis planning, development, and production guided by the committee chair and graduate committee.

Requirements

Plan A (Thesis)

- 18 hours from PHYS/ASTR at the 5000-level
- 12 hours from PSYC or the College of Education at the 4000- or 5000-level

Additional Requirements

The Master of Science in Physics with emphasis in Teaching is designed for graduate students preparing to teach in private secondary schools or in community colleges. It includes a small, carefully designed component in psychology and education, and includes experience as a teaching assistant. Students interested in this program should contact the current advisor, Prof. Tim Slater.

Physics, Ph.D.

During the first two years, students normally take physics and astronomy courses while working with faculty members on one or more research projects. Course work consists of several required courses plus a number of elective courses. Students participate in weekly research seminars and journal clubs to learn about a broad range of current research. By the third year, Ph.D. students begin research work in the area of their dissertation.

Ph.D. candidates demonstrate their competency in basic undergraduate physics and in required graduate courses through a written examination. After passing the written exam, students will take an oral preliminary exam based on a research project they have completed during the first two years. At the completion of the Ph.D. dissertation, a candidate makes a public presentation of his or her work and the committee conducts a final examination to award the degree.

Requirements

- 42 hours of graduate coursework
- 30 hours of PHYS 5980 or PHYS 5860. Dissertation planning, development, and production guided by the committee chair and graduate committee.

Tracks:

- Physics, Physics Track, Ph.D.
- Physics, Astronomy Track, Ph.D.

Additional Requirements

The Physics PhD program educates students to become scholars and researchers in physics. Our graduates are trained to teach and to carry out original research that is theoretical, experimental, computational, or a blend of these approaches.

Political Science, M.A.

Political Science studies how states govern themselves and interact. Subfields include: American politics, comparative government, international relations, political philosophy, public law, and public administration.

Plan A (Thesis)

Graduate Credit

At least 30 hours of graduate credit, to include:

- At least 6 additional hours of coursework in political science.
- A maximum of 9 hours of coursework in disciplines other than political science.
- A minimum of 4 hours thesis research.
- A master's thesis demonstrating independent research, written under the supervision of the major professor.
- An oral examination conducted by the graduate committee covering all coursework and the thesis.
- No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.
- Students must maintain a graduate GPA of 3.000.

INST5200 - Graduate Proseminar in International Studies

Credits: 3-6

Max Credit (Max. 6)

Introduces students to different interdisciplinary approaches - perspectives, theories, and paradigms - within International Studies in order to explain the economic, historical, social, cultural, and political dimensions of international processes and issues. Students explore emerging trends in the global system and the most pressing challenges facing states, societies, and peoples.

Prerequisite: graduate student status.

And

INST5400 - International Social Science Research Methods

Credits: 3

Introduces students to a wide variety of interdisciplinary social science methodologies that have proven especially conducive to international research.

Prerequisite: graduate standing.

Plan B (Non-Thesis)

Graduate Credit

At least 30 hours of graduate credit, to include:

- At least 6 additional hours of coursework in political science.

- A maximum of 12 hours of coursework in disciplines other than political science.
- Plan B paper that reflects the quality but not scope of a master's thesis, written under the supervision of the major professor.
- An oral examination conducted by the graduate committee covering all coursework and the Plan B paper.
- No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.
- Students must maintain a graduate GPA of 3.000.

INST5200 - Graduate Proseminar in International Studies

Credits: 3-6

Max Credit (Max. 6)

Introduces students to different interdisciplinary approaches - perspectives, theories, and paradigms - within International Studies in order to explain the economic, historical, social, cultural, and political dimensions of international processes and issues. Students explore emerging trends in the global system and the most pressing challenges facing states, societies, and peoples.

Prerequisite: graduate student status.

And

INST5400 - International Social Science Research Methods

Credits: 3

Introduces students to a wide variety of interdisciplinary social science methodologies that have proven especially conducive to international research.

Prerequisite: graduate standing.

Psychology, Ph.D.

Doctoral Programs

- Clinical Psychology
- Social Psychology, Cognition/Cognitive Development, or Psychology and Law

Public Administration (MPA)

The Master's in Public Administration degree offered at the University of Wyoming is considered an ethics based program where complicated issues of administrative decision making are the hallmarks of professional life.

Admissions

Admission is competitive and is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.00 GPA, 2 letters of recommendation, a letter of intent, and a short analytic writing sample. Foreign students, who are non-native English speakers, must also pass the Oral Proficiency Interview (OPI).

Only one class, POLS 5000, may be taken prior to full admission into the program with permission of the MPA director.

Plan B (non-thesis)

Thirty-nine hours of graduate credit, to include:

- 24 hours of core credit,
- 15 hours of approved elective credit.

Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits.

Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/electronic class discussion.

Students must maintain a graduate GPA of 3.000.

Current Core Courses

Thirty-nine hours of graduate credit, to include:

POLS5000 - Survey of Public Administration

Credits: 3

Designed to introduce the beginning graduate student to the study and practice of public administration at all levels of government. Attention is also directed to specific functions and processes such as intergovernmental relations, budgeting, personnel, and regulation.

Prerequisite: graduate status and consent of instructor.

POLS5400 - Public Personnel Management

Credits: 3

Designed to integrate information about the political environment of personnel administration with problem solving exercises in such specific areas as job analysis, affirmative action, and flextime. A number of topics including the evolution of the civil service, the rights and responsibilities of governmental employees, the functions of public personnel management, and collective bargaining processes are also covered.

Prerequisite: POLS 5000.

POLS5410 - Administrative Behavior and Theory of Organization

Credits: 3

An advanced course in the theory of organization and the workings of public agencies.

Prerequisite: POLS 5000.

POLS5440 - Principles and Processes of Government Budgeting

Credits: 3

Analyzes the principles, processes and politics of the budgetary process in the U. S. It examines the various theories of budgetary decision-making, the politics of budgeting and budgetary reforms.

Prerequisite: POLS 5000 and graduate standing.

POLS5480 - Ethics In Government

Credits: 3

The student is introduced to the ethical nature and dilemmas of public administration in American constitutional government. Such topics are addressed as source of ethical obligation, role of loyalty, application of moral philosophy, constitutional theory and ethical obligation, relation of theory and practice, and methods of ethical reflection.

Prerequisite: POLS 5000.

POLS5510 - Public Policy and Program Management

Credits: 3

An overview of governmental policy making processes in the U. S and the uses of applied policy analysis.

Prerequisite: POLS 5000.

POLS5684 - Empirical Analysis for Public Administration

Credits: 3

Designed for students in public administration to train them to make decisions based on empirical evidence in policy and management. Course draws concepts from system analysis, management science, operations research, and social science methodology to provide an understanding of various policy analysis and program management techniques across many applications.

Prerequisite: POLS 5000.

POLS5690 - Capstone in Public Management

Credits: 3

Integrates theories and concepts introduced in core and option-core courses, and emphasizes students' application of them to various administrative settings.

Prerequisite: completion of all other core and option core requirements in the MPA Program.

Approved Elective Credit

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS5051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

POLS5420 - Seminar In Public Administration

Credits: 3

Max Credit (Max. 6)

A reading and research course in selected topics in public administration.

Dual Listed POLS 4420.

Prerequisite: POLS 1000 and consent of instructor.

POLS5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 5445.

Dual Listed POLS 4445.

Prerequisite: 9 hours of international studies or social science coursework

POLS5450 - Administrative Regulation

Credits: 3

Significant points of contact between government and business are stressed. Government activities designed to regulate and aid such economic interests as business, labor, agriculture, and consumers are dealt with at length.

Prerequisite: POLS 5000.

POLS5460 - Public Administration and Law

Credits: 3

Focuses on various facets of the relationship between American public administration and law. Emphasis is placed on the emerging body of administrative law as a context for jurisprudential reasoning in administrative decision making.

Prerequisite: POLS 5000.

POLS5465 - Survey of the Nonprofit Sector

Credits: 3

This foundational course is designed to give students of diverse backgrounds a common framework for understanding the nonprofit sector in the United States and globally. Students in this course will identify and interpret key theories, issues, and challenges in the nonprofit world and will consider the implications for practice.

Dual Listed POLS 4465.

Prerequisite: graduate standing.

POLS5500 - Internship in Public Administration

Credits: 1-6

Max Credit (Max. 6)

Educationally-oriented assignments for work in selected public agencies, with tutorial types of supervision.

Prerequisite: consent of instructor.

POLS5530 - USCongress

Credits: 3

Analyze aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 4430

Prerequisite: POLS 1000.

POLS5540 - Public Policy Perspectives

Credits: 3

Acquaints students with the underlying structure and dynamics of public policy formulation, implementation, and evaluation at the state, local, and federal levels. Drawing on a number of analytic approaches, the course seeks to understand this complex political phenomenon in the context of the institutions that drive it.

Prerequisite: graduate standing.

POLS5600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Dual Listed POLS 4600.

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS5685 - Program Evaluation and Policy Analysis

Credits: 3

Explores techniques for analyzing and evaluating public policy choices and impacts.

Dual Listed POLS 4685.

Prerequisite: STAT 5070 or equivalent and an introductory research methods course in social science or related discipline.

POLS5710 - Topics In Political Science

Credits: 1-3

Max Credit (Max. 9)

Intended to accommodate various specialized subjects not offered as regular courses.

Prerequisite: graduate standing.

POLS5810 - Seminar in Political Philosophy

Credits: 3

Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 4810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

CRMJ5000 - Survey of Criminal Justice

Credits: 3

Provides an overview of criminal justice theory by providing critical evaluation and discussion of research in the criminal justice field. It will emphasize seminal works and review current research concerning the structure, function, operation, interaction of the criminal justice system's primary components, and future trends.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5100 - Public Policy and Crime

Credits: 3

This course is designed to take a multidimensional look at public policy issues related to the prevention and control of crime in the United States. Issues covered include the development, implementation, and evaluation of crime control policy.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 4280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: graduate standing.

CRMJ5500 - Internship in Criminal Justice

Credits: 3

Educationally-oriented assignments for work in selected criminal justice agencies, with tutorial types of supervision.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 4860.

Prerequisite: graduate standing or consent of the instructor.

CNSL5060 - Counseling Ethics and Professional Issues

Credits: 3

Designed to provide students with a philosophical base for making ethical decisions in the professional situations they encounter. In addition, it involves a chance to discuss many specific ethical and professional issues that are commonly encountered in the profession.

Prerequisite: program admission or consent of instructor.

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

STAT5220 - Advanced Design

Credits: 3

Advanced study of experimental designs, observational designs, and mixed models. Topics include fixed and random effects, factorial, split-plot and repeated measures designs, and hierarchical models. Linear model methodology and Data Science concepts will also be emphasized.

Prerequisite: MATH 5265/STAT 4265/STAT 5265, and at least one of STAT 4015/STAT 5015, STAT 4025/STAT 5025, or STAT 5210.

Public Administration (MPA/JD)

The Master's in Public Administration degree offered at the University of Wyoming is considered an ethics based program where complicated issues of administrative decision making are the hallmarks of professional life.

Admissions

Admission is competitive and is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.00 GPA, 2 letters of recommendation, a letter of intent, and a short analytic writing sample. Foreign students, who are non-native English speakers, must also pass the Oral Proficiency Interview (OPI).

Only one class, POLS 5000, may be taken prior to full admission into the program with permission of the MPA director.

Plan B (non-thesis)

Thirty-nine hours of graduate credit, to include:

- 24 hours of core credit,
- 15 hours of approved elective credit.

Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits.

Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/electronic class discussion.

Students must maintain a graduate GPA of 3.000.

Current Core Courses

POLS5000 - Survey of Public Administration

Credits: 3

Designed to introduce the beginning graduate student to the study and practice of public administration at all levels of government. Attention is also directed to specific functions and processes such as intergovernmental relations, budgeting, personnel, and regulation.

Prerequisite: graduate status and consent of instructor.

POLS5400 - Public Personnel Management

Credits: 3

Designed to integrate information about the political environment of personnel administration with problem solving exercises in such specific areas as job analysis, affirmative action, and flextime. A number of topics including the evolution of the civil service, the rights and responsibilities of governmental employees, the functions of public personnel management, and collective bargaining processes are also covered.

Prerequisite: POLS 5000.

POLS5410 - Administrative Behavior and Theory of Organization

Credits: 3

An advanced course in the theory of organization and the workings of public agencies.

Prerequisite: POLS 5000.

POLS5440 - Principles and Processes of Government Budgeting

Credits: 3

Analyzes the principles, processes and politics of the budgetary process in the U. S. It examines the various theories of budgetary decision-making, the politics of budgeting and budgetary reforms.

Prerequisite: POLS 5000 and graduate standing.

POLS5480 - Ethics In Government

Credits: 3

The student is introduced to the ethical nature and dilemmas of public administration in American constitutional government. Such topics are addressed as source of ethical obligation, role of loyalty, application of moral philosophy, constitutional theory and ethical obligation, relation of theory and practice, and methods of ethical reflection.

Prerequisite: POLS 5000.

POLS5510 - Public Policy and Program Management

Credits: 3

An overview of governmental policy making processes in the U. S and the uses of applied policy analysis.

Prerequisite: POLS 5000.

POLS5684 - Empirical Analysis for Public Administration

Credits: 3

Designed for students in public administration to train them to make decisions based on empirical evidence in policy and management. Course draws concepts from system analysis, management science, operations research, and social science methodology to provide an understanding of various policy analysis and program management techniques across many applications.

Prerequisite: POLS 5000.

POLS5690 - Capstone in Public Management

Credits: 3

Integrates theories and concepts introduced in core and option-core courses, and emphasizes students' application of them to various administrative settings.

Prerequisite: completion of all other core and option core requirements in the MPA Program.

Academic Regulations

- A student in the joint Juris Doctor/Master of Public Administration program must be admitted to both the College of Law and College of Arts and Sciences. The degrees are awarded concurrently by each college upon successful completion of the combined degree program requirements. In fulfillment of the J.D. degree, the College of Law will accept up to nine hours of MPA credits in courses approved by the law faculty (see Academic Regulations). In fulfillment of the MPA degree, the College of Arts and Sciences will accept up to 12 hours of credits earned in the J.D. program. For additional information regarding these joint degree programs, contact the College of Law or the joint program of interest.
- Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits.
- Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course.
- Students must maintain a graduate GPA of 3.000.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

Spanish, M.A.

As a Spanish Masters Student, you will develop your speaking, listening, reading, writing, and presentational skills in Spanish. You will gain a better understanding of perspectives and experiences of Spanish speaking cultures.

Required Courses

Program Specific Degree Requirements

A total of 27 graduate-level course hours are required.

Plus 4 thesis hours.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3

hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

SPAN5900 - Practicum in College Teaching

Credits: 3

Max Credit 3

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

- One 5000 level course in SPAN Linguistics Credits: 3
- One 5000 level course in SPAN Literature Credits: 3
- Spanish elective credits at the graduate level Credits: 15

One 5000 level course (3 credits) can be taken outside the department with the approval of the thesis advisor or the graduate advisor

Graduate-level courses include:

SPAN5070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 4070.

Prerequisite: graduate standing.

SPAN5080 - Spanish Advanced Grammar

Credits: 3

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 4080.

Prerequisite: graduate standing.

SPAN5090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectal variations. Will

touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 4090.

Prerequisite: graduate standing.

SPAN5100 - Hispanic Thought

Credits: 3

intensive study of a topic, author, or philosophical movement. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature at 4000-5000 level.

SPAN5110 - Peninsular Spanish Literature

Credits: 1-3

Max Credit (Max. 9)

An intensive study of a topic or an author. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature at 4000-5000 level.

SPAN5120 - Spanish American Literature

Credits: 1-3

Max Credit (Max. 9)

An intensive study of a topic or an author. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature.

SPAN5130 - Masterpieces of Spanish Renaissance Literature

Credits: 3

A study of the Spanish Renaissance, taking into consideration social, political, economic, religious philosophical, and aesthetic aspects of the culture as a context for and as reflected in the literature.

Dual Listed SPAN 4130.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5140 - Masterpieces of Spanish Baroque Literature

Credits: 3

Studies of the Spanish Baroque, taking into consideration social, political, economic, religious, philosophical, and aesthetic aspects of the culture as a context for and as reflected in the literature. Also covers the relationship between the Spanish Renaissance and the Baroque.

Dual Listed SPAN 4140.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5150 - Spanish Romanticism

Credits: 3

A comprehensive study of the romantic movement in Spain. Close reading and commentary of texts by representative authors including Espronceda, Rivas, Zorilla, Becquer and de Castro.

Dual Listed SPAN 4150.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5160 - Graduate Readings

Credits: 1-5

Max Credit (Max. 6)

Prerequisite: graduate standing.

SPAN5170 - Special Problems

Credits: 1-2

Max Credit (Max. 6)

Prerequisite: graduate standing.

SPAN5180 - Advanced Cultural Studies in Hispanic Lit/Media

Credits: 3

Advanced analysis of Hispanic cultural phenomena. Focus on the Spanish-speaking cultures of Spain or the Spanish-speaking Americas or both. The Texts consulted vary according to instructor and may include the visual arts, such as film, paintings, and performance, academic theory, websites, and other fiction and non-fiction readings.

Dual Listed SPAN 4180.

Prerequisite: SPAN 2140 or equivalent and one 4000-level course.

SPAN5190 - 20th and 21st Century Spanish- American Texts

Credits: 3

Provides students the opportunity to study representative literary texts that reflect the tendencies and trends in 20th and 21st Century Spanish-language works of the Americas.

Dual Listed SPAN 4190.

Prerequisite: 6 hours of SPAN at the 4000-level.

SPAN5260 - The Realist Novel in Spain

Credits: 3

Studies of the major novelists of nineteenth century Spain from 1850 until the Generation of '98.

Dual Listed SPAN 4260.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5990 - Internship

Credits: 1-12

Max Credit (Max. 24)

Prerequisite: graduate standing.

Total: 31 Hours

Zoology and Physiology, M.S.

Advanced-degree students in Zoo/Phys experience collaborative, interdisciplinary approaches to basic and applied questions. Work spans molecules to ecosystems, with training in fields including physiology, ecology, evolution, fisheries, and wildlife.

Plan A (Thesis)

Includes 26 hours of coursework and 4 hours of thesis research.

Applicants should have at least 20 semester hours of undergraduate work in zoology, physiology, or other areas of the biosciences and have completed introductory courses in mathematics, chemistry, and in at least one other natural or physical science. Early in the second semester the student must file a program of study with the university and have a graduate committee appointed. Plan A candidates shall orally defend the thesis before the graduate committee.

All M.S. candidates will be required to complete credit in two graduate seminars. A student may enroll in more than one of these required seminars during one semester or academic year.

After two semesters in the department, a Plan A master's candidate may request permission from the department's graduate advisory board to proceed directly to the Ph.D. degree; however, such a bypass is granted only by the department head after considering recommendations from the graduate advisory board.

Zoology and physiology may be used as a field by a candidate working for the interdisciplinary master of science in natural science in the College of Arts and Sciences and the College of Education.

Plan B (Non-Thesis)

Includes 30 hours of coursework.

The program for the Plan B is established by the student and a faculty adviser and must be approved by the department head during the student's second semester or summer session.

The graduate committee will require the candidate to take a written examination. An oral examination may also be required. The final examination is comprehensive, covering all areas of zoology, but emphasizing one major area.

Zoology and Physiology, Ph.D.

Advanced-degree students in Zoo/Phys experience collaborative, interdisciplinary approaches to basic and applied questions. Work spans molecules to ecosystems, with training in fields including physiology, ecology, evolution, fisheries, and wildlife.

Additional Information

This is a 72 hour program.

A Ph.D. applicant must have 20 hours of undergraduate work in zoology, physiology, or other areas of biology and also have completed substantial undergraduate work in other sciences. Under exceptional circumstances, a student with an undergraduate major in a scientific discipline other than biology may be admitted. After the Ph.D. student has completed two semesters of graduate work, s/he must be approved for continued work toward the doctorate by the graduate advisory board. This board can reconsider a candidate thereafter if it so desires.

A graduate committee shall be appointed for the individual student no later than the third semester. After consultation with the student, this committee will prescribe special requirements (courses, minors, research tools, etc.) that must be fulfilled. At this time, the graduate committee shall consult with the candidate on the proposed research and shall identify the subject matter areas to be included in the preliminary examination. The preliminary examination will consist of a written research proposal, its oral defense, and a written and oral preliminary examination. When training outside zoology and physiology is specified by the committee, certification of satisfactory completion of the requirement will be made by the appropriate department.

In addition to the general university requirements for the Ph.D. degree, the department requires the following:

The coursework program should include work in a discipline outside the department, generally in the sense of a minor, to be identified in consultation with the graduate committee.

The preliminary examination consisting of written and oral portions should be taken no later than midterm of the fourth semester in residence. The graduate committee will certify satisfactory performance for the preliminary examination.

The dissertation must be received by each member of the graduate committee three weeks before the final dissertation seminar. As oral defense of the dissertation, the candidate will deliver a formal 50 minute seminar on original research from the dissertation. The seminar will be followed by an examination by the graduate committee.

Some time during their degree program, all Ph.D. candidates will be required to complete credit in three graduate seminars. A student may enroll in more than one of these required seminars during one semester or academic year.

All candidates for the Ph.D. degree shall be required to teach for one semester during their program.

The dissertation may be written in a format suitable for publication in a journal and the usual extensive literature review, description of study sites, technical details, raw data, supporting figures, charts, and photographs should be included in a well-organized appendix. (See also format requirements by the university.)

Certificate

American Studies Certificate

The certificate program allows students to choose from undergraduate and graduate courses in American Studies, literature, geography, music, art, history, philosophy, sociology, folklore, anthropology, Native American and Indigenous studies, political science, environmental studies, and media studies.

The program encompasses two semesters of full time work: a total of at least 24 semester hours, or approximately 8 courses. Of these, 6 credit hours (2 courses) must be selected from the following list:

Requirements

AMST2010 - Introduction to American Studies

Credits: 3

Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)

USP 2003-2014 Code U3CH, U3WB

USP 2015 Code U5H

- Any AMST course at the 4000- or 5000-level Credits: 3
- An additional 18 hours (6 courses) are chosen in consultation with an American Studies faculty adviser. The final 3 credit hours, completed during the summer months, are devoted to an internship (AMST 4970) or field experience in American culture (AMST 4900).

Audio Technology Certificate: 12 Credits

The Audio Technology Certificate provides a basic understanding of audio principles and practical hands-on experience that allows one to enter the commercial music work force with a marketable skill set. Students will learn how to record and manipulate recorded sounds as well as provide live sound reinforcement for live concerts or events. A certificate may be pursued on its own or in conjunction with any university degree program.

Required Courses

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

MUSC4365 - Recording Art and Technology

Credits: 3

Topics include history of music production, multi-track recording, digital audio workstations, digital editing, session management and production, mixing, mastering, and distribution.

MUSC4370 - Live Sound Reinforcement

Credits: 1

Max Credit 3

Topics include history of live sound reinforcement, analog audio, digital consoles, system checks, troubleshooting, and client relations. Students will build upon MUSC 4360 with focus on live sound reinforcement.

MUSC4990 - Topics in:

Credits: 1-12

Max Credit (Max. 12)

Encompasses various topics in music. Specific subjects vary from year to year as course is often taught by distinguished visiting artists and lecturers or music faculty. Presents topics of special interest to music majors, graduate students and music educators. Please check class schedule for course titles each semester.

Prerequisite: consent of instructor.

Audio Technology Practicum/Internship

Teachers of American Indian Children (TAIC) (Teaching) Endorsement/UW Certification

Through Distance Education, a Teachers of American Indian Children (TAIC) Endorsement / Graduate Certificate can be earned. This non-degree graduate program certifies that those who complete its five specialized courses possess the attitudes, knowledge, and competence necessary to effectively teach American Indian Children. Upon completion, students receive official recognition of their achievement on their transcripts and an official certificate. Visit the Distance Education Degrees and Programs Website www.uwyo.edu/distance/ for more information. All courses are cross-listed with NAIS and EDCL.

An interdepartmental Native American and Indigenous Studies Advisory Committee guides the program's development. The director advises students selecting the NAIS studies major or minor.

Complete information about the Native American and Indigenous Studies undergraduate major, undergraduate minor, and graduate minor is available in the NAIS Program office and on the program Website.

Endorsement/Certificate

Art Entrepreneurship Certificate: 12 Credits

This certificate provides a basic understanding of marketing principles specific to the arts with practical hands-on experience that allows one to enter the workforce with a marketable skill set in the areas of art promotion and management.

Required Core Courses (All Emphases)

MUSC4001 - Music Entrepreneurship Seminar

Credits: 2

Further crystalizes successful business enterprise development introduced in ENTR 2700. Student will hone entrepreneurial skills in idea creation, business incubation, development, research, and commercialization.

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

- Choose one of the following:

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

- **The internships below are variable, 1-2 credits, depending on department. Please see individual advisors for exact hours.**

Music Emphasis

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4005 - Internship in Music Business

Credits: 1

Offers an evaluated and professional work experience in public or private organizations on assignments relating to student's career goals, allowing students to explore the relationship between theory and practice in their major.

Visual Arts Emphasis

ART4600 - Professional Practices and Strategies

Credits: 3

This course offers information to junior/senior level art majors in regards to: finding jobs in art, finding/applying for exhibition opportunities, applying/finding grant opportunities, furthering education including finding/applying for a Masters in art, and overall life possibilities after the completion of an undergraduate art degree. Writing is expected in the form of cover letters, resumes, artist statements, and project proposals.

USP 2015 Code U5C3

Prerequisite: ART 2000, junior or senior standing.

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

Theater and Dance: Dance Emphasis

THEA4700 - Auditioning and Careers in Dance

Credits: 1

Designed for dance majors as a culminating course in preparation for final semester auditions and applications for companies and graduate schools. Through this course, students will set career goals, create an audition portfolio, and gain exposure to the many challenges and opportunities in dance.

Prerequisite: senior standing, THEA 1021, and one semester of THEA 4010 or THEA 4030.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

Theater and Dance: Design/Tech Management Emphasis

THEA3850 - Design and Technology Seminar

Credits: 2

Introduces designer/technician to process of preparing successful interview material, including a professionally developed portfolio. Exposes designer/technician to business aspects of the theatre world, including resumes, letters of inquiry and application, contracts, unions and professional organizations, internships, apprenticeships, URTAs and professional design/technical training programs. Culminates in junior End-of-the-Year Evaluations.

Prerequisite: junior standing in the BFA Program with Design/Technical emphasis.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

Theater and Dance: Performance Emphasis

THEA4720 - Auditioning and Professional Issues

Credits: 3

Introduces actors to process of finding, preparing and executing successful audition material, including monologues, songs and dance combinations. Exposes actors to business aspects of the theatre world, including resumes, photos, contracts, unions, internships, apprenticeships, Equity Membership Candidacy programs, URTA's and professional actor training graduate programs. Culminates preparation for final semester auditions for the company/school of choice.

Prerequisite: THEA 1100, THEA 3710 and THEA 3740.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

Other Programs

Life Sciences

Life Sciences Program

107 Aven Nelson Building, 766-4158 Web site: www.uwyo.edu/lifescience

Program Director: Jonathan Prather

The Life Sciences Program consists of all LIFE prefix courses. These courses support a wide range of life science majors and several non-life science majors across campus. The number of LIFE courses taken by students in each major is determined by the departments that offer the majors. The curriculum intends to provide science majors with both breadth and depth in the basic life sciences, and nonscience majors with exposure to key concepts in biology and an understanding of the connections between science and society. The program courses also expose students to the fields of cell and molecular biology, genetics, ecology, and evolution, and they familiarize students with the diversity of life on the planet. Courses within the curriculum address four fundamental goals at a level appropriate for each course: 1. Acquisition, Application and Synthesis of Knowledge 2. Communication Skills 3. Critical Thinking and Problem Solving 4. Research Skills The Life Sciences courses listed below were previously offered under the BIOL prefix. All courses listed below are now offered through the LIFE prefix.

College of Business

310 Business Building

Website: <http://business.uwyo.edu>

Rob Godby, Interim Dean

Phone: (307)766-4194 **FAX:** (307)766-4028

Peter M. and Paula Green Johnson Student Success Center (307) 766-8249

The College of Business prepares students for careers by providing quality education in business disciplines, creating and disseminating knowledge, and assisting in Wyoming's economic development. The College of Business expects the highest level of integrity from our administration, faculty, staff, students, and alumni.

The College of Business grew from roots established in 1899 when the UW School of Commerce was founded. While the programs offered have changed over the years, the college remains firmly committed to academic excellence and positive student experiences.

The college has three academic departments: accounting and finance; economics; and management and marketing. The college also houses the College of Business Peter M. and Paula Green Johnson Student Success Center which is instrumental in maintaining the college's link with the business world.

These units are committed to preparing all College of Business students to enter our rapidly-changing world. Successful graduates are fully prepared to compete in their chosen professions or in graduate school. More importantly, they are well-educated individuals prepared to live fulfilling lives, and to meet the challenges presented by the complex ethical, moral and cultural contexts of our times.

College of Business Learning Outcomes

The College of Business expects that its graduates:

1. Will be competent in their field of study
2. Will be effective problem solvers
3. Will be ethical
4. Will be professional
5. Will be effective communicators

AACSB Accreditation

The business degree programs offered by the College of Business are accredited by AACSB-International. AACSB standards ensure that College of Business students are provided comprehensive, high-quality, well-rounded degree programs. The "Common Body of Knowledge" and the "Advanced Business Standing" (ABS) as described on the following pages have been developed to meet the AACSB accreditation standards.

A minimum of 50% of COB courses required for the major must be taken from the degree-awarding institution.

Programs of Study

Undergraduate Degrees

BSB - Bachelors of Science in Business

BSE - Bachelors of Science in Economics

The Majors are as follows:

- Accounting, B.S. (BSB-ACCT)
- Business Economics, B.S. (BSB - CBEC)
- Entrepreneurship, B.S. (BSB - ENTR)
- Finance, B.S. (BSB - FIN)
- Management, B.S. (BSB - MGT)
- Marketing, B.S. (BSB - MKT)
- Professional Sales, B.S. (BSB - SELL)
- Economics, B.S. (BSE - ECON)

The Minors are as follows:

- Banking and Financial Services Minor
- Blockchain Minor

- Data Analytics Minor
- Economics Minor
- Entrepreneurship Minor (for nonbusiness students only)
- Hospitality Business Management Minor
- Leadership Minor
- Professional and Technical Selling Minor
- Real Estate Minor

Graduate Degrees

Master of Science

Accounting, M.S.

Economics, M.S.

Finance, M.S.

Business Administration, M.B.A.

Business Administration, Online, M.B.A.

Doctor of Philosophy

Economics, Ph.D.

Marketing, Ph.D.

Certificate Programs

Certified Financial Planning Certificate (Graduate)

Energy Business Certificate (Graduate)

Student Services

Academic Advising

All College of Business undergraduate students are advised by professional academic advisers in the College of Business Peter M. and Paula Green Johnson Student Success Center. Advising can be reached by e-mail (success@uwoyo.edu) or by phone (307-766-8249).

Career Services

The Career Services unit connects students and employers in ways that lead to meaningful experiences and job opportunities. Business students are encouraged to explore career options and grow their career readiness by completing the Pokes Professionalism Badge and engaging in multiple internships. Students also have the option to apply for local, national, and international internships starting their first year and may be able to receive credit for their work. Networking with employers is highly encouraged and offered through a series of fairs, events, and in-class projects. One-on-one assistance and workshops are also available to students for things such as: internship or job searching; resume creation, review, or targeting; and career coaching or counseling. Individual appointments may be scheduled by email (success@uwoyo.edu) or by phone, (307) 766-8249.

Student Responsibilities

College of Business students are responsible for knowing and meeting requirements for graduation. In addition to degree requirements, all College of Business students must complete the advanced business standing requirements prior to enrollment in most upper-division (3000/4000-level) College of Business courses (see Advanced Business Standing (ABS) Prerequisites section).

All students must have already completed any prerequisites listed (in addition to ABS for COB students), including having the appropriate class standing. Students not meeting the prerequisites are identified and administratively dropped from those courses each semester.

Requirements for the Bachelor of Science Degree

Candidates for the Bachelor of Science degree in the College of Business must meet university, college, and departmental requirements. Degree candidates for the B.S. degree in the College of Business also must have a minimum 2.500 cumulative University of Wyoming (UW) grade point average and a 2.500 grade point average in College of Business courses at the time of graduation. In addition, economics majors also must hold a minimum 2.500 grade point average for all economics courses. College of Business degree candidates must earn a minimum of 120 semester hours depending on major including:

I. University Studies Requirements:

All first year students who enter the University of Wyoming (UW) and students who enter a Wyoming Community College (CC) are required to meet the USP 2015 requirements for graduation. Wyoming CC students transferring to UW with an Associate of Arts or Associate of Science degree will have course work evaluated per the General Education Articulation Agreement between the University of Wyoming and Wyoming Community Colleges. Non-resident transfer students and Wyoming CC transfer students without an associate's degree will have course work evaluated on a course-by-course basis, based on all approved USP courses. Academic advisers will help students select the appropriate courses to satisfy university studies requirements. Some College of Business requirements also meet university studies requirements.

A. Basic skills (USP 2015) Hrs.

1. First-year seminar (FYS) Choose from list of approved courses, Credits: 3
2. Writing
 - a. USP Communication 1 course, Credits: 3
 - b. USP Communication 2 course- Mid-level communication or 2000-4000-level communication intensive course- Choose from list of approved courses, Credits: 3
 - c. USP Communication 3 course- Upper-level communication or 3000-4000-level communication intensive course, Credits: 3
3. Physical and Natural World (PN) (Two courses required-choose from list of approved courses), Credits: 6
4. Human Culture (H) (Two courses required-choose from list of approved courses), Credits: 6
5. U.S. and Wyoming Constitutions (V), Credits: 3
6. Quantitative Reasoning (Q), Credits: 3

II. Electives

The number of hours of elective credit and upper-division (3000-/4000-level) credit varies by department. Economics majors will take 48-51 hours of free electives. A maximum of 6 credit hours each at the freshman/sophomore and junior/senior-level military science courses may be applied to degrees in the College of Business.

A. Non-Business electives Hrs

1. Non-Business electives. May include MATH 1400, Credits: 3-9

B. Free electives Hrs.

1. Free electives from any college. May require upper-division (3000/4000-level) courses, with the total number of credits needed dependent on major.

Students **may not** take courses for S/U (satisfactory/unsatisfactory) credit to satisfy university studies or college requirements, course requirements in the major, or courses outside the college required by the major department curriculum.

III. Advanced Business Standing: (excludes Economics majors)

College of Business majors must satisfy the following advanced business prerequisites prior to enrolling in most upper-division (3000- /4000- level) College of Business courses:

1. Achieve junior standing by completing a minimum of 60 earned semester hours;
2. Complete 10 specific courses with a grade of C (not C-) or better in each. These ten courses are: ECON 1010 and 1020, USP Communication 1 and 2 courses, ACCT 2010 and 2020, IMGT 2400, MATH 2200 and 2205 or MATH 2350 and 2355 and STAT 2050 or 2070.
3. Achieve a cumulative UW institution grade point average or transfer grade point average of at least 2.500. Note: Transfer grades are not counted in the UW GPA (see UW Catalog http://www.uwyo.edu/registrar/university_catalog/grade.html for additional information). Transfer students who have not attended the University of Wyoming, and therefore do not have an established UW institutional/cumulative GPA, and who have completed the required ten (10) courses with a C or better, have 60 earned credit hours, and have a 2.500 cumulative TRANSFER GPA will be awarded ABS.

IV. Common Body of Knowledge: (excludes Economics majors)

College of Business majors take a common set of courses that expose them to the basic concepts, processes and technical skills necessary to complete a well-rounded high quality business education. The common body of knowledge includes ACCT 2010, ACCT 2020, DSCI 2100, ECON 1010, ECON 1020, FIN 2100, IMGT 2400, MGT 2010, MGT 2100, MKT 2100, and MGT 4800. Grades of C (not C-) or above required.

V. Minimum requirements:

Achieve a cumulative College of Business and UW institution grade point average of at least 2.500. Complete 50% of the business credit hours from UW. Earn grades of C or above in common body of knowledge and major specific core courses. Earn a passing score on the Senior Exit Exam required for all College of Business majors.

Requirements for Non-College of Business Majors

Students in non-College of Business majors who wish to enroll in College of Business upper-division courses need not meet the advanced business standing prerequisites. However, they are required to meet individual course prerequisites listed in the University Catalog, including class standing.

Acceptance of Transfer Credit

The College of Business complies with UW policies regarding transfer credit discussed in the front section of this bulletin. The college has special course transfer arrangements with Wyoming community colleges that allow some courses taken at community colleges at the lower-division (freshman-sophomore) level to transfer for upper-division (junior) credit. Wyoming community college transfer students should contact the GJSSC for details.

Students transferring from other AACSB accredited colleges and universities will have their courses reviewed for transfer on a course-by-course basis.

The College of Business does not accept transfer credits for COB courses with equivalents at UW when the grade earned was less than a C.

Where appropriate, College of Business course equivalency will be granted for transfer courses at the 3000 and 4000 level if such coursework was completed at an AACSB or EQUIS institution only. Any coursework completed at an institution that does not meet that qualification will not be considered for upper division equivalency.

The UW College of Business is AACSB accredited and therefore follows AACSB's current guidelines* to maintain accreditation.

The primary goal of this transfer policy is to ensure coursework accepted from other institutions is comparable to coursework required by our college's degree programs and ensure that the majority of learning is completed at the institution awarding the degree while simultaneously allowing measured flexibility in acceptance of transfer credits as allowed by AACSB accreditation in support of student progress and degree completion.** For example, at the time of this policy's creation, the number of business credit hours for the College of Business's undergraduate majors is fifty-four (54) credit hours (this includes the business common body of knowledge courses). Therefore, to align with AACSB standards, a minimum of twenty-seven (27) credit hours of business coursework in the major must be earned in residence at the University of Wyoming.

In addition to the transfer policies defined in the University of Wyoming catalog, the College of Business has established the following policies in support of AACSB Standards governing the transfer of credit for equivalent business courses. Courses will be considered for transfer according to the additional criteria below. Students may transfer up to a total of twenty-seven (27) hours of business credits, either solely lower division courses or a mix of lower division and upper division courses, as follows:

- Students may transfer up to twenty-seven (27) lower division (1000/2000 level) business credits to the Common Body of Knowledge.
 - Lower division courses from regionally accredited institutions will be evaluated for equivalency and approved by the UW Office of the Registrar on an annual basis.
- Students may transfer up to nine (9) upper division (3000/4000 level) business credits according to the following guidelines:
 - Transferring upper division business credits to be included in the twenty-seven (27) credits reduces the number of lower division credits a student is able to transfer.
 - Courses from AACSB/EQUIS accredited institutions will be evaluated for equivalency and approved by the College of Business.
 - Courses from regionally accredited, non-AACSB/EQUIS institutions will be accepted as upper division elective credit in accordance with the transfer policies defined in the University of Wyoming catalog.
 - The College of Business has collaborative provisions (detailed in separate articulation agreements) that allow students from Wyoming's community colleges to transfer up to nine (9) credit hours of

2000 level coursework to satisfy up to nine (9) credit hours of 3000 level coursework that has been evaluated by the College of Business. These courses will be evaluated annually for equivalency***.

* A requirement of the accreditation process (as reflected in Standard 6 of the 2020 Business Standards) is for accredited colleges to have clear policies regarding transfer coursework.

** As noted by AACSB: "transfer credit related to business disciplines is normally limited to no more than half of the program requirements" (2020 AACSB Standards, p. 13).

*** Per college-specific articulation agreements, students may be able to transfer coursework satisfying completion of the following courses: ACCT 3070, ACCT 3230, ACCT 3240 or ACCT 3430.

Accounting, Management, and Marketing Online Programs

The College of Business offers the opportunity to pursue online degree programs in the areas of accounting, management, and/ or marketing accredited by AACSB and delivered through distance education. These online delivery programs are designed to help students maximize their flexibility in the business world.

The online accounting, management, and marketing degrees are offered almost in their entirety through the University of Wyoming, with the exception that students must have taken MATH 2350/2200 and MATH 2355/2205 through another institution as they are not offered online consistently through UW. The University of Wyoming College of Business works closely with our Wyoming community college partners to assist students in taking and transferring these math courses and other courses that align with our curriculum. Students are able to take a variety of transferable 1000 and 2000 level courses from Wyoming Community Colleges, in consultation with academic advisors, and then complete their upper division coursework from the University of Wyoming.

Students will be required to apply to UW and meet UW admissions criteria prior to enrolling in any College of Business program. Students must also attain a 2.500 GPA for graduation for both College of Business and UW courses, complete and submit an anticipated graduation date form, and must pass the Senior Exit Exam (BUSN 4990) to graduate.

To ensure you the availability of required courses in this program, enrollment into courses is managed and approved by the College of Business Peter M. and Paula Green Johnson Student Success Center.

College of Business Minors

Minors are available to on-campus students through the College of Business in the areas of banking and financial services, blockchain, data analytics, economics, entrepreneurship (not available to College of Business majors), hospitality business management, leadership, professional and technical selling, and real estate. Minors requirements may often be met by simply focusing the elective credits available in a student's major.

The minors program consists of course requirements of 15 hours of study. A minimum grade of C must be earned in each course. Certification of a successful minor program completion occurs as part of the DegreeWorks progress report, and the Office of the Registrar notes the completion of the minor on student transcripts. Minors must be approved by the Peter M. and Paula Green Johnson Student Success Center.

Students must have a minimum 2.500 cumulative UW GPA. Students must maintain a cumulative 2.500 GPA in the required College of Business courses for the minor to be awarded. Non-College of Business students must meet the individual course prerequisites listed in the catalog, although they need not meet the advanced business standing requirements. A minimum of 50% of COB courses must be taken from the degree-awarding institution.

Cooperative Undergraduate Programs

The Concentration in Environment and Natural Resources

College of Business majors may earn a cross major in Environment and Natural Resources (ENR) in cooperation with the UW School of Environment and Natural Resources. The appropriate use of natural resources and awareness of environmental consequences of decisions have become major issues for business. Exposure to ideas, skills and sensibilities in these areas is critical to future business people. Students majoring in economics may elect an environment and natural resources concentration in which an economics approach to problem solving is stressed. For more information call the ENR office at (307) 766-5089.

Graduate Study

The College of Business is comprised of three academic departments: accounting and finance, economics, and management and marketing. The faculty of these departments cooperate in the presentation of graduate work leading to the following degrees:

Master of Business Administration

Master of Science in Accounting

Master of Science in Economics

Master of Science in Finance

Doctor of Philosophy in Economics

Doctor of Philosophy in Marketing

The College of Business faculty is firmly committed to the excellence of its graduate programs. The graduate programs in the College of Business are accredited by AACSB International. The three academic departments coordinate course offerings to support all of the graduate degree programs; the M.B.A. program in particular is a college-wide effort.

Cooperative Graduate Programs

The Concentration in Environment and Natural Resources

College of Business graduate students may earn an interdisciplinary minor in environment and natural resources (ENR) in cooperation with the UW School of Environment and Natural Resources. The appropriate use of natural resources and awareness of environmental consequences of decisions have become major issues for all areas of business and economics. The School of Environment and Natural Resources is designed to move beyond the strictly disciplinary design and management of their long-term solutions. The school seeks to attract outstanding graduate students from a variety of disciplines, who are eager to pursue careers that engage other professionals, policymakers, and the public in finding innovative ways to resolve complex environmental and natural resource issues. To pursue a minor in ENR, students must first be admitted to another master's or doctoral degree program offered at the University of Wyoming. For more information call the ENR office at (307) 766-5080.

Major

Accounting, B.S.

The Accounting major prepares students for a career within the profession by providing them with the skills to create, interpret and analyze economic and financial information while focusing on assurance, financial and tax services.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and

managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 30

Accounting Core: 21 Credits

ACCT3070 - Tax I

Credits: 3

This class covers a broad range of the tax concepts applicable to the taxation of individual taxpayers. Special emphasis will be placed on the role of taxation of the individual and the related decision-making process.

Prerequisite: ACCT 2010 and ACCT 2020, Advance Business Standing.

ACCT3230 - Intermediate Accounting I

Credits: 3

First of two courses studying financial reporting. Topics include recording and reporting events in the expenditure and revenue cycles.

Former Course Number [2230]

Prerequisite: ACCT 2010 , ACCT 2020 and MATH 1400 with grades of C or better in each; sophomore class standing.

ACCT3240 - Cost Accounting I

Credits: 3

Organizational uses of information to plan, make decisions, and evaluate performance. Specific topics include job order and process costing, cost estimation and CVP analysis, budgeting and variance analysis.

Former Course Number [2240]

Prerequisite: ACCT 2010, ACCT 2020 and MATH 1400 with grades of C or better in each; sophomore class standing.

ACCT3430 - Intermediate Accounting II

Credits: 4

Second of two courses studying financial reporting. Topics include debt, equity, revenue recognition, and special issues in expense and liability recognition.

Prerequisite: ACCT 3230 with grade of C or better; advanced business standing, or special permission of Department Head.

ACCT3610 - Accounting Information Systems

Credits: 3

Provides an understanding of accounting information systems and internal controls. Emphasis on the use of current accounting technology, accounting software and internal control systems.

Former Course Number [2040, 3010]

Prerequisite: ACCT 3230 with a grade of C or better; advanced business standing.

- ACCT 3900 - Accounting Professional Skills

ACCT4060 - Auditing I

Credits: 3

A study of the scope, activities, and responsibilities of professional auditors. Topics include assurance services by public accountants and the methods and techniques used to provide these services, with a focus on the audits of financial statements and internal controls performed by external auditors.

Prerequisite: ACCT 3230 with a grade of C or better; ACCT 3610 with a grade of C or better (or concurrent enrollment)

Accounting Elective: 3 Credits

Choose 1 of the Following:

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

ACCT4960 - Volunteer Income Tax Assistance

Credits: 1-3
Max Credit 3

The Volunteer Income Tax Assistance (VITA) program is an IRS-sanctioned program designed to help low-income individuals and families file their federal and state taxes through trained volunteers. This course trains students to assist taxpayers in filing tax returns through the VITA program.

Prerequisite: ACCT 3070 (or concurrent).

Advanced Business Electives: 6 Credits

Any business courses at a 3000+ level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 18 Credits

Courses from any college at any level that have not been used to meet any other primary major requirements.

A complete curriculum sheet is available from the College of Business Peter M. and Paula Green Johnson Student Success Center in the College of Business Building.

Please Note:

All accounting courses for the major require a minimum grade of C. In addition to university and college requirements cited previously, requirements for accounting majors are listed above.

Students who anticipate preparing themselves for the CPA examination following completion of their degree should be aware of the Wyoming statute governing eligibility to sit for the exam. Please see the state board's web site for information: cpaboard.state.wy.us. The current combined curricula (B.S. and M.S.) enable students to satisfy the educational requirements to sit for the CPA exam in Wyoming and other jurisdictions.

Business Economics, B.S.

Economics is the science of decision making and how to create value through trade. An business economics degree will provide you the tools to work on challenging policy issues and employ data analytics to address those issues.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Common Body of Knowledge - Credits: 33

College of Business Common Body of Knowledge Courses

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to

make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Economics Core: 9 Credits

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON4240 - Evolution of Economic Ideas

Credits: 3

Focuses on the most influential economists who have shaped the evolution of economic thinking throughout history. Emphasis is on tracing the evolution of economic thought into the modern intellectual foundation of economics. Traces changing economic thought from mercantilism through modern paradigms.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Restricted Restricted to Seniors in Economics, Business Economics, or a concurrent major with Economics.

Prerequisite: Senior standing and ECON 3010 and ECON 3020, or permission of instructor.

Economics Electives: 6 Credits

Any Economics Courses at a 4000+ level that have not been used to meet any other primary major requirements.

Advanced Business Electives: 6 Credits

Any business courses at a 3000+ level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 27 Credits

- Courses from any college at any level - Credits: 21
- Courses from any college at a 3000+ level - Credits: 6

Additional Requirements

All Business Economics majors must comply with requirements of the advanced business standing prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

A complete curriculum sheet is available from the Academic Advising unit of the GJSSC in the College of Business Building.

Business Economics majors must hold a 2.500 cumulative grade point average in all economics courses at graduation, as well as a minimum 2.500 cumulative UW grade point average and a minimum 2.500 grade point average in all College of Business courses.

With approval of the department chair or director of undergraduate studies, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of 4000-level economics courses.

Students who intend to continue on to graduate work are urged to give special attention to courses in economics theory, statistics and mathematics. Those planning a career in econometrics or mathematical economics should consult the department head as to mathematics and statistics requirements in these fields of study.

Economics, B.S.

Economics is the science of decision making and how to create value through trade. An economics degree will provide you with the tools to work on challenging policy issues and employ data analytics to address those issues.

University Studies Program

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Major Specific Courses - Credits: 48

Economics Core: 15 Credits

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON4240 - Evolution of Economic Ideas

Credits: 3

Focuses on the most influential economists who have shaped the evolution of economic thinking throughout history. Emphasis is on tracing the evolution of economic thought into the modern intellectual foundation of economics. Traces changing economic thought from mercantilism through modern paradigms.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Restricted Restricted to Seniors in Economics, Business Economics, or a concurrent major with Economics.

Prerequisite: Senior standing and ECON 3010 and ECON 3020, or permission of instructor.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics,

legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Economics Electives: 12 Credits

Any Economics courses at a 4000+ level that have not been used to meet any other primary major requirements.

Optional Quantitative Concentration: 21 Credits

ECON4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGEC 4230.

Dual Listed ECON 5230.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

ECON4530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 5530.

Prerequisite: ECON 3020, and one of STAT 2010, STAT 2050, STAT 2070, or STAT 2110.

Students must take one of the following courses:

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

Students will need Free Electives from any college at a 3000 + level - Credits: 15

Free Electives from Any College: 33 Credits

Courses from any college at any level - Credits: 33

Additional Requirements

The Economics major in the College of Business must complete 30 semester hours in economics courses.

All Economics majors must comply with course specific prerequisites for enrollment in upper-division courses and must complete all university studies courses as listed above previously. Students must earn a minimum grade of C (not C-) in all Economics courses.

This program is designed to meet the requirements of AACSB International (the Association to Advance Collegiate Schools of Business), the University of Wyoming, and the College of Business.

Minimum requirements include:

Minimum of 42 semester hours of 3000+ level courses. 30 of the 42 hours must be earned from UW.

2.50 grade point average in all College of Business courses, Economics courses, and all institution (UW) courses.

50% of the business credit hours must be from the University of Wyoming.

Grade of C (C- not acceptable) or above required for University Studies Program: FY, CI, C2, and C3.

Grade of C (C- not acceptable) or above required for common body of knowledge and major specific core courses.

A maximum of 6 hours at the 1/2000 level and 3/4000 level military science may be applied to degrees in the College of Business.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

With approval of the department chair, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of the 4000-level economics electives.

This program allows considerable flexibility for the student to specialize in interdisciplinary study. For example, the student can be advised on selecting upper level division courses for pre-law study, political economy, environmental and natural resources, women's studies, and international studies.

Students who intend to continue in graduate work should give special attention to courses in economic theory, statistics and mathematics. Those planning a career in mathematical economics or econometrics should consult the department head regarding the mathematics and statistics requirements in these fields of study.

Entrepreneurship, B.S.

For students who wish to start their own businesses, provides exposure to the development and testing of business concepts, and formulating and implementing business plans that will assist in the establishment and growth of these new ventures.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Entrepreneurship Core: 12 Credits

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

ENTR4700 - Business Model Creation and Launch

Credits: 3

Students build on previous learning to develop a complete business model including sales and marketing strategies, operations, financial forecasts, and partners. Deliverables include a pitch to start-up investors as part of a real-world entrepreneurship experience (for example, an entrepreneurship competition). Students learn primarily through hands-on application of concepts.

Prerequisite: ENTR 3700.

ENTR4750 - Theories of Entrepreneurship

Credits: 3

A broad examination of historical, literary, and business perspectives on entrepreneurship. Students explore the role of individuals, new ventures, and established organizations in the discovery, evaluation, and exploitation of opportunities. Emphasis is on the evolution of entrepreneurship theories over time, and current trends related to the application of these theories.

Prerequisite: ENTR 3700.

Entrepreneurship Elective: 3 Credits

Choose 1 from the following:

ENTR4910 - Topics in Entrepreneurship

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Prerequisite: Junior class standing, consent of instructor

ENTR4900 - Independent Study in Entrepreneurship

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study on an individual basis, any aspect of Entrepreneurship not included in other structure Entrepreneurship courses

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

Advanced Business Electives: 6 Credits

Any business course at a 3000 - 4000 level that has not been used to meet any other primary major requirements.

Free Electives from Any College - Credits: 27

21 (or 24*) of the 27 required hours must be 3000 - 4000 level which have not been used to meet any other requirement.

- Courses from any college at any level - Credits: 6 (or 3*)
- Courses from any college at 3000 - 4000 level - Credits: 21 (or 24*)

** If MGT 2030 is selected as the Entrepreneurship Elective*

Additional Requirements

The Entrepreneurship major is designed to assist students who wish to start their own businesses by providing them with exposure to the development and testing of business concepts. Analyzing the potential success of their concepts using a variety of tools and techniques, being flexible in developing new businesses and innovative ideas, and formulating and implementing business plans that will assist in the establishment and growth of these new ventures. The major provides students with exposure to issues involving family firms such as governance, succession and interpersonal relationships in both new ventures and established firms and prepares students to 1) start new businesses, 2) innovate in their own family firms and/or 3) be entrepreneurial in an existing business.

Finance, B.S.

The Finance major provides the principal concepts for students to understand financial management of business concerns and, if students desire, to specialize in bank management, corporation finances and investment management.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective.

Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Finance Core: 12 Credits

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

FIN4400 - Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 5400.

Prerequisite: FIN 2100, FIN 3310, IMGT 2400, advanced business standing.

FIN3310 - Investment Management

Credits: 3

Fundamental principles of investments and practical implications of financial theory. Students acquire a framework for understanding returns on financial assets, risk and return, fundamentals of portfolio theory, efficient market hypothesis, and asset pricing models. Other topics include financial statement analysis, behavioral finance, and introduction to options and futures.

Former Course Number [4310]

Prerequisite: FIN 2100 and advanced business standing.

FIN4250 - Advanced Corporate Finance

Credits: 3

Give students a better appreciation of the techniques and theories of corporate finance and investments that may have been introduced in introductory finance courses.

USP 2015 Code U5C3

Prerequisite: FIN 2100.

Finance Electives: 3 Credits

Choose 1 of the Following:

FIN3520 - Financial Markets

Credits: 3

Portfolio and capital market theory and the analysis of risk are introduced. Integrates theory into practical aspects of financial markets.

Former Course Number [4520]

Prerequisite: FIN 2100, STAT 2010 or STAT 2050/STAT 2070, and advanced business standing.

FIN4340 - Portfolio Management I

Credits: 3

Manage, monitor and invest real money provided by the State of Wyoming and the University of Wyoming Foundation. Students should obtain from the course the ability to construct investment portfolios from scratch, to learn the signals from which to obtain sell and buy data and the ability to act on this information.

Prerequisite: FIN 3310 and advanced business standing.

FIN4350 - Portfolio Management II

Credits: 3

Manage, monitor and invest real money provided by the State of Wyoming and the University of Wyoming Foundation. Students should obtain from the course the ability to construct investment portfolios from scratch, to learn the signals from which to obtain sell and buy data and the ability to act on this information.

Prerequisite: FIN 3310 and advanced business standing.

FIN4360 - Options and Futures

Credits: 3

Provides an introduction to financial futures such as currency futures and interest rate futures. Explores the markets on which they are traded. Also analyzes pricing of options and other derivative securities. Includes the leverage and risk aspects of options.

Prerequisite: FIN 2100, FIN 3310.

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

FIN4530 - Fixed Income Securities

Credits: 3

Provides an overview of the fixed income securities markets, pricing and risk management. In so doing, the course follows the CFA institute learning objectives of the CFA exam. We first introduce the major forms of fixed income securities. We then delve into valuation of these securities using a myriad of pricing techniques. We then embark on credit risk analysis, followed by fixed income portfolio management. Ultimately, the course aims at preparing students for most challenging and yet active fixed income markets: corporate bonds and mortgage securities.

Dual Listed FIN 5530.

Prerequisite: FIN 2100, advanced business standing.

FIN4540 - Banking Policy

Credits: 3

Intended to be taken either with or after FIN 4510, Bank Management, and will cover similar topics but in greater depth and breadth. Integrated application of these topics will take place in a selection of case studies, some of which will be analyzed in teams.

Prerequisite: FIN 4510 or concurrent enrollment in FIN 4510.

FIN4710 - Risk Management

Credits: 3

Analyzes the risk management and insurance problem in the business enterprise with emphasis on methodology for risk analysis; techniques for risk and loss control; and models for risk management decision-making.

Dual Listed FIN 5710.

Prerequisite: FIN 2100

Advanced Business Electives: 6 Credits

Any business courses at a 3000+ level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 27 Credits

- Courses from any college at any level - Credits: 21
- Courses from any college at a 3000+ level - Credits: 6

Management, B.S.

Studies the activities and operations that bring together human, financial, material, and information resources to achieve goals in organizations. Students can customize their degree within one of two tracks: Human Resources or General Management.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume

and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Management Core - Credits: 15

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

- Choose any 3 Approved Elective Courses within the same track area Credits: 9

Human Resources Track

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT4220 - Talent Acquisition

Credits: 3

In Human Resource Management one core function is recruiting and selecting the best talent to drive organizational success. Students will learn how to analyze jobs and develop recruitment plans to find qualified individuals, how to conduct professional and valid interviews, and how to successfully onboard employees into the organization.

Prerequisite: MGT 3410

MGT4240 - Performance and Compensation

Credits: 3

In Human Resource Management the management of employee performance and compensation are key functions that drive organizational success. This course helps students become familiar with total compensation systems, including intrinsic and extrinsic rewards, base and variable pay, and benefits, and their relationship with employee performance and satisfaction.

Prerequisite: MGT 3410

MGT4260 - Training and Development

Credits: 3

In Human Resource Management training employees in the latest technical and managerial skills and helping them gain developmental experiences helps drive organizational success. Students will learn how to recognize training and developmental needs, how to develop employee training systems, and how to implement these training systems. Additionally, students will learn about career and leader development.

Prerequisite: MGT 3410

MGT4470 - Negotiations and Conflict Resolution

Credits: 3
Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4900 - Independent Study in Management

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

General Management Track

MGT2030 - Principle-Based Ethics

Credits: 3
Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4900 - Independent Study in Management

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

DSCI4240 - Computer Applications in Decision Sciences

Credits: 3
A study of decision science topics such as mathematical programming, Monte Carlo simulation, forecasting, project management and decision theory. The applications of computer techniques is emphasized.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, and junior class standing.

DSCI4260 - Project Management

Credits: 3
Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ENTR2700 - Entrepreneurial Mindset

Credits: 3
This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3
This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Advanced Business Electives: 6 Credits

Any business courses at a 3000 - 4000 level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 27 Credits

18 (or 21 or 24*) of the 27 required hours must be 3000 - 4000 level which have not been used to meet any other requirement.

- Courses from any college at any level - Credits: 9 (or 6 or 3*)
- Courses from any college at 3000 - 4000 level - Credits: 18 (or 21 or 24*)

** 21 hours if MGT 2030 or ENTR 2700 are selected as one of the courses within either track; 24 hours if both courses are selected.*

Additional Requirements

The Management major focuses on using resources to achieve goals in organizations. It studies the activities and operations that bring together human, financial, material, and information resources. Management majors should graduate with an understanding of the business world and a set of tools to manage successfully parts or all of an organization's operations. The Management degree allows students the ability to customize their degree within one of two tracks:

1) Human Resources Track - An experiential-learning focused program designed to prepare students to develop and manage the human capital of an organization. Students will be prepared to develop and implement policies and practices for recruitment, socialization, training, development, compensation, performance management, career planning, and employee relations. As more organizations move away from viewing employees as a commodity, toward an understanding that employees are a resource that can be developed into a distinct competitive advantage to ensure organizational success, sustainability, and reputation in the human resource function in the workplace will become increasingly important. This track will help employees understand the core functions of the area of human resource management are to a) recognize the potential of individuals for and within an organization and b) structure a positive,

supportive, constructive work environment that will enable employees to work at their optimal capacity and achieve organizational goals.

2) General Management Track - A multi-faceted program designed to prepare students to manage multiple business functions across a variety of organizational types. A particular emphasis is to help develop interpersonal and problem-solving skills so they are capable of resolving a broad spectrum of problems for large or small organizations, or consult with organizations about these issues. This track is designed to provide students with a large degree of flexibility when considering different career paths, because students will be prepared to systematically think through the processes that organizations use to create and maintain sustainable competitive advantage. The track prepares students to work in for-profit businesses, non-profit organizations, entrepreneurial ventures, or in government organizations.

The Management major, including both tracks, is available to students as an online degree completion program.

All management majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

All management courses for the major require a minimum grade of C (not C-).

Marketing, B.S.

Marketing is a societal process and a set of organizational functions for creating, communicating, and delivering value to customers, and for managing relationships in ways to benefit local and global stakeholders.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Marketing Core - Credits: 9

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4450 - Advanced Marketing Management

Credits: 3

This course is designed to integrate prior marketing classes. Primary focus is on utilizing marketing concepts and tools in a strategic marketing decision-making context.

USP 2015 Code U5C3

Prerequisite: MKT 2100 , MKT 4520, junior class standing.

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

Marketing Electives - Credits: 6

Choose 2 of the following:

MKT4230 - Integrated Marketing Communication

Credits: 3

Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4250 - Digital Marketing

Credits: 3

This is an investigation of the digital marketing discipline with an emphasis on e-commerce models, online advertising, digital consumer behavior, privacy considerations, website structure, search engine optimization and social media marketing.

Prerequisite: MKT 2100

MKT4440 - Services Marketing

Credits: 3

This course is designed for students who may be interested in working in service industries and will address the distinct needs and problems of service firms in the area of marketing.

Prerequisite: HOSP 2000 or MKT 2100 .

MKT4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed INST 4540.

Prerequisite: MKT 2100 and junior class standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

MKT4900 - Independent Study in Marketing

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Marketing not included in other structured marketing courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT4910 - Topics in Marketing

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to

develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Advanced Business Electives: 6 Credits

Any business courses at a 3000 - 4000 level that have not been used to meet any other primary major requirements.

Free Electives from Any College - Credits: 27

- Courses from any college at any level - Credits: 9
- Courses from any college at a 3000 - 4000 level - Credits: 18

Additional Requirements

Marketing is a societal process and a set of organizational functions for creating, communicating, and delivering value to customers, and for managing relationships in ways to benefit local and global stakeholders. Marketing majors are employed in a wide variety of industries and governmental agencies where understanding and managing customer relationships are critical. Students find jobs in market research, advertising, public relations, professional selling, non-profit marketing, product management, retailing, digital marketing, and brand management.

The Marketing major is available to students as an online degree completion program.

Professional Sales, B.S.

Prepares students to manage business clients of for-profit and nonprofit organizations. Rigorous classroom experiences and industry opportunities equip students with essential knowledge and skills required to begin professional careers in sales.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics

and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Professional Sales Core - Credits: 12

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

SELL4310 - Advanced Selling

Credits: 3

This course provides students in-depth study of advanced sales concepts including relationship management, problem solving, negotiation, and proposal writing. It also explores the use of data-based decision making and the use of selling technologies. Students will learn how to use data to sell to both resellers and manufacturers.

Prerequisite: SELL 3310 and junior class standing.

SELL4320 - Sales Force Strategies

Credits: 3

This class will examine the linkages among management of the sales function, personal selling activities, and the marketing area. Students will gain an understanding of the role of the sales force in achieving of the firm's marketing, customer relationship, and revenue objectives.

Prerequisite: SELL 3310 and junior class standing.

SELL4330 - Sales Seminar

Credits: 3

This course provides students in-depth study of advanced, and cutting edge sales and sales management concepts presenting by top talent in industry. While topic can vary, this seminar teams students with industry experts to explore state-of-the-art thinking in technical sales, sales management, sales training, compensation, and team selling.

Prerequisite: SELL 3310 and junior class standing.

Professional Sales Electives - Credits: 3

Choose 1 from the following list:

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

DSCI4280 - Supply Chain Management

Credits: 3

Explores the links between overall business strategy and supply chain strategy, with a focus on strategic design and effective operation of supply chains to improve the organizations' productivity and competitiveness. Examines impact of technologies transforming global supply chains such as blockchain, machine learning, analytics, robotics, and other advancements.

Prerequisite: DSCI 2100, junior class standing, advanced business standing.

FIN4250 - Advanced Corporate Finance

Credits: 3

Give students a better appreciation of the techniques and theories of corporate finance and investments that may have been introduced in introductory finance courses.

USP 2015 Code U5C3

Prerequisite: FIN 2100.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

BUSN4600 - Advanced Internship in Business

Credits: 3
Max Credit 6

Provides students with practical business knowledge, policy, procedure, and decision making. Students work as interns in operating organizations.

Prerequisite: MKT 2100, MGT 2100, FIN 2100, advanced business standing, approved internship application through the Peter M. & Paula Green Johnson Student Success Center.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3
Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

SELL4900 - Independent Study in Professional Selling

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Professional Selling not included in other structured Professional Selling courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

SELL4910 - Topics in Professional Selling

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

Advanced Business Electives - Credits: 6

Any business courses at a 3000 - 4000 level that have not been used to meet any other primary major requirements.

Free Electives from Any College - Credits: 27

- Courses from any college at any level - Credits: 9
- Courses from any college at a 3000 - 4000 level - Credits: 18

Additional Requirements

The Professional Sales major prepares students to manage business clients of for-profit and nonprofit organizations. Specifically, this major provides business students with coursework and opportunities to equip themselves with essential knowledge and skills required to begin professional careers in sales. Careers in sales offer independence, ample financial reward, personal growth and opportunities for rapid advancement within organizations. Students that pursue a degree in professional sales will be challenged with industry engagement opportunities such as internships, and sales competitions. Students experience rigorous classroom experiences designed to develop the knowledge and practical skills needed to succeed during the first years of their sales careers including: oral and written communication skills, selling techniques and networking, the use of sales technology and customer information, and sales pipeline management.

All professional sales majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

All professional selling courses for the major require a minimum grade of C.

Minor

Banking and Financial Services Minor

The Banking and Financial Services minor introduces the student to the field and provides them with a greater understanding of how the banking system functions to provide service and value to the economy.

Finance Requirement

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

FIN4540 - Banking Policy

Credits: 3

Intended to be taken either with or after FIN 4510, Bank Management, and will cover similar topics but in greater depth and breadth. Integrated application of these topics will take place in a selection of case studies, some of which will be analyzed in teams.

Prerequisite: FIN 4510 or concurrent enrollment in FIN 4510.

FIN4530 - Fixed Income Securities

Credits: 3

Provides an overview of the fixed income securities markets, pricing and risk management. In so doing, the course follows the CFA institute learning objectives of the CFA exam. We first introduce the major forms of fixed income securities. We then delve into valuation of these securities using a myriad of pricing techniques. We then embark on credit risk analysis, followed by fixed income portfolio management. Ultimately, the course aims at preparing students for most challenging and yet active fixed income markets: corporate bonds and mortgage securities.

Dual Listed FIN 5530.

Prerequisite: FIN 2100, advanced business standing.

Advanced Business Electives

- Any Business Course (3000-level or higher) Credits: 3
- Any Business Course (3000-level or higher) Credits: 3

Minor Total Credits: 15

Blockchain Minor

This minor lays the foundation for gaining a competitive advantage in the blockchain ecosystem by providing an understanding of the implications and business opportunities associated with blockchain and digital assets and how they affect global industries.

Blockchain Core - Credits: 9

BKCH3021 - Fundamentals of Blockchain

Credits: 3

The purpose of this course is to provide a fundamental understanding of blockchain technologies and their implications. Topics will focus on understanding how blockchain may change the way we think about money, disrupt traditional financial institutions and eliminate costly intermediaries.

Prerequisite: Requires Junior Class Standing.

BKCH4021 - Business Applications of Blockchain

Credits: 3

This course provides advanced concepts underpinning the applications of global blockchain technologies for business and their use cases. Students will learn about the underlying technologies to be well-prepared to develop blockchain applications in the business world.

Prerequisite: BKCH 3021.

BKCH4121 - Case Studies in Block Chain

Credits: 3

This experiential learning focused course is targeted toward understanding the creation and development of blockchain ventures. Besides course lecture materials, students will study and support new blockchain ventures in a real-world setting.

Prerequisite: BKCH 3021.

Blockchain Electives - Credits: 6

Choose two from the following:

FIN4910 - Topics in Finance

Credits: 1-6

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ES4920 - Entrepreneurship for Engineers

Credits: 3

Traditional engineering education does not prepare graduates for work in entrepreneurial ventures. The goal of this course is to have students demonstrate skills in developing business ideas, performing preliminary market research, estimating cash flow, and launching a business.

Prerequisite: 9 hours within an engineering discipline and junior standing.

COSC4010 - Special Topics in Computer Science

Credits: 1-3

Individual or small group pursuit of interdisciplinary problems in the use of computers or study of advanced topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: COSC 3020 concurrently and consent of instructor.

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

Total for Minor: 15 Credits

Data Analytics Minor

The Data Analytics minor is designed to provide the student with the skills necessary to gather, process and interpret the large amounts of data available in today's fast paced business environment.

Required Core

DSCI4240 - Computer Applications in Decision Sciences

Credits: 3

A study of decision science topics such as mathematical programming, Monte Carlo simulation, forecasting, project management and decision theory. The applications of computer techniques is emphasized.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, and junior class standing.

IMGT4500 - Business Analytics

Credits: 3

This class prepares students to understand, manage, and visualize data. Students will learn how to apply the appropriate analytic tools, and communicate the findings and their relevance. Topics covered include data wrangling, descriptive analytics, predictive analytics, and prescriptive analytics.

Prerequisite: IMGT 1400, STAT 2050 or equivalent

ECON4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGECE 4230.

Dual Listed ECON 5230.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

OR

ECON4530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 5530.

Prerequisite: ECON 3020, and one of STAT 2010, STAT 2050, STAT 2070, or STAT 2110.

Advanced Business Electives

- Any Business Course (3000-level or higher) Credits: 3
- Any Business Course (3000-level or higher) Credits: 3

Minor Total Credits: 15

Economics Minor

Economics is the science of decision making and how to create value through trade. An economics degree will provide you the tools to work on challenging policy issues and employ data analytics to address those issues.

Economics Requirement

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Advanced Economics Electives

- Any ECON Course Credits: 3 (excl. ECON 3010, ECON 3020)
- Any ECON Course (4000-level) Credits: 6

Minor Total Credits: 15

Entrepreneurship Minor

A minor in entrepreneurship features business courses likely to be important to the creator of a new venture and/or someone seeking to bring innovation and creativity to an existing enterprise. **For non-College of Business majors only.**

Entrepreneurship Minor Requirements - Credits: 9

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

ENTR4700 - Business Model Creation and Launch

Credits: 3

Students build on previous learning to develop a complete business model including sales and marketing strategies, operations, financial forecasts, and partners. Deliverables include a pitch to start-up investors as part of a real-world entrepreneurship experience (for example, an entrepreneurship competition). Students learn primarily through hands-on application of concepts.

Prerequisite: ENTR 3700.

- *Combination of courses from the Approved Electives for the Entrepreneurship Minor list totaling 6 credit hours.*

Approved Electives for the Entrepreneurship Minor - Credits: 6

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

OR

ENR4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 4450.

Dual Listed ENR 5450.

Prerequisite: completion of USP O requirement; junior standing.

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGEC 2020, or AGEC 4500, or AGEC 4060, or FIN 2100.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

DSCI4230 - Purchasing and Supply Management

Credits: 3

Examines how to manage supply function. Topics include organization, planning procedures, category management, supplier selection, quality, inventory decisions, ethical and profession standards, costing, and price determination.

Prerequisite: DSCI 2100, junior class standing, advanced business standing.

ENTR3020 - Comparison of Entrepreneurial Ecosystems

Credits: 3

The goal of this course is to expose students to different entrepreneurial ecosystems and let them think about how the environment, legal, technical, cultural, and economic, could impact their entrepreneurial endeavors. The class will accomplish this by visiting a developed country and a developing country to learn about the ecosystems and talk with entrepreneurs to see how the forces impacted their startups.

Cross Listed ES 3020.

ENTR4750 - Theories of Entrepreneurship

Credits: 3

A broad examination of historical, literary, and business perspectives on entrepreneurship. Students explore the role of individuals, new ventures, and established organizations in the discovery, evaluation, and exploitation of opportunities. Emphasis is on the evolution of entrepreneurship theories over time, and current trends related to the application of these theories.

Prerequisite: ENTR 3700.

ES4920 - Entrepreneurship for Engineers

Credits: 3

Traditional engineering education does not prepare graduates for work in entrepreneurial ventures. The goal of this course is to have students demonstrate skills in developing business ideas, performing preliminary market research, estimating cash flow, and launching a business.

Prerequisite: 9 hours within an engineering discipline and junior standing.

FCSC3160 - Merchandise Retailing and Buying

Credits: 3

Provides students with the knowledge involved in the buying function of the merchandising and retailing process, including merchandise planning and retail math. Gives students the necessary skills to pursue a career in retail buying.

Prerequisite: FCSC 2185 and MATH 1000 or MATH 1400.

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3
Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4001 - Music Entrepreneurship Seminar

Credits: 2

Further crystalizes successful business enterprise development introduced in ENTR 2700. Student will hone entrepreneurial skills in idea creation, business incubation, development, research, and commercialization.

MUSC4005 - Internship in Music Business

Credits: 1

Offers an evaluated and professional work experience in public or private organizations on assignments relating to student's career goals, allowing students to explore the relationship between theory and practice in their major.

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

SELL4310 - Advanced Selling

Credits: 3

This course provides students in-depth study of advanced sales concepts including relationship management, problem solving, negotiation, and proposal writing. It also explores the use of data-based decision making and the use of selling technologies. Students will learn how to use data to sell to both resellers and manufacturers.

Prerequisite: SELL 3310 and junior class standing.

Additional Requirements

A minor in entrepreneurship features business courses likely to be important to the creator of a new venture and/or someone seeking to bring innovation and creativity to an existing enterprise. The minor includes exposure to various elements of the entrepreneurial process, including creativity, ideation, innovation, value proposition, and business model creation.

15 credit hours (9 credits of required courses, 6 credits from the Approved Elective for the Entrepreneurship Minor courses list)

(For non-College of Business majors only)

Hospitality Business Management Minor

The Hospitality Business Minor provides students an understanding of the operations of multiple domains of the hospitality industry including food and beverage, tourism and lodging, and entrepreneurship and consumer relations.

Minor Total Credits: 15

Required Courses - Credits: 9

HOSP2000 - Foundations of Customer Service & Hospitality

Credits: 3

This course examines critical elements of excellent customer service in the hospitality industry.

HOSP3000 - Managing Profitability in Hospitality

Credits: 3

This course examines the complexities of profitability in the hospitality industry, driven by issues of pricing and cost management. Areas explored can include restaurants, hotels, and other hospitality ventures.

Prerequisite: ACCT 2010

HOSP4800 - Hospitality Operations Management

Credits: 3

This course provides a broad-reaching, applications-based understanding of hospitality operations and management. It provides a managerial perspective on the operations of each component of hospitality management and operations, including the financial aspect.

Prerequisite: HOSP 2000

- Any Approved Elective Courses within one core area (see approved elective courses cores) Credits: 6

Approved Elective Courses - Credits 6

(choose any courses totaling 6 credits from one of three focal cores: Food & Beverage, Tourism & Lodging, or Management & Marketing)

Food & Beverage Core

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

- FCSC 4900 - Food Safety Credits: 3
The following HOSP courses are offered through Casper College via distance education
- HOSP 2320 - Food & Beverage Management Credits:3
- HOSP 2330 - Food & Beverage Services Credits:3
- HOSP 2535 - Planning and Control for Food & Beverage Operations Credits: 3

- HOSP 2540 - Bar & Beverage Management Credits: 3
The following FSHM courses are acceptable transferrable electives only offered in-person at Sheridan College in Sheridan, WY.
- FSHM 2540 - Bar & Beverage Management Credits: 2
- FSHM 2600 - Dining Room Management Credits: 2
- FSHM 2700 - Food & Beverage Services Credits: 3
The following HRM courses are acceptable transferrable electives only offered in-person at Central Wyoming College in Jackson, WY.
- HRM 1505 - Sanitation, Health, & Safety in the Hospitality Industry Credits: 3
- HRM 1510 - Dining Room Management & Food Delivery Systems Credits: 3
- HRM 1515 - Planning and Control for Food & Beverage Operations Credits: 3
- HRM 2500 - Quality Food Purchasing Credits: 3
- HRM 2525 - Wine Production, Service, & Appreciation Credits: 3
- HRM 2530 - Beverage Management Credits: 3

Tourism & Lodging Core

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

HOSP4910 - Topics in Hospitality

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

The following HOSP courses are offered through Casper College via distance education

- HOSP 1540 - Hotel Operations Management Credits: 3

- HOSP 2525 - Recreation & Tourism Planning & Development Credits: 3
- HOSP 2530 - Tourism Management Credits: 3
The following FSHM course is an acceptable transferrable elective only offered in-person at Sheridan College in Sheridan, WY.
- FSHM 2610 - Banquet Management Credits: 2
The following HRM course is an acceptable transferrable elective only offered in-person at Central Wyoming College in Jackson, WY.
- HRM 1501 - Lodging Management/Front Office Procedures Credits: 3

Management & Marketing Core

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MKT4230 - Integrated Marketing Communication

Credits: 3

Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4440 - Services Marketing

Credits: 3

This course is designed for students who may be interested in working in service industries and will address the distinct needs and problems of service firms in the area of marketing.

Prerequisite: HOSP 2000 or MKT 2100 .

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

The following HOSP course is offered through Casper College via distance education

- HOSP 1560 - Convention Sales & Management Credits: 3

The following FSHM course is an acceptable transferrable elective only offered in-person at Sheridan College in Sheridan, WY.

- FSHM 2520 - Security & Loss Prevention Management Credits: 3

Additional Requirements

The Hospitality Business Minor provides students an understanding of the operations of multiple domains of the hospitality industry including food and beverage, tourism and lodging, and entrepreneurship and consumer relations. Knowledge in these areas is critical for anyone desiring to work in the hospitality industry or for a business that services the hospitality industry.

Leadership Minor

A unique experience that prepares students to be principle-based leaders in every facet of their lives. Students develop leadership competencies and their own personal leadership style, and are prepared to make decisions in principle-based ways.

Minor Total Credits: 15

Required Courses - Credits: 9

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

LEAD4110 - Leadership in Practice

Credits: 3

The culminating leadership experience of the university's leadership program. Students draw upon their prior learning to lead an experiential project, benefiting a UW stakeholder. Students continue to learn about effective leadership through the lens of practitioner-oriented literature and apply their learning in advanced casework. The instructor acts as a leadership coach who helps students refine their leadership competencies and enhance leadership potential.

Prerequisite: LEAD 3610 , MGT 2030

Leadership Electives - Credits: 6

Complete a minimum of 6 credits with courses from the below list

ACES3000 - Peer Advising

Credits: 3

This course is designed to help you develop the skills, understanding, competencies, and dispositions needed to be an effective peer advisor at UW. Course content will cover student development theory, interpersonal skills, Ethics of working with college students, UW policies/procedures, UW academic requirements, and advising approaches.

When Offered (Offered Spring Semester Only)

Prerequisite: Sophomore standing and completion of USP15-C2

AGRI4600 - Developing Organizational Leadership

Credits: 3

A senior capstone experience for Bachelor of Applied Science students, bringing together reading, research, writing, and communication skills to focus on a major project. Leadership skills and approaches to organizational problem-solving are deepened using the structural, human resource, political, and symbolic frames to change and improve leadership and organizational culture.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, AGRI 3000, and senior status.

AGRI4700 - Elements of Leadership

Credits: 3

Focuses on a basic understanding of theory and practice. Will develop self-awareness and provide a foundation for

continued development of leadership skill in the workplace, the community and the home.

Dual Listed AGRI 5700.

Prerequisite: Restricted enrollment. Prior approval required.

AIR2010 - Team and Leadership Fundamentals I

Credits: 1-0.5

Focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate.

Prerequisite: AIR 1010 and AIR 1020 or consent of instructor.

AIR2020 - Team and Leadership Fundamentals II

Credits: 1-0.5

Continues AIR 2010.

Prerequisite: AIR 1010, AIR 1020, and AIR 2010 or consent of instructor.

AIR3010 - Leading People/Effective Communication I

Credits: 3

Teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.

USP 2015 Code U5C2

Former Course Number [4010]

Prerequisite: AIR 1010, AIR 1020, AIR 2010, and AIR 2020 or consent of instructor.

AIR3020 - Leading People/Effective Communication II

Credits: 3

Continues AIR 3010.

USP 2003-2014 Code U3CS

Former Course Number [4020]

Prerequisite: AIR 1010, AIR 1020, AIR 2010, AIR 2020, AIR 3010 or consent of instructor.

ARMY2010 - Leadership Skills and Management

Credits: 2

Studies principles and theories of leadership and team dynamics. Develops student leadership potential through the study of the values and attributes of effective leaders. Students gain self-confidence through the application of principles and techniques of leadership in a military environment.

Former Course Number [2030]

Prerequisite: ARMY 1010, ARMY 1020 or consent of instructor.

ARMY2020 - Leadership Skills and Small Unit Management

Credits: 2

Studies principles in small-unit management, tactics, operations and leadership. Develops students' self-confidence in their leadership ability through progressive application of knowledge, decision making, communication and control.

Former Course Number [2040]

Prerequisite: ARMY 2010 or consent of instructor.

ARMY2060 - Competent and Confident Leadership

Credits: 2

Interdisciplinary course whose aim is to encourage assessment of our obligations, commitments, and roles in society by inquiring into the nature of leadership and the responsibilities of both leaders and followers. Examines leadership traits that transcend the military aspect of leadership.

ARMY3010 - Leadership and Tactics I

Credits: 3

Studies leadership techniques and tactical operations at the small-unit level. Instruction covers the decision-making process, troop leading procedures, land navigation and operation orders. In-depth analysis of team/squad tactical procedures and techniques. Numerous student oral presentations and practical exercises.

USP 2003-2014 Code U30

Prerequisite: ARMY 2010, ARMY 2020, basic camp or consent of department head.

ARMY3020 - Leadership and Tactics II

Credits: 3

Studies platoon-level tactics and leadership techniques. Instruction covers the solving of complex tactical problems. Illustrates techniques for properly managing personnel, resources and time to accomplish organizational goals. Introduces Army staff functions and prepares students for successful completion of ARMY 3030.

Prerequisite: ARMY 3010.

ARMY4010 - Dynamics of the Military Organization I

Credits: 2

Studies and analyzes organization, resources and functions of military staff. Reviews formal staff problem-solving procedures, including student effective writing and briefing presentations. Introduces ethics and the military profession.

Former Course Number [4030]

Prerequisite: ARMY 3010, ARMY 3020 or consent of department head.

ARMY4020 - Dynamics of the Military Organization II

Credits: 2

Introduces military law; planning and management of personal affairs; Army transportation, logistics and personnel management systems. Studies officer/NCO relations. Includes student writing and briefing presentations on assigned topics.

Former Course Number [4040]

Prerequisite: ARMY 4010 or consent of department head.

CNSL2200 - Introduction to Student Leadership

Credits: 2

Acquaints student leaders with skills and competencies necessary for successful service in the university community.

When Offered (Normally offered each fall semester)

USP 2003-2014 Code U3CS, U3L

CNSL3010 - Student Leadership Strategies

Credits: 2

Develops skills and competencies requisite to effective leadership. Provides student leaders with skills they will profit from, both while enrolled at the university and later in their chosen careers.

When Offered (Normally offered each spring semester)

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

ENR2800 - Introduction to Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. Significant focus is on self-awareness, judgment, and decision-making. The specific skills and theories students learn throughout provide a foundation for other leadership endeavors.

Cross Listed ORTM 2800

Prerequisite: consent of instructor.

OR

ORTM2800 - Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. There is a significant focus on self-awareness, judgment, and decision-making. The specific skills and theories students learn in the class provide a foundation for other leadership endeavors.

Cross Listed ENR 2800

Prerequisite: COM 1

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

HP4152 - Honors Seminar

Credits: 3

Max Credit (Max. 6)

Asks students to confront a complex social issue, examine it from several perspectives and take a stance on some aspect of the issue. Topics vary from year to year. Required of UW Honors students.

Former Course Number [4150]

Prerequisite: COM1, COM2

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

NURS4830 - Leadership in Healthcare Today

Credits: 2

Focuses on the role of nurse leader and manager through integration of leadership, management, and organizational concepts, models, and theories. Emphasis in on leadership, followership, management, advocacy, professional development and activism, and managing resources.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4835 - Leading Nursing Practice

Credits: 2

Focuses on nurse leaders making a difference using evidence-based nursing practice. Learners utilize and synthesize basic concepts of professional nursing practice. This course creates the opportunity for learners to lead nursing practice in a variety of settings.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

GWST1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical and cultural aspects of leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed SOWK 1900.

USP 2003-2014 Code U3L, U3O

Former Course Number [4510]

UWYO3000 - Student Leadership in Supplemental Instruction

Credits: 2

Focuses on theoretical perspectives of group tutoring and peer leadership, best practices in supplemental instruction, and student reflection. Will strengthen leadership knowledge and skills and introduce effective methods for group facilitation and SI curriculum.

Prerequisite: closed to general enrollment.

(UWYO 3000 is a closed enrollment course. Students may only enroll if invited by LeaRN Program Director)

UWYO3010 - Student-Athlete Leadership Skills

Credits: 1

Designed for students to gain and apply leadership skills among other topics such as healthy relationships, nutrition, budgeting, and preparing for internships. This course builds on UWYO 1050 Student-Athlete Academic Success, and prepares the student for UWYO 3050 Student-Athlete Career Preparation.

Prerequisite: COM1.

Additional Requirements

The Leadership Minor is a unique interdisciplinary curricular, co-curricular, and extra-curricular experience that prepares students to be principle-based leaders in every facet of their lives. Through the Leadership Minor, students develop leadership competencies and their own personal leadership style, and are prepared to make decisions in principle-based ways.

All courses for the minor require a minimum grade of C (not C-).

Professional and Technical Selling Minor

Provides students with technical and/or liberal arts backgrounds with opportunities to pair these backgrounds with essential knowledge and skills required for careers in sales. Combines rigorous classroom experiences with industry opportunities.

Minor Total Credits: 15

Professional and Technical Selling Requirement - Credits: 3

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Professional and Technical Selling Approved Elective Courses - Credits: 6

Choose 2 courses from the list below

SELL4310 - Advanced Selling

Credits: 3

This course provides students in-depth study of advanced sales concepts including relationship management, problem solving, negotiation, and proposal writing. It also explores the use of data-based decision making and the use of selling technologies. Students will learn how to use data to sell to both resellers and manufacturers.

Prerequisite: SELL 3310 and junior class standing.

SELL4320 - Sales Force Strategies

Credits: 3

This class will examine the linkages among management of the sales function, personal selling activities, and the marketing area. Students will gain an understanding of the role of the sales force in achieving of the firm's marketing, customer relationship, and revenue objectives.

Prerequisite: SELL 3310 and junior class standing.

SELL4330 - Sales Seminar

Credits: 3

This course provides students in-depth study of advanced, and cutting edge sales and sales management concepts presenting by top talent in industry. While topic can vary, this seminar teams students with industry experts to explore state-of-the-art thinking in technical sales, sales management, sales training, compensation, and team selling.

Prerequisite: SELL 3310 and junior class standing.

Advanced Business Electives - Credits: 6

- Any business courses at the 3000 - 4000 level - Credits: 6

Additional Requirements

The professional and technical selling minor prepares students to manage business clients. This minor provides students with technical and/or liberal arts backgrounds with opportunities to pair these backgrounds with essential knowledge and skills required for careers in sales. Careers in sales offer independence, ample financial reward, personal growth, and opportunities for rapid advancement within organizations. Students experience rigorous classroom experiences designed to develop important knowledge and practical selling skills including: oral and written communication skills, selling techniques and networking, and the use of sales technology and customer information.

All professional and technical selling minors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All professional selling courses for the minor require a minimum grade of C.

15 credit hours (3 credits required course, 6 credits from the Approved Elective Courses for the Professional and Technical Selling Minor course list, 6 credits of Advanced Business Electives)

Real Estate Minor

The Real Estate minor enables students to gain broad understanding of this important market and as a result compete for jobs in many real estate related careers such as real estate management, investment, development, brokerage, appraisal and more.

Real Estate Requirement

FIN3100 - Real Estate Development

Credits: 3

This course presents the basic principles involved in real estate development. Topics include: land acquisition and appraisal, site improvements, market feasibility analysis, development financing, real estate government approval and regulations, real estate engineering and construction issues, real estate marketing and property operations and performances.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ACCT 2010.

FIN4800 - Real Estate Finance

Credits: 3

Exposes students to the fundamentals of real estate finance such as mortgage financing, commercial leases, pro-forma analysis, financial modeling, tax implications, leveraged real estate and valuation of income producing properties. While the theory of each topic will be presented, the focus is on the applications of the material.

Prerequisite: FIN 2100 and advanced business standing.

FIN4810 - Real Estate Investment

Credits: 3

Covers advance real estate investment topics such as investments risk and valuation sensitivity analysis, futures and real options, liquid real estate investments, analysis of development projects, and commercial mortgage backed securities. While the theory the topics will be presented, the course focus is on the application of the material.

Prerequisite: FIN 2100 and advanced business standing

Real Estate Electives

Complete a minimum of 6 credits with courses from the below list:

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

FIN3310 - Investment Management

Credits: 3

Fundamental principles of investments and practical implications of financial theory. Students acquire a framework for understanding returns on financial assets, risk and return, fundamentals of portfolio theory, efficient market hypothesis, and asset pricing models. Other topics include financial statement analysis, behavioral finance, and introduction to options and futures.

Former Course Number [4310]

Prerequisite: FIN 2100 and advanced business standing.

FIN3520 - Financial Markets

Credits: 3

Portfolio and capital market theory and the analysis of risk are introduced. Integrates theory into practical aspects of financial markets.

Former Course Number [4520]

Prerequisite: FIN 2100, STAT 2010 or STAT 2050/STAT 2070, and advanced business standing.

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

FIN4540 - Banking Policy

Credits: 3

Intended to be taken either with or after FIN 4510, Bank Management, and will cover similar topics but in greater depth and breadth. Integrated application of these topics will take place in a selection of case studies, some of which will be analyzed in teams.

Prerequisite: FIN 4510 or concurrent enrollment in FIN 4510.

FIN4710 - Risk Management

Credits: 3

Analyzes the risk management and insurance problem in the business enterprise with emphasis on methodology for risk analysis; techniques for risk and loss control; and models for risk management decision-making.

Dual Listed FIN 5710.

Prerequisite: FIN 2100

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

BUSN4600 - Advanced Internship in Business

Credits: 3

Max Credit 6

Provides students with practical business knowledge, policy, procedure, and decision making. Students work as interns in operating organizations.

Prerequisite: MKT 2100, MGT 2100, FIN 2100, advanced business standing, approved internship application through the Peter M. & Paula Green Johnson Student Success Center.

Additional options for electives may be available. Consult your advisor for more options.

ERS4100 - Property I

Credits: 3

Property I addresses the nature of property ownership and the rights associated with property as well as the acquisition and transfer of ownership rights in property and the sharing of ownership rights over time, including estates, future interest, and concurrent estates.

ERS4105 - Property II

Credits: 3

Property II covers rights inherent to the ownership of property and public limitations on those rights.

Prerequisite: ERS 4100.

ERS4110 - Law of Contracts

Credits: 3

The Law of Contracts addresses the formation of a contract and the meaning of agreements and the justification of non-performance and breach.

Prerequisite: MGT 1040 and WB/C

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4130 - Oil and Gas Law

Credits: 3

Focuses on the basic legal rules and principles governing the ownership and development of oil and gas, derived from a combination of property, contract, administrative, tort, and constitutional law.

ERS4135 - Advanced Energy Law

Credits: 3

Covers oil, gas and other energy development and financing arrangements including assignments, leases, farmouts, joint operating agreements, purchase and sale agreements, service agreements and marketing agreements. Covers oil, gas and other energy development regulation, including, oil and gas conservation commission and state and federal environmental regulation. Introduces other forms of energy development, including, but not limited to, renewables, nuclear, CCUS, hydrogen, and the various agreement and regulatory nuances of such energy development. Covers ethical issues that may arise in energy development.

USP 2015 Code U5C3

Prerequisite: ERS 4130.

ERS2010 - Introduction to Land Management

Credits: 3

Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

Minor Total Credits: 15

Graduate

Accounting, M.S.

Students who wish to become professional accountants will find the online MS in Accounting degree to be one that enables them to develop both the personal and professional skills needed to enjoy a productive career.

Additional Requirements

The objectives of the master of science in accounting are:

- To provide students with an advanced understanding of the field of accounting,
- To provide students with specific advanced knowledge in selected sub-topics within accounting,
- To provide students with professional skills that will enable them to enjoy productive and rewarding careers in accounting and accounting-related areas.

The program consists of a minimum of 30 semester credit hours of graduate coursework. Students must complete coursework in accounting and elective business and/or non-business courses as approved by program leadership. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level accounting or non-accounting courses (approximately six total credit hours). Non-accounting courses should be selected in consultation with the student's graduate adviser. Non-accounting courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director prior to the first day of such classes. Courses reserved for graduate credit may also not be counted towards the undergraduate degree requirements. Approved reservation of courses for graduate credit does not guarantee admission to the graduate program.

Core Accounting Courses

Students must take these 4 core accounting courses (minimum 12 credit hours):

ACCT5030 - Advanced Financial Accounting

Credits: 3

Advanced topics in financial reporting for students planning careers as professional accountants. Topics may include: business combinations, consolidated financial reporting, segment and interim reporting, SEC reporting, multinational accounting and reporting, and other emerging topics.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5040 - Seminar in Managerial Accounting

Credits: 3

Organizational development of financial and nonfinancial budgets, interaction between performance measurement systems and human behavior, and advanced topics in uses of information for decision making.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5060 - Auditing II

Credits: 3

An in-depth study of the financial statement audit and the professional responsibilities of public accountants. The role of professional judgment and skepticism is emphasized in case studies and research involving current auditing issues, including financial statement fraud.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5070 - Tax II

Credits: 3

Choice of entity and special tax subjects. Emphasis will be placed on the importance of ethical considerations, competent tax research, and thoughtful tax planning.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

Required Accounting Elective

Students must take one of the following courses:

ACCT5065 - Fraud Examination

Credits: 3

The study of fraud against organizations and individuals. Includes consideration of how and why fraud is committed, the basics of fraud investigation, and fraud prevention. Coverage may also include an in-depth study of specific fraud cases based on the above elements.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5066 - Seminar on Management Fraud

Credits: 3

An in-depth study and analysis of the causes, methods, and consequences of financial statements fraud committed by top management in the organization. The course covers psychological and criminological theories of management fraud, as well as detailed analysis of high-profile management frauds. Seminar format.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

Note(s):

NOTE: ACCT 4060, ACCT 4900, ACCT 5000, and ACCT 5940 are not applicable to M.S. accounting students' programs of study.

The student must complete the required coursework with a minimum GPA of 3.000 on a 4.000 scale.

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid suspension. If a 3.000 GPA is not attained in the subsequent semester, the student will be suspended from the MS Accounting program and the University of Wyoming.

Students must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Business Administration, M.B.A.

The UW MBA program offers a 1-Year Early Career MBA tailored to those looking to gain the needed experience and business insights required in today's competitive marketplace.

Additional Requirements

- Thirty-six (36) credit hours of graduate coursework, including participation in all MBA Program activities (orientation, Jackson Leadership Summit, MBA Executive Speaker Series, Professional Development, Experiential Leadership Program, etc.). Please note that students enrolled in any dual degree MBA program are required to complete all MBA participation activities and the core coursework.
- This is a cohort based program and while the course sequence is highly structured, there may be the opportunity to extend the duration of the one-year program. Course sequence is subject to change at the discretion of the MBA Director.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Course of Study

MBA Core Requirements (27 Credit Hours)

Required of all MBA students including all dual degree students.

MBAM5101 - MBA Foundations

Credits: 1

The purpose of this course is to prepare students for the academic rigors of the MBA program.

Restricted Enrollment in MBAM or MBAF degree program.

Prerequisite: Admission to full-time MBA program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating

customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

MBAM5107 - Decision Making I

Credits: 1

This course develops a systematic process for making decisions in complex business situations, by integrating six dimensions of business risk: competitive, financial, organizational, legal, social, and ethical. The process combines analytical and ethical reasoning methods that compensate for the flawed decision making common in business organizations.

Prerequisite: Admission to the MBAM program.

MBAM5209 - Decision Making II

Credits: 1

An experiential learning course that builds on MBAM 5107. Students apply systematic business decision making process to real-world business situations. Student teams work directly with owners and managers of Wyoming companies to address their strategic, competitive, operational, financial, and/or administrative challenges in real time.

Prerequisite: MBAM 5107.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MBA Elective Requirements

- MBA-MBA students, including dual degree students, must take an additional 9 credit hours of 4000 or 5000 level College of Business courses. Dual degree students (JD/PharmD/MS) may take 3 credit hours outside the College of Business following dual degree agreement guidelines. Please contact your advisor for additional information.

**Note: A maximum of 12 credit hours may be taken at the 4000 level for graduate credit.*

Business Administration, Online, M.B.A.

The Online MBA Program is specifically designed for business professionals interested in a fully AACSB accredited, 100% online program that fits their busy schedules and enhances their understanding of decision-making in the workplace.

Additional Requirements

- 30 credit hours of graduate credit as outlined in the Course of Study.
- Concentration Available: Energy (EMN)
- Optional Certificate Add-Ons: CFP (certified financial planning) or Energy Business. Adding on a certificate may increase required number of credit hours. Please contact us for additional information.
- This is a cohort based program that can be flexible in sequence depending on student needs. Course sequence is subject to change at the discretion of the MBA Director.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, student will be immediately dismissed from the program.

Prerequisite Courses

Prerequisite coursework may be requested based on experience and undergraduate coursework at the discretion of the MBA Program Director as part of the application process. Please contact the MBA & Professional Graduate Program Office for additional information.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 in the MBA Program to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program. Other requirements involving program dismissal include:

- A student who earns a grade lower than a "C" in any course may be immediately dismissed from the program.

Course of Study

MBA Core Requirements (21 Credit Hours)

Required of all MBAX students.

MBAX5104 - Organizational Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operation, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analysis including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamental principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval

MBAX5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval

MBAX5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5330 - The Global Business Environment

Credits: 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBA Elective/Concentration Requirements

- MBA-MBAX students must take an additional 9 credit hours of 5000 level College of Business courses.
- Energy Concentration students will complete the additional 9 credit hours of coursework as follows:
 - ACCT 5503 Fundamentals of Accounting in the Energy Industry. 3.
 - MGT 5504 Energy Industry Value Chain. 3.
 - FIN 5502 Energy Finance: Project Evaluation. 3.

Economics, M.S.

Economics is the science of decision making and how to create value through trade. An economics degree will provide you with the tools to work on challenging policy issues and employ data analytics to address those issues.

Requirements - Total Credits: 30

Required Economics Courses - Credits: 15

ECON5010 - Advanced Macroeconomic Analysis

Credits: 3

An advanced application of economic theory to complex macroeconomics problems facing the economy of the state and nation, such as inflation, unemployment, and fiscal and monetary policies.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGECE 5230.

Dual Listed ECON 4230.

Prerequisite: admission to the Master's Program in Economics.

ECON5300 - Game Theory

Credits: 3

Discusses a variety of important concepts from game theory - the study of how individuals interact strategically. The course focuses on the development of students' ability to think strategically. To that end the course covers basic concepts in game theory.

Restricted Course is restricted to MS ECON

Prerequisite: admission to the graduate program in Economics and Finance.

ECON5390 - Math Microeconomics

Credits: 3

This course provides a broad set of practical tools that allow an analysis of important economic problems. The mathematical tools analyze human behavior and predict the response of economic systems to changes in circumstances and alternative policies, for applications such as investment project evaluation, capacity expansion, production decisions, or demand for various goods.

Dual Listed ECON 4390.

Prerequisite: ECON 3010, ECON 3020, MATH 2205 or MATH 2355.

ECON5530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 4530.

Prerequisite: admission to the Master's program in Economics.

Graduate Elective Courses

Plan A - 12 hours of Graduate electives required plus 4 credits of Thesis Research credit

Plan B - 15 hours of Graduate electives.

A maximum of 6 hours can be taken at the 4000 level.

Additional Requirements

Program Specific Degree Requirements

A minimum of 18 hours in economics is required; at least 15 of these must be at the 5000 level. A basic core sequence of ECON 5010 (macro), ECON 5390 (math micro), ECON 5530 (computational), ECON 5230 (econometrics), and ECON 5300 (game theory) is required, which completes 15 hours of 5000-level courses, which is required.

The student must complete 26 hours of coursework and 4 hours of ECON5960 - Thesis Research for the Plan A option. The student must complete 30 hours of coursework and a project for the Plan B option.

Students may take 4000-level courses for graduate credit up to 6 hours.

A maximum of 6 semester hours of graduate coursework not used toward any other degree from another institution may be applied to the M.S. economics program subject to regulations regarding transfer of credit listed in this bulletin and with the approval of the director of graduate studies.

At the beginning of the third semester, the student selects a major professor who directs the Plan A thesis or Plan B project. A graduate committee, nominated by the major professor, the student, and the department chair, conducts an oral examination of the student on the project or thesis and area he/she has studied in the program. A favorable report by the committee and approval by the Office of the Registrar complete the degree requirements.

The majority of students complete the M.S. degree within two years.

QuickStart Master of Science in Economics

UW undergraduates can complete the M.S. degree in just one year after completing their B.S. degree if they apply to the QuickStart M.S. program in their junior year. To be eligible, students must have (and maintain) a cumulative GPA of 3.200 or better as well as an Economics GPA of 3.200 or better. They are also required to take the GRE by the fall of their senior year and score above 300 combined on the verbal and quantitative sections combined. The GRE requirement can be waived with letters of recommendation from two UW faculty members. Admission to the QuickStart program allows students to double-count 6 credits of courses taken as an undergraduate towards both the B.S. and M.S. degrees, and reserve an additional 6 credits of courses taken as an undergraduate towards the M.S. degree alone. This then leaves only 18 credits to be taken after completion of the B.S. degree, which is feasible in just one year.

Economics, Ph.D.

Economics is the science of decision making and how to create value through trade. An economics degree will provide you with the tools to work on challenging policy issues and employ data analytics to address those issues.

Requirements - Total Credit Hours: 72

Required Economics Courses - Credits: 30

ECON5010 - Advanced Macroeconomic Analysis

Credits: 3

An advanced application of economic theory to complex macroeconomics problems facing the economy of the state and nation, such as inflation, unemployment, and fiscal and monetary policies.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5020 - Advanced Microeconomic Analysis

Credits: 3

A rigorous course in the analysis of demand and the theory of consumer behavior, supply and the theory of the firm, market equilibrium and stability, and income distribution.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5120 - Advanced Analysis II-Microeconomics

Credits: 3

Part of a sequence with ECON 5020. It is advanced microeconomic analysis covering general equilibrium and welfare economics, and advanced topics in consumption and production theory.

Prerequisite: ECON 5010, ECON 5020.

ECON5130 - Dynamic Optimization

Credits: 3

Covers methods for obtaining the optimal choice for economic variables that change over time, including calculus of variations and optimal control. These methods are applied to various dynamic economic problems, including optimal resource extraction, optimal capital allocation, and optimal growth.

Prerequisite: ECON 5020, ECON 5370.

ECON5310 - Research Methods

Credits: 3

A variety of topics of importance to the advanced student who is preparing to write his or her dissertation are discussed.

Restricted Economics Graduate Students

Prerequisite: Admission to the graduate program in Economics

ECON5330 - Advanced Mathematical Economics

Credits: 3

Study of the principal mathematic techniques used in economic theory and modeling. Taught jointly with ECON 5020.

Prerequisite: graduate standing.

ECON5350 - Advanced Econometrics Theory I

Credits: 3

Review topics in probability theory and mathematical statistics. Also provides an introduction to the classical linear regression model, estimation, hypothesis testing, and prediction.

Prerequisite: Calculus and Basic Statistics.

ECON5360 - Advanced Econometrics Theory II

Credits: 3

Continue the analysis in ECON 5350 and cover topics such as panel data, limited-dependent variables, simultaneous systems, nonlinear models, Bayesian analysis, and time series methods.

Prerequisite: ECON 5350.

ECON5400 - Advanced Resource and Environmental Economics

Credits: 3

This course examines how we use economics to sharpen natural resource use and environmental policy. We focus on the behavioral and institutional underpinnings of market success and failures, choice under risk, time, space, conflict, cooperation, incentive design, non-market valuation, and prosperity.

Prerequisite: ECON 3020, ECON 4400 or consent of instructor.

ECON5410 - Seminar in Advanced Resource and Environmental Economics

Credits: 1-3

Max Credit (Max. 6)

This course explores the modern theory and empirics in environmental and natural resource economics. We focus on cost-benefit analysis, land use, energy, biodiversity protection, climate change, forestry, ecosystem services, fisheries, water, and sustainable development.

Prerequisite: ECON 4400 and ECON 5020.

Graduate Elective Courses - Credits: 12

Dissertation Research - Credits: 30

Additional Requirements

The doctor of philosophy degree in the field of economics at the University of Wyoming requires a minimum of 42 hours of coursework. All coursework must be at the graduate (5000) level.

The program is designed to give the student a strong foundation in economic theory and the basic quantitative tools necessary for professional research. If students receive a grade lower than a A during their first year, they must take a comprehensive exam in that field (microeconomics and/or econometrics) during the summer to continue to the second year of the PhD program. The program's qualifying exam takes the form of a research paper written during the second summer and defended to, and approved by, a faculty committee by early in the third year, with revisions and resubmission required by December. Students who pass the qualifying paper requirement receive an MS degree and move on in the PhD program, while students who fail this requirement receive the MS degree and fail out of the PhD program.

During the third year, or no later than the first few weeks of the fourth year, a graduate committee nominated by the student's major professor and the director of graduate studies conducts an oral examination of the student. The purpose of the oral examination is to determine whether the student has formulated a workable dissertation project and has the necessary skills to complete it.

Following successful completion of the dissertation, and completion of a departmental requirement of 30 hours of dissertation research, the student presents an oral defense to the graduate committee. The doctor of philosophy degree is granted on recommendation of the committee and approval by the Office of the Registrar, providing all other requirements have been satisfactorily fulfilled.

Finance, M.S.

The MS in Finance program is a rigorous, yet practical program built on the foundations of principles and practices in modern finance, with an optional CFP (Certified Financial Planner) track.

Additional Requirements

The program consists of a minimum of 30 semester hours of graduate coursework. Students must complete coursework in finance and elective business and/or non-business areas as approved by program leadership. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level finance or non-finance courses (approximately six hours). Non-finance courses should be selected in consultation with the student's graduate advisor. Non-finance courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director prior to the first day of such classes. Courses reserved for graduate credit may also not be counted towards the undergraduate degree requirements. Approved reservation of courses for graduate credit does not guarantee admission to the graduate program.

The student must complete the required coursework with a minimum GPA of 3.000 on a 4.000 scale.

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid suspension. If the 3.000 GPA is not attained in the subsequent semester, the student will be suspended from the MS in Finance program and the University of Wyoming.

Student must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, student may be immediately dismissed from the program

General Finance Track

FIN5310 - Advanced Investment Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5250 - Cases in Corporate Finance

Credits: 3

Max Credit 3

The goal of this course is to enhance students' understanding of major corporate decisions, and to explore the role such decisions play in value creation within a corporation. Some issues covered in the course will include analyzing companies' historical performance, forecasting future performance, estimating hurdle rates, and analyzing resource allocation choices.

Restricted MS Finance and/or CFP Certificate

Prerequisite: Admission to MS Finance and/or CFP Certificate Program, or department approval

FIN5400 - Advanced Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 4400.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

- 21 credit hours of 4000 or 5000 level College of Business electives.
- Maximum of 6 credit hours can be taken at the 4000 level.

CFP Track

FIN5070 - Tax Planning for Financial Planners

Credits: 3

Focuses on principles, current law, and practice of income taxation and its impact on financial planning for individuals, couples, and families in their role as investors, employees, and business owners.

Dual Listed FIN 4070.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5250 - Cases in Corporate Finance

Credits: 3

Max Credit 3

The goal of this course is to enhance students' understanding of major corporate decisions, and to explore the role such decisions play in value creation within a corporation. Some issues covered in the course will include analyzing companies' historical performance, forecasting future performance, estimating hurdle rates, and analyzing resource allocation choices.

Restricted MS Finance and/or CFP Certificate

Prerequisite: Admission to MS Finance and/or CFP Certificate Program, or department approval

FIN5310 - Advanced Investment Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5400 - Advanced Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 4400.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5720 - Insurance and Retirement Planning

Credits: 3

This class is designed to help graduate students understand various topics in retirement and insurance planning for individuals and families.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5750 - Fundamentals of Financial Planning

Credits: 3

This is a survey course for financial planning and wealth management. The topics include insurance planning, tax planning, investment planning, retirement planning, estate planning, and professional conduct. The course will focus on acquiring a framework for understanding the major components of financial planning and developing a coordinated financial plan.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5780 - Estate Planning

Credits: 3

This course will cover general reliability modeling and evaluation; probability and stochastic processes; system modeling; methods of reliability assessment (state space, frequency balancing, cut-set and tie-set analysis, decomposition, Monte Carlo simulation); and reliability modeling and analysis of electric power systems: bulk power systems, distribution systems, and industrial systems.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5800 - CFP Capstone

Credits: 3

This course will be organized around the four major areas of financial planning, as outlined by the College of Financial Planning curriculum. These four key areas are as follow: retirement planning; income tax planning; investment planning; and estate tax planning.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to the MS program or permission of the Department Head.

- 6 credit hours of 4000 or 5000 level College of Business electives.
- Maximum of 6 credit hours can be taken at the 4000 level.

Marketing, Ph.D.

The program of study draws from extant marketing theory, combined with studies in basic and other applied sciences to create a base of knowledge, which is supplemented with courses in the gathering and analysis of qualitative and quantitative data.

Additional Requirements

The Department of Management and Marketing offers a program leading to a Doctor of Philosophy in Marketing. The program of study draws from extant marketing theory, primarily in consumer behavior, combined with studies in the basic sciences (e.g., anthropology, psychology, sociology) and other applied sciences (e.g., environmental sciences) to create a base of knowledge acceptable for marketing scholarship in higher education, and a depth of knowledge conducive to a stream of publishable research in a specific topic area. Theoretical development is supplemented with course work in the gathering and analysis of qualitative and quantitative data, which prepares the student for rigorous exploration of marketing phenomena. Students are required to complete 72 semester hours and a scholarly dissertation that contributes to the knowledge foundations in marketing and contributes to the basic sciences that informed the inquiry. Semester hours will include core marketing classes, outside elective courses in statistics, basic social sciences, and/or interdisciplinary studies in environmental and natural resources, and dissertation work. First and second year research projects are also required, aimed at the student having published articles in respected marketing and social science journals before program completion. Comprehensive exam is completed at the end of the second semester. All

doctoral students are expected to teach while enrolled in the program. The program is designed to give students a strong research background and intensive teaching experience.

We begin accepting applications in October for the following fall semester. All completed applications must be submitted by February 1st. Admission requirements include:

- A Bachelor's Degree and work toward or completion of a master's degree from an accredited institution, preferably in business or a core social science discipline
- Completed application (i.e., all required materials submitted) on the UW Graduate Programs Applications system
- \$50 application fee paid to University Admissions
- Copies of all undergraduate and graduate program transcripts scanned and uploaded to the UW system, and official transcripts from each post-secondary institution attended submitted to the UW admissions office
- A valid GRE or GMAT score. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be requested from the testing organization and sent to UW
- Three strong letters of recommendation, with one or more being from an academic. The letters must be uploaded by the recommenders to the UW system in MS Word or .pdf format.
- A personal statement summarizing your interest in pursuing doctoral studies and speaking to questions or issues you wish to research. This document must be uploaded to the UW system as an MS Word or .pdf document
- For international students, Test of Foreign Language (TOEFL) scores are required. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be submitted to UW from the testing organization. A minimum TOEFL score of 76 (online) or 540 (paper) is required for admission

Certificate

Certified Financial Planning Certificate (Graduate)

The certificate is composed of 18-credits of masters-level graduate coursework with the primary goal of providing students with the education, training, and skills necessary to be able to sit for the Certified Financial Planner (CFP) examination.

Additional Requirements

The curriculum is aligned with the CFP® Board's Principal Knowledge Topics and covers principles and practices of essential areas of financial planning, including:

- Wealth Management
- Investment Management
- Tax Planning
- Estate Planning
- Insurance and Retirement Planning

CFP Certificate Requirements

FIN5070 - Tax Planning for Financial Planners

Credits: 3

Focuses on principles, current law, and practice of income taxation and its impact on financial planning for individuals,

couples, and families in their role as investors, employees, and business owners.

Dual Listed FIN 4070.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5310 - Advanced Investment Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5720 - Insurance and Retirement Planning

Credits: 3

This class is designed to help graduate students understand various topics in retirement and insurance planning for individuals and families.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5750 - Fundamentals of Financial Planning

Credits: 3

This is a survey course for financial planning and wealth management. The topics include insurance planning, tax planning, investment planning, retirement planning, estate planning, and professional conduct. The course will focus on acquiring a framework for understanding the major components of financial planning and developing a coordinated financial plan.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5780 - Estate Planning

Credits: 3

This course will cover general reliability modeling and evaluation; probability and stochastic processes; system

modeling; methods of reliability assessment (state space, frequency balancing, cut-set and tie-set analysis, decomposition, Monte Carlo simulation); and reliability modeling and analysis of electric power systems: bulk power systems, distribution systems, and industrial systems.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5800 - CFP Capstone

Credits: 3

This course will be organized around the four major areas of financial planning, as outlined by the College of Financial Planning curriculum. These four key areas are as follow: retirement planning; income tax planning; investment planning; and estate tax planning.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to the MS program or permission of the Department Head.

- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Energy Business Certificate (Graduate)

The online Energy Business Certificate is designed for professionals working in the energy industry who are interested in gaining knowledge related to real-world application within the highly competitive industry.

Additional Requirements

The Certificate in Energy Business is composed of 9-credits of masters-level graduate coursework in the College of Business, with the primary goal of achieving mastery and professional skills common to functional business roles within the energy industry. Specifically:

- Develop a working understanding of the concepts and practices of Supply Chain Management to make strategic support decisions within the energy industry.
- Acquire the foundation necessary to work in the energy industry as a financial statement analyst, manager, auditor, or accountant.
- Utilize core capital budgeting, techno-economic cashflow modeling and other finance concepts to evaluate energy industry project investments.
- Demonstrate effective problem solving, written, and oral communication skills in the context of the energy industry.

Certificate Requirements

FIN5502 - Energy Finance: Project Evaluation

Credits: 3

This course introduces students to the key methods used to evaluate investments in energy industry projects from the perspective of the developer as well as the lender and other stakeholders. Topics include project finance modeling, techno-economic considerations, business structures, regulatory and legal issues, risk analysis, and deal terms.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director.

ACCT5503 - Fundamentals of Accounting in the Energy Industry

Credits: 3

Introduces students to basic financial accounting and reporting issues related to energy producing activities. Specifically, the course will investigate current accounting practices of energy producing companies related to exploration, acquisition, development, and delivery of energy products. The course will also cover financial requirements of the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and the Securities and Exchange Commission (SEC).

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MGT5504 - Energy Industry Value Chain

Credits: 3

Examines the overall energy industry with detailed exploration of the major energy subsectors and supply chains. Students will develop knowledge of the energy industry value chain including coverage of market dynamics, prevalent strategies, finance, operations, externalities and network effects, environmental and ethical considerations, and associated policy issues.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director

- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

College of Education

6 Education

Scott Thomas, John P. "Jack" Ellbogen Dean

Andrea C. Burrows: Associate Dean for Undergraduate Programs

Jenna M. Shim: Associate Dean for Graduate Programs

(307)766-6668 FAX: (307)766-3145 Building Phone:

Web site: www.uwyo.edu/education

The College of Education prepares teachers, counselors, administrators and other service personnel for positions in public education in Wyoming, throughout the nation, and the world. The teacher education program incorporates content area courses from the various colleges on campus with experiences in educational methodology. Programs are designed to provide students with a maximum amount of experience in the classroom.

Graduates of the College of Education are prepared to deal with youth growing up in a rapidly changing world. Programs are experiential, collaborative, outcomes based, and technologically supported. Emphasis is placed on professional ethics, a commitment to lifelong learning, and respect for all individuals in our culturally diverse society.

Organization of the College

The College of Education includes undergraduate teacher education and graduate studies in education. Schools offering undergraduate and graduate programs in the college include:

- **School of Teacher Education**

- **School of Counseling, Leadership, Advocacy, and Design**

Undergraduate and graduate education are supported by several units. The Teacher Preparation and Advising Office, McWhinnie Hall room 100, coordinates activities dealing with academic advising, field experiences, and teacher licensure.

The Wellspring Counseling Clinic provides counseling services to students, staff, faculty of the university, as well as the community at-large.

The College of Education, College of Arts and Sciences, Wyoming community colleges, many Wyoming districts, the Wyoming Professional Teaching Standards Board, and the Wyoming Department of Education are part of the Wyoming School-University Partnership, which grounds collaborative efforts across the state related to K-12 preservice and inservice education.

The Laboratory School, an Albany County School District entity, serves the college, the university, the school district, and the state as an educational center for research, development, instructional advancement, and inservice education. The school enrolls students in pre-school through eighth grade.

Computer laboratories in the college feature a wide range of capabilities including Internet access. The laboratory equipment is frequently updated to serve the needs of students, faculty and staff.

The Learning Resource Center is a branch of the university library system. Educational materials are available to serve the needs of K-12 students, university students, university faculty and public school faculty in Wyoming

Faculty in the College of Education

School of Counseling, Leadership, Advocacy, and Design

School Director: Peter Moran

Associate Professors:

KARA L. CARNES-HOLT, B.A. East Texas Baptist University 2000; M.S. Ed. Baylor University 2003; Ph.D. University of North Texas 2010; Associate Professor of Counselor Education 2016, 2010.

COURTNEY McKIM, B.S. Boise State University 2006; Ph.D. University of Nebraska 2011; Associate Professor of Educational Research 2020, 2011.

MICHAEL M. MORGAN, B.S. Brigham Young University 1993; M.S. Auburn University 1995; Ph.D. Purdue University 2003; Associate Professor of Counselor Education 2011, 2003.

LINDSEY NICHOLS, B.S. University of Connecticut 2002; M.A. University of Connecticut 2003; M.Ed. University of North Carolina at Chapel Hill 2006; Ph.D. Pennsylvania State University 2012; Associate Professor 2019.

W. REED SCULL, B.S. St. Louis University 1983; M.A. University of Nevada-Reno 1989; Ed.D. University of Arizona 1994; Associate Professor 2019.

Assistant Professors:

WILLIAM CAIN, B.A. University of Texas 1994; Ph.D. Michigan State University 2018; Assistant Professor 2018.

JONTHAN CARRIER, B.S. East Tennessee State University 1999; M.S.E. Portland State University 2002; Ph.D. University of the Cumberlands 2017; Assistant Professor of Higher Education Administration, 2020.

RICHARD CARTER, B.S. Western Carolina University 2010; M.S.E. 2012; Ph.D. University of Kansas 2016; Assistant Professor of Special Education 2017.

AMANDA DeDIEGO, B.S. University of North Georgia 2009; M.S. 2012; Ph.D. University of Tennessee 2016; Assistant Professor of Counselor Education 2016.

BARBARA HICKMAN, B.A. University of Minnesota 1985; B.S. University of Minnesota 1986; M.A. Saint Mary's College 1997; Ed.D. Northern Arizona University 2017; Assistant Professor 2019.

JIHYUN LEE, B.A. Daegu University 2006; M.Ed. Korea National University 2012; M.S. University of Wisconsin-Madison 2014; Ph.D. University of Texas-Austin 2018; Assistant Professor 2019.

ROBERT MADDOX, B.S. Missouri State University 2005; M.A. Southeast Missouri State University 2009; Ed.S. Southeast Missouri State University 2011; Ph.D. University of Wyoming 2015; Assistant Professor 2019.

LAY-NAH BLUE MORRIS-HOWE, B.S. University of Wyoming 2004; M.S. 2007; Ph.D. 2011; Assistant Professor of Counselor Education 2015.

MARK PERKINS, B.A. Ft. Lewis College 2001; M.A. University of Colorado-Denver 2009; Ph.D. Colorado State University 2014; Assistant Professor of Educational Research, 2020.

MIA WILLIAMS, B.S. Northern Arizona University 1995; M.Ed., 1999 Ph.D 2008 Arizona State University Assistant Professor 2020.

Associate Professional Lecturer:

TIFFANY HUNT, B.S. University of Wyoming 2001; M.S. University of Northern Colorado 2006, Ph.D. 2017; Assistant Professional Lecturer of Special Education 2014.

Professors Emeritus

Martin Agran, Mary Alice Bruce, John Cochenour, Ace Cossairt, Kay Cowie, Michael Day, Deborah McGriff, Alan Moore, Kay Persichitte, Suzanne Young.

School of Teacher Education

School Director: Alan Buss

Professors:

STEVEN M. BIALOSTOK, B.A. University of the Pacific 1975; M.S.W. California State University - Sacramento 1986; Ph.D. University of Arizona 1999; Professor of Elementary and Early Childhood Education 2015, 2000.

CYNTHIA BROCK, B.S. Oregon State University 1981; MEd Washington State University 1985; Ph.D. Michigan State University 1997; Wyoming Excellence in Education Literacy Chair 2015.

ANDREA C. BURROWS, B.S. University of Central Florida 1992; M.S. Florida State University 1994; Ed.D. University of Cincinnati 2011; Professor of Secondary Education 2017, 2011. Associate Dean of Undergraduate Programs 2020.

ALAN R. BUSS, B.A. Brigham Young University 1989; M.A. 1993; Ph.D. University of Wyoming 1998; Professor of Elementary and Early Childhood Education 2019, 1997.

SCOTT A. CHAMBERLIN, B.A. Purdue University 1989 and 1993; M.Ed. University of Utah 1998; Ph.D. Purdue University 2002; Professor of Elementary and Early Childhood Education 2015, 2003.

LEIGH HALL, B.S. University of South Florida 1996; M.Ed. Peabody College of Vanderbilt University 1997; Ph.D. Michigan State University 2005; Professor of Secondary Education 2017. Wyoming Excellence in Education Literacy Chair, 2017.

JOHN KAMUTU, B. A. University of Wyoming 1991; M. A. 1992; Ph.D. 1998; Professor of Educational Studies 2015, 1999.

RICHARD KITCHEN, B.A. University of Colorado-Denver 1984; M.A. University of Montana 1990; Ph.D. University of Wisconsin- Madison 1996; Professor of Secondary Education 2017. Wyoming Excellence in Education Mathematics Education Chair 2017.

PETER WILLIAM MORAN, B.A. University of Wyoming 1987; M.A. Kansas State University 1993; Ph.D. 2000; Professor of Elementary and Early Childhood Education 2017, 2001.

LYDIAH NGANGA, B.S. University of Wyoming 1998; M.S. 2000; Ph.D. 2005; Professor of Elementary and Early Childhood Education 2020, 2005.

LESLIE S. RUSH, B.S. Texas A&M-Commerce 1984; M.Ed. 1996; Ph.D. University of Georgia, 2002; Professor of Secondary Education 2014, 2002.

JENNA M. SHIM, B.A. California State University - Los Angeles 1994; M.M. Manhattan School of Music - New York 1996; M.S. State University of New York - Albany 2006; Ph.D. 2009; Professor of Educational Studies 2016, 2010.

TIMOTHY F. SLATER, B.S. Kansas State University 1989; B.S. Ed. 1989; M.S. Clemson University 1991; Ph.D. University of South Carolina 1993; Professor of Secondary Education 2008. Wyoming Excellence in Education Science Education Chair 2008.

ALLEN TRENT, B.A. Eastern Kentucky University 1986; M.S. University of Dayton 1992; Ph.D. The Ohio State University 2000; Professor of Elementary and Early Childhood Education 2012.

Associate Professors:

TAO HAN, B.A. Sungshin Women's University, Korea 1984; M.A. University of Arizona 1993; M.A. University of Nevada-Reno 2002; Ph.D. 2006; Associate Professor of Elementary and Early Childhood Education 2016, 2010.

ANA HOUSEAL, B.A. University of Iowa 1985; M.A. University of Northern Iowa 1998; Ph.D. University of Illinois 2010; Associate Professor of Elementary and Early Childhood Education 2017, 2011.

LINDA HUTCHISON, B.A. Humboldt State University 1978; M.A. Stanford University 1986; Ph.D. University of Washington 1992; Associate Professor of Secondary Education 2000, 1993.

TRICIA JOHNSON, B.S. Lehigh University 1991; M.Ed. 1993; Ed.S. George Washington University 1997; Ed.D. Columbia University 2004; Associate Professor of Elementary and Early Childhood Education 2012.

PATRICK MANYAK, B.A. Pepperdine University 1988; M.S. 1990; Ph.D. University of Southern California-Los Angeles 2001; Associate Professor of Elementary and Early Childhood Education 2007, 2001.

AMY ROBERTS, B.S. Indiana University 1986; M.A. Portland State University 1991; Ph.D. Indiana University 1996; Associate Professor of Elementary and Early Childhood Education 2004, 1998.

KATHERINE MUIR WELSH, B.A. University of California-Berkeley 1986; Single Subject Teaching Credential (Life Sciences) University of California-Santa Barbara 1990; Ph.D. University of California-Los Angeles 2002; Associate Professor of Elementary and Early Childhood Education 2008, 2002.

Assistant Professors:

ALI BICER, B.S. Celal Bayar University 2006; M.S. Texas A&M University 2012; Ph.D. 2016; Assistant Professor of Elementary and Early Childhood Education 2019.

TODD REYNOLDS, B.A. University of Northern Colorado 1998; M.A. 2004; Ed.S. 2008; Ph.D. University of Wyoming 2015; Assistant Professor of Secondary Education 2019.

ALISON MERCIER, B.S. North Carolina State University 2000; M.S. University of North Carolina 2020; Assistant Professor of Secondary Education 2020.

Senior Lecturers:

NIKKI BALDWIN, B.A. University of Wyoming 1994; M.A. 2005; Senior Lecturer of Elementary and Early Childhood Education 2020, 2009.

KIMBERLY GUSTAFSON, B.A. University of Wyoming 1998; M.A. 2003; Ed.D. 2010; Senior Lecturer of Elementary and Early Childhood Education 2019, 2007.

AMY SPIKER, B.A. University of Wyoming 1989; M.A. 2004; Senior Lecturer of Elementary and Early Childhood Education 2016, 2007.

Associate Lecturers:

JASON KATZMANN, B.S. Texas Women's University 1994; M.A. Colorado College 2000; Ph.D. University of Northern Colorado 2007; Assistant Professor of Educational Studies 2016, 2007.

ROD THOMPSON, B.A. University of Nebraska at Kearney 1991; M.A. University of Northern Iowa 1998; Associate Lecturer of Educational Studies 2019.

Assistant Lecturers:

LINDSEY FREEMAN, B.S. University of Wyoming 2011; M.A. 2018; Assistant Lecturer of Educational Studies 2019.

JENNIFER GERINGER, B.A. University of Texas - San Antonio 1991; M.S. University of Wyoming 1997; Ph.D. 2001; Assistant Lecturer of Elementary and Early Childhood Education 2015.

JANET LEAR, B.S. University of Wisconsin-Madison 1990; M.A. University of California, Berkeley 1998; Ph.D. University of Denver 2017; Assistant Lecturer of Educational Studies 2019.

ROCHELLE MCCOY, B.A. Western Governors University 2006; M.A. 2012; Assistant Lecturer of Elementary and Early Childhood Education 2019.

JOSEPH SCHROER, B.A. University of Cincinnati 2002; B.S. 2005; M.A. 2001; Ph.D. 2007; Assistant Lecturer of Educational Studies 2019.

Professors Emeritus:

Michelle Buchanan, Barbara A. Chatton, Margaret Cooney, Lydia Dambekalns, Judith Z. Ellsworth, Patricia McClurg, R. Timothy Rush

Accreditation

The College of Education, a member of the American Association of Colleges of Teacher Education, is currently accredited by the National Council for the Accreditation of Educator Preparation (CAEP) and is moving toward the Association for Advancing Quality in Educator Preparation (AAQEP) in 2023-2024. The Wyoming Professional Teaching Standards Board (PTSB) and the North Central Association of Colleges and Schools approve the college as an accredited teacher-preparing institution. The Counseling programs are fully accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).

Academic Advising

Students are assigned an academic adviser who will assist in planning a program combining University Studies requirements, core content requirements, and professional education courses. Students are expected to consult with their adviser regularly. The Teacher Preparation and Advising Office coordinates advising and provides students and faculty with assistance in areas related to academic advising.

Further information on each program is available in:

Teacher Preparation and Advising Office
McWhinnie Hall room 100
Dept. 3374, 1000 E. University Ave.
Laramie, WY 82071

(307) 766-2230 edquest@uwyo.edu

Major

Elementary Education, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification).

University Studies Program Requirements

Several Professional Education and Core Content courses fulfill University Studies Program requirements. Please visit with a College of Education advisor to determine what courses fulfill these requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

The Elementary Education program prepares students to teach in grades K-6. A minimum of 120 credit hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations-24 Hours

All Professional Education requirements must be completed with a grade of C or higher.

EDEC1020 - Introduction to Early Childhood Education

Credits: 3

Introduces students to the field of early childhood education through lecture, discussion, observation and participation. The student will be exposed to different programs currently in operation in the community and region. Special emphasis will be placed on evaluating early childhood education as a career.

Former Course Number [EDCI 1020]

OR

EDEL1200 - Introduction to Elementary Education

Credits: 3

This course is designed to introduce first-year elementary education majors to educational issues relevant to teaching, learning, curriculum, assessment, school politics, and special needs of students in elementary settings.

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

EDEC2000 - Engaging Families in Early Childhood Settings

Credits: 3

Focus on the philosophical, psychological, and sociocultural aspects of working with families and children in early childhood educational, home, and community settings.

OR

EDEX2000 - Collaboration and Professional Relationships

Credits: 3

This course is designed to help students explore a range of collaboration and consultation strategies in the field of Special Education to enable them to successfully collaborate with a range of professionals, students, and families in a school setting. Course content will prepare prospective special education teachers with conflict resolution skills, the ability to effectively facilitate meetings, and increase their inter and intra-personal skills.

OR

EDEL2100 - Engaging Family and Community in Schools

Credits: 3

This course examines the relationship between children, families, communities, and teachers. The focus is on strengthening adult-child and parent-teacher relationships in home, school, and community settings. The development of teacher strategies for supportive relationships with socially, culturally, and linguistically diverse families is included.

USP 2015 Code U5H

Prerequisite: EDEC 1020

Completion of EDST 2450 is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

A minimum of 2.75 UW cumulative GPA is required for registration in EDST 3100.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3200 - Foundations of ESL Learning

Credits: 3

This course introduces students to basic principles of second language acquisition and factors that influence the processes. Understanding the processes of language acquisition, will better equip students to plan instructional strategies that facilitate English language learners' language.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

Assessment-2 Hours

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Practicum-4 Hours

An approved background check must be on file with the Teacher Preparation and Advising Office for registration and completion of these courses.

If EDEC 1020 is completed, EDST 1200 Practicum 1 is not required.

EDST1200 - Practicum I

Credits: 1

The course is designed to build educator identity, develop skills in observing the physical environment of educational settings, understand the responsibilities and ethics of educational professionals, and engage in and reflect on service learning activities. Students engage in classwork and at least 30 clock hours of practicum in educational settings.

Prerequisite: Background check on file in the Teacher Preparation and Advising Office.

EDST2200 - Practicum 2

Credits: 1

Students will display an educator identity; develop skills in creating student-centered and culturally relevant/sustaining learning environments; apply ethical principles in service-learning activities; and collaborate in planning, implementing and reflecting on activities for learners. Students engage in classwork and at least 30 clock hours of practicum in educational settings.

Restricted Education major

Prerequisite: EDST 1200 or equivalent and Sophomore standing. Background check must be on file in the Teacher Preparation and Advising Office prior to start of practicum experiences.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Methods-19 Hours

EDEL3724 - Elementary Science Education

Credits: 3

Includes content and pedagogy in teaching science in the elementary school. Addresses the following topics to encourage the development of scientific literacy: 1) Current national and state science standards; 2) science education pedagogical models; 3) curriculum; and 4) theory translated into instructional planning and practice.

Restricted Elementary Education Majors; ELSP Majors

Prerequisite: Students must have completed at least one of the three required science content courses with a grade of C or better.

EDEL4109 - Elementary Humanities Education

Credits: 5

Content and pedagogy to develop the reflective practitioner of teaching humanities in the elementary school. The following themes are addressed: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

Former Course Number [EDUC 4109]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EDST 2550; concurrent enrollment in EDEL 4309 and EDEL 4409.

EDEL4309 - Elementary Literacy Education

Credits: 2-5
Max Credit (Max. 6)

Encompasses content and pedagogy to develop the reflective practitioner for teaching literacy in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC
Former Course Number [EDUC 4309]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; Grade C or better in EDST 3100, successful completion of specific content courses required in major; grade C or better in EDST 2550. Concurrent enrollment in EDEL 4109 and EDEL 4409.

EDEL4409 - Elementary Math/ Science Education

Credits: 5
Max Credit (Max. 6)

Includes content and pedagogy in teaching math/science in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC
Former Course Number [EDUC 4409]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EST 2550; concurrent enrollment in EDEL 4109 and EDEL 4309.

EDEC4209 - Early Literacy Methods

Credits: 3
This course focuses on the pedagogical content knowledge and instructional and assessment practices that will prepare students to implement research-based reading and writing instruction for children from ages 3-8. Key topics include reading aloud to young children; phonological awareness, phonics, and word recognition; reading fluency and comprehension; vocabulary; and writing.

Restricted Early Childhood or Elementary Education Majors

Prerequisite: EDEL 2140 and EDST 3100 or concurrent enrollment.

Residency in Teaching-15 Hours

All methods courses must be completed prior to enrollment in EDEL 4500.

EDEL4500 - Residency in Teaching

Credits: 1-16

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDSE 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses.

Elementary Core Content-minimum 29 Hours

Minimum 2.5 GPA required in major content. All major content courses must be completed with a grade of C or higher prior to enrollment in EDEL 4109, EDEL 4309 and EDEL 4409.

Literacy

EDEL2140 - Teaching Literacy in the Elementary School

Credits: 3

Provides an acquaintance with basic assumptions underlying curriculum and processes in literacy and to give opportunity for selecting and using instructional materials.

Prerequisite: ENGL 1010, sophomore standing, admitted into Elementary Education program.

EDEL2280 - Literature for Children

Credits: 3

A survey course, the purpose of which is to prepare prospective elementary teachers and library-media specialists to provide knowledgeable service in the use of print and non-print materials for children. Includes study of evaluative criteria, wide reading, viewing and listening as well as discussion of literature for children.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

Former Course Number [LIBS 2280]

Prerequisite: successful completion of ENGL 1010, sophomore standing, education major.

EDEL3720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Focuses on the causes of student difficulties with reading and writing and assessment and instruction for students with such difficulties.

Prerequisite: EDEL 2140.

Mathematics

MATH1100 - Number and Operations for Elementary School Teachers

Credits: 3

For prospective elementary school teachers; purpose is to prepare students to be competent in teaching the major concepts and skills related to the real number system and four arithmetic operations. Includes asking and answering critical questions about subsets of the real number system, including natural, integer, and rational numbers.

USP 2003-2014 Code U3QA

Prerequisite: grade of C or better in MATH 0921 or Level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600.

MATH1105 - Data, Probability, and Algebra for Elementary School Teachers

Credits: 3

Continuation of MATH 1100 for prospective elementary teachers; emphasis is on asking and answering critical questions about our world through algebra, probability, and data analysis to prepare students to be competent in teaching these major concepts. Explorations focus on representing, analyzing, and generalizing patterns and the chances of future events.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1100.

Can be substituted with:

(MATH 1400 or MATH 1405 or MATH 1450) **AND** (STAT 2070 or STAT 2050), **OR** MATH 2200 or MATH 2350.

MATH2120 - Geometry and Measurement for Elementary School Teachers

Credits: 3

Continuation of MATH 1105 for prospective elementary teachers; emphasis is on asking and answering critical questions about spatial reasoning as evident in the real world. Includes investigations of two- and three-dimensional shapes and their properties, measurements, constructions, and transformations to prepare students to be competent in teaching these concepts.

Prerequisite: grade of C or better in MATH 1105.

Science

Can be substituted with other approved PN sciences.

GEOL1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society.

Cross Listed ASTR 1070.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Prerequisite: Math level 3 or equivalent courses, consent of instructor, elementary education major and EDCI 1450 must be taken concurrently.

OR

ASTR1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society. Cross listed with GEOL 1070. Prerequisites: MATH 1100 or equivalent; enrollment reserved for elementary and elementary/special education majors, or consent of instructor.

Cross Listed GEOL 1070.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1100

LIFE1020 - Life Science

Credits: 4

An integrated lab and lecture emphasizing fundamental principles of biology including cell structure and function, genetics, ecology, evolution and organismal biology. Considers applications of these principles to societal issues such as the conservation of biodiversity, overpopulation and global environmental changes, biotechnology, and human wellness and disease. If you take LIFE 1020, you cannot get duplicate credit for LIFE 1000, 1003, or 1010.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1020]

Prerequisite: elementary education majors only; concurrent enrollment in EDEL 1430.

PHYS1090 - The Fundamentals of the Physical Universe

Credits: 4

Applies fundamental principles of chemistry and physics to real life situations. Primarily for elementary education majors.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

Social Sciences

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

OR

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

- Additional Social Studies course (The course completed to meet the USP U.S. & WY Constitution (V) requirement can not be applied to this content requirement)

Health

HLED2006 - Health for Elementary Educators

Credits: 1

Acquaints students to the Wyoming Health Standards and Benchmarks, techniques/instruments for assessing they Wyoming Health Standards and Benchmarks, sample health curriculum models/approaches for elementary school K-6, lesson plans in health education for elementary learners, and health integration in language arts curricula.

Prerequisite: Declared major in KHP, PHET, or Elementary Education.

Art

EDEL2170 - Art in the Elementary School

Credits: 3

Provides a foundation for understanding art in order to facilitate the teaching of art and the integration of art education into the elementary school curriculum. Involves both applied reading and studio production. Attention is given to development of artistic skills and meaningful art experiences based on DBAE principles.

USP 2003-2014 Code [CA<>(none)]

Former Course Number [EDCI 3170]

Elementary Education Electives

Students need a minimum of 9 credits of electives to complete their degree program. Students are strongly encouraged to apply elective hours toward a minor or endorsement, such as those in Early Childhood Education, English as a Second Language, American Sign Language and Computer Science.

Elementary Education/Special Education, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification), with dual credentials in elementary education and special education.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

The Elementary/Special Education program prepares students to seek licensure as a K-6 elementary teacher and K-12 special education endorsement. A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

A minimum of 2.75 UW cumulative GPA is required for registration in EDST 3100.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDEX4355 - Assessment & St. W/Dis

Credits: 3

This course is designed to explore the use of various types of assessments and assessment tools to evaluate students for special education eligibility and to design individualized programming. Students will learn how to interpret assessment data to identify areas of strength and needs and to make data-based instructional decisions.

Restricted Elementary and Special Education Dual Majors only.

EDEL3724 - Elementary Science Education

Credits: 3

Includes content and pedagogy in teaching science in the elementary school. Addresses the following topics to encourage the development of scientific literacy: 1) Current national and state science standards; 2) science education pedagogical models; 3) curriculum; and 4) theory translated into instructional planning and practice.

Restricted Elementary Education Majors; ELSP Majors

Prerequisite: Students must have completed at least one of the three required science content courses with a grade of C or better.

EDEC4209 - Early Literacy Methods

Credits: 3

This course focuses on the pedagogical content knowledge and instructional and assessment practices that will prepare students to implement research-based reading and writing instruction for children from ages 3-8. Key topics include reading aloud to young children; phonological awareness, phonics, and word recognition; reading fluency and comprehension; vocabulary; and writing.

Restricted Early Childhood or Elementary Education Majors

Prerequisite: EDEL 2140 and EDST 3100 or concurrent enrollment.

Completion of EDST 3100 and EDST 3101 is a prerequisite for enrollment in the following courses:

EDEL4109 - Elementary Humanities Education

Credits: 5

Content and pedagogy to develop the reflective practitioner of teaching humanities in the elementary school. The following themes are addressed: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

Former Course Number [EDUC 4109]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EDST 2550; concurrent enrollment in EDEL 4309 and EDEL 4409.

EDEL4309 - Elementary Literacy Education

Credits: 2-5

Max Credit (Max. 6)

Encompasses content and pedagogy to develop the reflective practitioner for teaching literacy in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC

Former Course Number [EDUC 4309]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; Grade C or better in EDST 3100, successful completion of specific content courses required in major; grade C or better in EDST 2550. Concurrent enrollment in EDEL 4109 and EDEL 4409.

EDEL4409 - Elementary Math/ Science Education

Credits: 5

Max Credit (Max. 6)

Includes content and pedagogy in teaching math/science in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC

Former Course Number [EDUC 4409]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EST 2550; concurrent enrollment in EDEL 4109 and EDEL 4309.

Practicum

An approved background check must be on file with the Teacher Preparation and Advising Office for registration and completion of these courses.

EDST1200 - Practicum I

Credits: 1

The course is designed to build educator identity, develop skills in observing the physical environment of educational settings, understand the responsibilities and ethics of educational professionals, and engage in and reflect on service learning activities. Students engage in classwork and at least 30 clock hours of practicum in educational settings.

Prerequisite: Background check on file in the Teacher Preparation and Advising Office.

EDST2200 - Practicum 2

Credits: 1

Students will display an educator identity; develop skills in creating student-centered and culturally relevant/sustaining learning environments; apply ethical principles in service-learning activities; and collaborate in planning, implementing and reflecting on activities for learners. Students engage in classwork and at least 30 clock hours of practicum in educational settings.

Restricted Education major

Prerequisite: EDST 1200 or equivalent and Sophomore standing. Background check must be on file in the Teacher Preparation and Advising Office prior to start of practicum experiences.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Elementary Education Content

Minimum 2.75 GPA required in major content. All major content courses must be completed with a grade of C or higher prior to enrollment in EDEL 4109 , EDEL 4309 , and EDEL 4409.

Literacy

EDEL2140 - Teaching Literacy in the Elementary School

Credits: 3

Provides an acquaintance with basic assumptions underlying curriculum and processes in literacy and to give opportunity for selecting and using instructional materials.

Prerequisite: ENGL 1010, sophomore standing, admitted into Elementary Education program.

EDEL2280 - Literature for Children

Credits: 3

A survey course, the purpose of which is to prepare prospective elementary teachers and library-media specialists to provide knowledgeable service in the use of print and non-print materials for children. Includes study of evaluative criteria, wide reading, viewing and listening as well as discussion of literature for children.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

Former Course Number [LIBS 2280]

Prerequisite: successful completion of ENGL 1010, sophomore standing, education major.

EDEL3720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Focuses on the causes of student difficulties with reading and writing and assessment and instruction for students with such difficulties.

Prerequisite: EDEL 2140.

Science

LIFE1020 - Life Science

Credits: 4

An integrated lab and lecture emphasizing fundamental principles of biology including cell structure and function, genetics, ecology, evolution and organismal biology. Considers applications of these principles to societal issues such as the conservation of biodiversity, overpopulation and global environmental changes, biotechnology, and human wellness and disease. If you take LIFE 1020, you cannot get duplicate credit for LIFE 1000, 1003, or 1010.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1020]

Prerequisite: elementary education majors only; concurrent enrollment in EDEL 1430.

GEOL1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society.

Cross Listed ASTR 1070.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Prerequisite: Math level 3 or equivalent courses, consent of instructor, elementary education major and EDCI 1450 must be taken concurrently.

OR

ASTR1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society. Cross listed with GEOL 1070. Prerequisites: MATH 1100 or equivalent; enrollment reserved for elementary and elementary/special education majors, or consent of instructor.

Cross Listed GEOL 1070.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1100

PHYS1090 - The Fundamentals of the Physical Universe

Credits: 4

Applies fundamental principles of chemistry and physics to real life situations. Primarily for elementary education majors.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

Mathematics

MATH1100 - Number and Operations for Elementary School Teachers

Credits: 3

For prospective elementary school teachers; purpose is to prepare students to be competent in teaching the major concepts and skills related to the real number system and four arithmetic operations. Includes asking and answering critical questions about subsets of the real number system, including natural, integer, and rational numbers.

USP 2003-2014 Code U3QA

Prerequisite: grade of C or better in MATH 0921 or Level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600.

MATH1105 - Data, Probability, and Algebra for Elementary School Teachers

Credits: 3

Continuation of MATH 1100 for prospective elementary teachers; emphasis is on asking and answering critical questions about our world through algebra, probability, and data analysis to prepare students to be competent in teaching these major concepts. Explorations focus on representing, analyzing, and generalizing patterns and the chances of future events.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1100.

Can be substituted with:

(MATH 1400 or MATH 1405 or MATH 1450) **AND** (STAT 2070 or STAT 2050), **OR** MATH 2200 or MATH 2350.

MATH2120 - Geometry and Measurement for Elementary School Teachers

Credits: 3

Continuation of MATH 1105 for prospective elementary teachers; emphasis is on asking and answering critical questions about spatial reasoning as evident in the real world. Includes investigations of two- and three-dimensional shapes and their properties, measurements, constructions, and transformations to prepare students to be competent in teaching these concepts.

Prerequisite: grade of C or better in MATH 1105.

Social Studies/Cultural Awareness

Take **ONE** of the following:

AAST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities. Enrollment preference will be given to We The People FIG students.

Cross Listed NAIS 1030 /AMST 1030 / WMST 1030/LTST 1030.

USP 2003-2014 Code A3D, U3I

A&S College Core 2015 ASD

EDST3200 - Foundations of ESL Learning

Credits: 3

This course introduces students to basic principles of second language acquisition and factors that influence the processes. Understanding the processes of language acquisition, will better equip students to plan instructional strategies that facilitate English language learners' language.

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

WIND2100 - Introduction to Disability Studies

Credits: 3

Provides students with an overview of the disability studies field. Students gain introductory knowledge about the disability studies perspective by examining the work of scholars from many academic backgrounds, which will facilitate students' understanding of the interdisciplinary nature of disability studies.

USP 2003-2014 Code U3CH,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Art

EDEL2170 - Art in the Elementary School

Credits: 3

Provides a foundation for understanding art in order to facilitate the teaching of art and the integration of art education into the elementary school curriculum. Involves both applied reading and studio production. Attention is given to development of artistic skills and meaningful art experiences based on DBAE principles.

USP 2003-2014 Code [CA<>(none)]
Former Course Number [EDCI 3170]

Health

HLED2006 - Health for Elementary Educators

Credits: 1

Acquaints students to the Wyoming Health Standards and Benchmarks, techniques/instruments for assessing the Wyoming Health Standards and Benchmarks, sample health curriculum models/approaches for elementary school K-6, lesson plans in health education for elementary learners, and health integration in language arts curricula.

Prerequisite: Declared major in KHP, PHET, or Elementary Education.

Special Education Content: 36 (Minimum) Credit Hours

All major content courses must be completed with a grade of C or higher prior to enrollment in EDEL 4109, EDEL 4309, and EDEL 4409.

EDEX2000 - Collaboration and Professional Relationships

Credits: 3

This course is designed to help students explore a range of collaboration and consultation strategies in the field of Special Education to enable them to successfully collaborate with a range of professionals, students, and families in a school setting. Course content will prepare prospective special education teachers with conflict resolution skills, the ability to effectively facilitate meetings, and increase their inter and intra-personal skills.

EDEX3071 - Understand st. w/High Inc Dis

Credits: 3

This course is designed to explore the causes, characteristics, and eligibility of high incidence disabilities in K-12 setting. Additionally, it examines the theoretical, research, and practical aspects of high incidence disabilities as they relate to the student, teacher, classroom, parents, paraprofessionals, and other school personnel and community agencies.

Restricted Elementary and Special Education Dual Majors

Prerequisite: 2.75 UW GPA minimum

EDEX3072 - Teaching st. w/High Inc Dis

Credits: 3

This course is designed to explore evidence-based practices, high leverage practices, research-based strategies and transition planning utilized to best serve students with high incidence disabilities in a variety of K-12 settings. Additionally, it explores inclusive strategies and the roles of stakeholders in supporting students with high incidence disabilities in the general education classroom.

Restricted Elementary and Special Education Dual Majors

Prerequisite: 2.75 UW GPA minimum Successful completion of EDEX 3071 (C or better)

EDEX3080 - Understand st. w/Low Inc Dis

Credits: 3

This course is designed to explore the causes, characteristics, and eligibility of low incidence disabilities in K-12 setting. Additionally, it examines the theoretical, research, and practical aspects of low incidence disabilities as they relate to the student, teacher, classroom, parents, paraprofessionals, and other school personnel and community agencies. Finally, this course explores assistive technology utilized to effectively support students with disabilities to access the whole school environment.

Restricted Elementary and Special Education Dual Majors

Prerequisite: 2.75 UW GPA minimum

EDEX3081 - Teaching St. w/Low Inc. Dis.

Credits: 3

This course is designed to explore evidence-based practices, high leverage practices, research-based strategies and transition planning utilized to best serve students with low incidence disabilities in a variety of K-12 settings. Additionally, it explores assistive technology, inclusive strategies and the roles of stakeholders in supporting students with low incidence disabilities in the general education classroom.

EDEX3110 - Behavioral Supports & Interv.

Credits: 3

Relates the theoretical, research, and practical strategies of behavior change models to students, teachers, parents, and paraprofessionals, in order to understand and remediate student behavior presenting challenges. This will include understandings of systematic Behavior Management plans, Functional Behavior Assessments, Behavior Intervention Plans, and school wide behavioral supports and interventions.

Restricted Elem. & Special Education Dual Major only

Prerequisite: 2.75 UW GPA and successful completion of EDEX 2484. Student must have earned a C or higher in this course.

EDEX4120 - Data Analysis/IEP Development

Credits: 3

This course is designed to convey the necessity of the Individualized Education Program (IEP), in regard to providing quality, compliant, and effective services to individuals with disabilities. Course participants will analyze assessment data to understand the academic and behavioral aspects of individual students with disabilities and to develop a comprehensive IEP to meet their unique needs. In addition, students will learn how to develop IEP's in collaboration with service providers, families, and other stakeholders.

Restricted Elem. & Special Education Dual Major only

Prerequisite: 2.75 UW GPA and successful completion of EDEX 2484. Student must have earned a C or higher in this course.

EDEX4720 - Law and Students with Disabilities

Credits: 3

Provides prospective special education teachers with an overview of important case and statutory law in special education. Supports prospective special education teachers in analyzing disability laws and the ways in which these impact practice.

WIND4020 - Disability Studies Theory and Practice

Credits: 3

Explores the interdisciplinary nature of disability studies theory and scholarship, including investigation of embodied knowledge, cultural meanings, and socio-political practices related to disability. Students will develop in-depth critical disability research papers and deliver accessible, professional presentations.

Cross Listed SOWK 4020.

Dual Listed WIND 5020.

USP 2003-2014 Code U3CS

USP 2015 Code U5C3

Prerequisite: WIND 2100 or WB or COM2.

Residency in Teaching

All methods courses must be completed prior to enrollment in Residency in Teaching.

EDEL4500 - Residency in Teaching

Credits: 1-16

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDSE 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses.

- EDEX 4500 Residency in Student Teaching Special Education, Credits: 8

Secondary Agricultural Education with Concurrent Major in Agricultural Business, B.S.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Agricultural Education and a concurrent major in Agricultural Business. It prepares students to teach Agriculture in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)
USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COMI with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3278 - Subject Matter Specific Methods I: Secondary Agriculture Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Agriculture Education.

USP 2003-2014 Code U3WC

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4278.

(3 credits required)

EDSE4278 - Subject Matter Specific Methods II: Secondary Agriculture Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Agriculture Education.

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3278/EDCI 5250.

(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.
Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3
The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)
Corequisite: EDSE 4500

Agricultural Education Core Requirements

These are the specific courses provided for all concurrent Agricultural Education majors through the College of Education.

EDAG3150 - Community Programs in Agricultural Education

Credits: 3

This course is designed to determine the resources and trends of local communities with respect to agricultural production and agribusiness. Emphasis will be placed on agricultural education program policies, FFA chapter advisement, planning and managing the instructional program, and the identification and completion of records and reports required of a teacher of agricultural education in Wyoming.

Prerequisite: Agricultural Education major.

EDAG4170 - Principles of Agricultural Mechanics and Technology

Credits: 3

Content will emphasize those skills commonly taught in Wyoming agricultural education in the secondary school system with an emphasis on advanced gas and plasma welding theory, small gas engines, and advanced electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4170, EDVE 4170]

Prerequisite: EDAG 4070 or approval of instructor.

EDAG4180 - Techniques of Agricultural Mechanics and Technology

Credits: 3

Techniques of agricultural mechanics and instruction. Content will emphasize those skills commonly taught in the Wyoming school system agricultural mechanics program with emphasis on woodworking, welding theory, agricultural plumbing, and electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4180, EDVE 4180]

Prerequisite: Junior standing or consent of instructor.

Agriculture and Science Core Requirements

These are specific courses for all concurrent Agricultural Education majors taken outside of the College of Education.

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB
USP 2015 Code U5PN
Former Course Number [CROP/BOT 2000]

Choose one:

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H
OR

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Prerequisite: PLNT 1000 or LIFE 1010

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

Prerequisite: PLNT 1000 or LIFE 1010.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Choose one:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

Choose one:

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Agricultural Business Core Requirements

These are the specific courses taken by Agricultural Education students enrolled in the Agricultural Business concurrent major.

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGECE 1020 and MATH 1400.

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGECE 1020 or ECON 1020 and MATH 1400.

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

- Electives. Credits: 6 (Upper division AGEC, AGEC 3400: Ag Law recommended)

Endorsement in Secondary Biology Education option

Students can seek an endorsement in Secondary Biology Education. The required courses are:

Choose one:

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model

systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

Choose one:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

OR

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

EDSE4279 - Subject Matter Specific Methods II: Biological Science Methods for Agricultural Education Majors

Credits: 3

Provide meaningful learning in preparation for a professional career in a secondary school setting, teaching life science courses in addition to agriculture classes. Students will be engaged as active participants in discussions and hands-on science activities. The course is designed to offer experiences to enhance pedagogical content knowledge as well as skills to successfully make science education accessible for all students. Special attention will be given to creating a learning environment that fosters the development of inquiry skills and safety both in the classroom and field settings.

Prerequisite: Grade of C or better in EDST 3100, 2.750 minimum GPA in major content courses, grade C or better in specific content courses required in the Secondary Biology Endorsement.

For Ag. Communications and Ag. Business Concurrent Majors only: an additional upper division Biology-related course as approved by advisor.

- Upper-division biology related elective Credits: 3

Secondary Agricultural Education with Concurrent Major in Agricultural Communications, B.S.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an

opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Agricultural Education and a concurrent major in Agricultural Communications. It prepares students to teach Agriculture in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3278 - Subject Matter Specific Methods I: Secondary Agriculture Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Agriculture Education.

USP 2003-2014 Code U3WC

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4278.

(3 credits required)

EDSE4278 - Subject Matter Specific Methods II: Secondary Agriculture Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Agriculture Education.

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3278/EDCI 5250.

(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Agricultural Education Core Requirements

These are the specific courses provided for all concurrent Agricultural Education majors through the College of Education.

EDAG3150 - Community Programs in Agricultural Education

Credits: 3

This course is designed to determine the resources and trends of local communities with respect to agricultural production and agribusiness. Emphasis will be placed on agricultural education program policies, FFA chapter advisement, planning and managing the instructional program, and the identification and completion of records and reports required of a teacher of agricultural education in Wyoming.

Prerequisite: Agricultural Education major.

EDAG4170 - Principles of Agricultural Mechanics and Technology

Credits: 3

Content will emphasize those skills commonly taught in Wyoming agricultural education in the secondary school system with an emphasis on advanced gas and plasma welding theory, small gas engines, and advanced electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4170, EDVE 4170]

Prerequisite: EDAG 4070 or approval of instructor.

EDAG4180 - Techniques of Agricultural Mechanics and Technology

Credits: 3

Techniques of agricultural mechanics and instruction. Content will emphasize those skills commonly taught in the Wyoming school system agricultural mechanics program with emphasis on woodworking, welding theory, agricultural plumbing, and electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4180, EDVE 4180]

Prerequisite: Junior standing or consent of instructor.

Agriculture and Science Core Requirements

These are specific courses for all concurrent Agricultural Education majors taken outside of the College of Education.

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and

genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Prerequisite: PLNT 1000 or LIFE 1010

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and

functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

Prerequisite: PLNT 1000 or LIFE 1010.

Choose one;

AGEC 1010 Principles of Macroeconomics Credits: 3 OR ECON 1010 Principles of Macroeconomics Credits: 3

OR

AGEC 1020 Principles of Microeconomics Credits: 3 OR ECON 1020 Principles of Microeconomics Credits: 3

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Choose one:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

Choose one:

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Agricultural Communications Core Requirements

These are the specific courses taken by Agricultural Education students enrolled in the Agricultural Business concurrent major.

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O
USP 2015 Code U5C2
Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB
Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

AGRI4975 - Agricultural Communications Senior Project

Credits: 1

A baccalaureate degree capstone experience incorporating self assessments of student learning, reflective writings, and an analysis, synthesis and evaluation of the agricultural communications curriculum. Students develop and present a personalized, comprehensive, professional portfolio.

Prerequisite: agricultural communication major with senior standing and WB.

- Upper Division COJO Electives. Credits: 9
- Upper Division Major Electives. Credits: 6

Endorsement in Secondary Biology Education option

Students can seek an endorsement in Secondary Biology Education. The required courses are:

Choose one:

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

Choose one:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

OR

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

EDSE4279 - Subject Matter Specific Methods II: Biological Science Methods for Agricultural Education Majors

Credits: 3

Provide meaningful learning in preparation for a professional career in a secondary school setting, teaching life science courses in addition to agriculture classes. Students will be engaged as active participants in discussions and hands-on science activities. The course is designed to offer experiences to enhance pedagogical content knowledge as well as skills to successfully make science education accessible for all students. Special attention will be given to creating a learning environment that fosters the development of inquiry skills and safety both in the classroom and field settings.

Prerequisite: Grade of C or better in EDST 3100, 2.750 minimum GPA in major content courses, grade C or better in specific content courses required in the Secondary Biology Endorsement.

May be substituted with EDSE 3275 Subject Matter Specific Methods I: Secondary Science Education
Credits: 3.

For Ag. Communications and Ag. Business only: an additional upper-division biology-related course as approved by advisor.

- Upper-division biology-related elective Credits: 3

Secondary Agricultural Education with Concurrent Major in Animal and Veterinary Science, B.S.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Agricultural Education and a concurrent major in Animal and Veterinary Science. It prepares students to teach Agriculture in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)
USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COMI with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST3550 - Educational Assessment

Credits: 2

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs. Addresses the basic ideas of classroom test design.

Prerequisite: Prerequisites: Grade of C or better in a Q course, and EDST 2480, 2.75 Cumulative UW Institutional GPA.

Methods (Offered Fall Semester Only)

EDSE3278 - Subject Matter Specific Methods I: Secondary Agriculture Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Agriculture Education.

USP 2003-2014 Code U3WC

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4278.

(3 credits required)

EDSE4278 - Subject Matter Specific Methods II: Secondary Agriculture Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Agriculture Education.

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3278/EDCI 5250.

(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Agricultural Education Core Requirements

These are the specific courses provided for all concurrent Agricultural Education majors through the College of Education.

EDAG3150 - Community Programs in Agricultural Education

Credits: 3

This course is designed to determine the resources and trends of local communities with respect to agricultural production and agribusiness. Emphasis will be placed on agricultural education program policies, FFA chapter advisement, planning and managing the instructional program, and the identification and completion of records and reports required of a teacher of agricultural education in Wyoming.

Prerequisite: Agricultural Education major.

EDAG4170 - Principles of Agricultural Mechanics and Technology

Credits: 3

Content will emphasize those skills commonly taught in Wyoming agricultural education in the secondary school system with an emphasis on advanced gas and plasma welding theory, small gas engines, and advanced electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4170, EDVE 4170]

Prerequisite: EDAG 4070 or approval of instructor.

EDAG4180 - Techniques of Agricultural Mechanics and Technology

Credits: 3

Techniques of agricultural mechanics and instruction. Content will emphasize those skills commonly taught in the Wyoming school system agricultural mechanics program with emphasis on woodworking, welding theory, agricultural plumbing, and electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4180, EDVE 4180]

Prerequisite: Junior standing or consent of instructor.

Agriculture and Science Core Requirements

These are specific courses for all concurrent Agricultural Education majors taken outside of the College of Education.

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Prerequisite: PLNT 1000 or LIFE 1010

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

Prerequisite: PLNT 1000 or LIFE 1010.

Choose one:

AGEC 1010 Principles of Macroeconomics Credits: 3 OR ECON 1010 Principles of Macroeconomics
Credits: 3

OR

AGEC 1020 Principles of Microeconomics Credits: 3 OR ECON 1020 Principles of Microeconomics
Credits: 3

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Choose one:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

Choose one:

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Animal and Veterinary Science Core Requirements

These are the specific courses taken by Agricultural Education students enrolled in the Agricultural Business concurrent major.

ANSC2010 - Domestic Animal Metabolism

Credits: 3

Integrates cellular and whole-animal metabolism through introduction to metabolic regulation. Introduces students to the nomenclature, structures and functions of cellular metabolites and vitamins. Knowledge of chemical structure will be applied to cellular reactions in various tissues of domestic animals. Ruminants and non-ruminants will be contrasted.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of

farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

Production Requirement

Choose one of the following:

ANSC4220 - Advanced Beef Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in beef production management schemes. Emphasizes analysis and decision making. Consists of two hours of lecture and two hours of lab, with approximately one-half of labs meeting at Animal Science Livestock Center.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120 , ANSC 4540 .

ANSC4230 - Advanced Sheep Production & Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in sheep production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120, ANSC 4540.

ANSC4250 - Advanced Equine Production and Management

Credits: 3

A capstone course for students wanting to pursue a career in the equine industry with main focus on equine management. Business applications, health, facilities, and management will be explored in depth. Integrates equine breeding, nutrition, and reproductive physiology in equine production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3100 , ANSC 4120, and ANSC 4540 .

Choose 5 of the 6 Courses: (minimum of 15 hours)

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4540 - Principles of Animal Breeding

Credits: 3

Discusses genetic principles underlying animal improvement; introductory population genetics; heritability; systems of mating; and selection.

Dual Listed ANSC 5540.

When Offered (Normally offered fall semester)

Prerequisite: STAT 2050 or STAT 2070.

FDSC2040 - Principles of Meat Animal Evaluation

Credits: 3

Live animal and carcass evaluation of beef, sheep and swine. Slaughter, meat inspection and anatomy are discussed.

When Offered (Normally offered spring semester)

FDSC3060 - Principles of Meat Science and Muscle Biology

Credits: 3

Principles of muscle, adipose, and connective tissue growth, structure and metabolism; conversion of muscle into meat; fresh meat properties and quality; chemical properties of meat; meat microbiology, preservation and storage; meat by-products; HACCP.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000 and LIFE 1010.

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

Endorsement in Secondary Biology Education option

Students can seek an endorsement in Secondary Biology Education. The required courses are:

Choose one:

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

Choose one:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

OR

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

EDSE4279 - Subject Matter Specific Methods II: Biological Science Methods for Agricultural Education Majors

Credits: 3

Provide meaningful learning in preparation for a professional career in a secondary school setting, teaching life science courses in addition to agriculture classes. Students will be engaged as active participants in discussions and hands-on science activities. The course is designed to offer experiences to enhance pedagogical content knowledge as well as skills to successfully make science education accessible for all students. Special attention will be given to creating a learning environment that fosters the development of inquiry skills and safety both in the classroom and field settings.

Prerequisite: Grade of C or better in EDST 3100, 2.750 minimum GPA in major content courses, grade C or better in specific content courses required in the Secondary Biology Endorsement.

May be substituted with EDSE 3275 Subject Matter Specific Methods I: Secondary Science Education

Credits: 3.

Secondary Agricultural Education, B.S.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Agricultural Education and a concurrent major in Agricultural Communications. It prepares students to teach Agriculture in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3278 - Subject Matter Specific Methods I: Secondary Agriculture Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Agriculture Education.

USP 2003-2014 Code U3WC

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4278.

EDSE4278 - Subject Matter Specific Methods II: Secondary Agriculture Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Agriculture Education.

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3278/EDCI 5250.

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Concurrent Majors

Secondary Agricultural Education with Concurrent Major in Agricultural Business, B.S.

Secondary Agricultural Education with Concurrent Major in Agricultural Communications, B.S.

Secondary Agricultural Education with Concurrent Major in Animal and Veterinary Science, B.S.

Secondary Career & Technical Education, B.A.S.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

This program consists of a minimum of 120 total hours. Minimum of 2.500 content GPA required.

This is a B.A.S. degree completion which requires students to transfer in specific CTE coursework to UW and then complete the professional education requirements.

The major will be advised through both the College of Education main campus and UW Casper.

Students are suggested to take STAT 2050 or STAT 2070 to complete the USP:Q and PHYS 1050, PHYS 1100, or PHYS 1210 to complete part of the USP:PN.

Online Access: The CTE program is a distance delivered program with the exception of a few intensive weekends (these weekends could be held on the UW-Casper campus or could be virtual depending on need).

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to

develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

EDST3200 - Foundations of ESL Learning

Credits: 3

This course introduces students to basic principles of second language acquisition and factors that influence the processes. Understanding the processes of language acquisition, will better equip students to plan instructional strategies that facilitate English language learners' language.

Assessment

EDST2550 - Educational Assessment

Credits: 3
Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

EDSE3020 - Facilities and Advisory Management

Credits: 2-4
Max Credit (Max. 4)

Students engage in identifying RFP applications and applies for grants that are geared toward the Career Technical classroom as well as the process of assembling and managing an advisory committee, a required component of all CTE programs. Prepares Career Technical Teachers for the non-teaching requirements associated within CTE programs

Prerequisite: Junior standing in Career Technical Education and completion of Com 1 level writing course.

Methods (Offered Fall Semester Only)

EDSE3277 - Tech Ed Methods I: Intro

Credits: 3-6
Max Credit (Max. 6)

Subject Matter Specific Methods I: Secondary Career and Technical Education. 3 Cr Introduction of content and pedagogy in Career Technical Education.

Prerequisite: grade of C or better in EDST 3100; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4277.

EDSE4277 - Subject Matter Specific Methods II: Secondary Technology Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Industrial Technology Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3277/EDCI 5250.

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Major Content

Students must complete a minimum of 120 credits to graduate (Professional Education Requirements and Major Content transfer credit). The Major Content transfer credit must be from a block transfer agreement requiring students to complete at least one PTSB approved content area that students transfer into the B.A.S. program at UW. This coursework may be completed either prior to matriculating into the B.A.S. program or taken concurrently with the UW coursework.

Secondary English Education with Concurrent Major in English, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in English Education and a concurrent major in English. It prepares students to teach English in grades 6-12.

A concurrent major will ensure that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COMI with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Only)

EDSE3270 - Subject Matter Specific Methods I: Secondary English Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in English Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4270.

(3 credits required)

EDSE4270 - Subject Matter Specific Methods II: Secondary English Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in English Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3270/EDCI 5250.

(4 credits required)

Residency

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

English Core

36 Total Hours. At least 21 of the 36 hours must be upper-division (3000-level or higher)

Gateway to the English Major

ENGL2025 - Introduction to English Studies

Credits: 3

This course provides an introduction to English Studies, covering the history of English as an academic field, the options available within it, and possible career paths. Students will also be taught the skills they need to succeed as English majors, including critical reading and writing, and literary and rhetorical analysis.

USP 2015 Code U5C2

Prerequisite: COM1; English major status.

Note: this course requirement is waived if student transfers in an A.A. or A.S.

Historical Period Classes

Take **ONE** of the following:

ENGL2425 - Literatures in English I

Credits: 3

Surveys major figures and literary movements in literatures written in English through 1750.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2430 - Literatures in English II

Credits: 3

Surveys major figures and literary movements in literatures written in English 1750-1865.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2435 - Literatures in English III

Credits: 3

Surveys major figures and literary movements in literatures written in English 1865-present.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed AAST 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

Take **THREE** of the following:

ENGL3200 - Topics in: Medieval Literature

Credits: 3

Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

Expanding the Canon-6 Hours

6 credits total examining diversity-related issues, 2000-level or above

• 2340/2350/2360 can be taken either as an Expanding the Canon course OR as an Historical Period course. A full list of courses that fulfill the Expanding the Canon requirements will be published each semester; generally speaking, these courses will cover topics related to racial diversity, global literatures, gender, sexuality, or disability studies.

Examples: 3330, 3710, 4450, 4455, 4460, 4470, 4640: Postcolonial Literature, 4830.

Rhetoric, Composition Pedagogy, and Professional Writing

ENGL3010 - Approaches to Rhetoric, Composition Pedagogy, and Professional Writing

Credits: 3

Introduces common methods, concepts, and theories emphasized in these interrelated intellectual traditions. It asks students to examine how research traditions have developed alongside each other over time, and prepares students to design a multimodal research project.

Prerequisite: ENGL 2025 and junior standing.

6 Hours from the Following Rhetoric, Composition, and Professional Writing Courses Offered by English:
Take **TWO** of the Following:

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

ENGL2035 - Writing for Public Forums

Credits: 3

Introduction to professional writing that focuses on analyzing and producing texts designed to influence public opinion. Genres may include letters, editorials, web pages, pamphlets, e-mail, speeches, and position papers. Focuses on skills in collaboration and use of technology necessary for ethical, effective participation in public discourse.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: WA/COM1.

ENGL2125 - Writing Tutor Pedagogy/Practicum

Credits: 3

Prepares students for professional employment as writing tutors in a writing center environment. Students will gain a detailed understanding of the history of writing centers, the development of writing center studies and theory, and the innovative trends in contemporary writing center practices and organization.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: ENGL 1010 or COM1/transfer equivalent with a grade of B or higher; 3.000 GPA or higher.

ENGL3020 - Culture, Communication, Work

Credits: 3

Examines individual identity and group cultures, and how they influence communication in the workplace. Helps students develop strategies for working across cultural differences and for effective negotiation and conflict resolution skills.

USP 2003-2014 Code [(none)<>COM3]

Prerequisite: Completion of COM2.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4020 - Editing for Publication

Credits: 3

Theory and practice of editing in the contexts of book, magazine, newspaper, and web-based publications. Standard editing practices for using grammar, proofreading marks, and computer editing tools.

Prerequisite: WA/COM1, WB/COM2 (ENGL 2035 and ENGL 3000 recommended).

ENGL4030 - Writing for Magazines

Credits: 3

Students write a variety of articles that would be appropriate for submission to a magazine. Feedback is given through class workshops and consultation with the instructor. Award-winning articles are read and discussed. The business aspect of magazine writing is also covered.

Prerequisite: COM1, COM2, and junior standing.

ENGL4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music, and film.

Cross Listed COJO 4061.

Dual Listed ENGL 5061.

USP 2015 Code U5C3

Prerequisite: COMM 1040 and COJO 3040 or ENGL 2035.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

Foundations of Language

3 Hours in the History of the English Language or Social Linguistics

Take **ONE** of the Following:

EDCI4761 - Linguistics, Sociolinguistics, and Social Literacies for Teachers

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies that are necessary for understanding and working with children from diverse linguistic and cultural backgrounds. As such, the course was designed to redirect students' attention from a sole focus on schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring to school from their own sociocultural contexts.

Prerequisite: EDST 3480.

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations; (d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

ANTH2000 - Introduction to Linguistic Anthropology

Credits: 3

Demonstrates the interrelationship of language, human biology, and culture at the introductory level. Linguistic anthropological methods and theories are used to examine linguistic behaviors used throughout the world.

USP 2003-2014 Code U3L

USP 2015 Code U5C2

Prerequisite: ANTH 1100, ANTH 1200 or ANTH 1300.

ENGL4780 - History of the English Language

Credits: 3

Considers major sources of change in the English language historically, as well as some of the internal and external catalysts for the process. Identical to ANTH 4780.

Prerequisite: ENGL 4750.

Young Adult Literature-3 Hours

EDCI4120 - Literature for Young Adults

Credits: 3

Designed for prospective and working library media specialists and teachers who wish to strengthen their backgrounds in the utilization of literature with young adults in classrooms and libraries. The course involves the reading and critique of literature.

Dual Listed EDCI 5120.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [LIBS 4120]

Prerequisite: senior level or graduate standing.

World Language

12 hours of the same world language, including ASL

Capstone: Senior Seminar

ENGL4999 - Senior Seminar

Credits: 3

This course is the capstone course in the English major. Subject matter varies by section. In all sections students will exercise skills acquired in the major (close-reading, historical analysis, application of theory) to explore significant texts and to reflect on the nature of English study today.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and either ENGL 3000 or ENGL 3010; Senior standing.

Electives

9-10 Hours of Electives

Secondary Mathematics Education with Concurrent Major in Mathematics, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Mathematics Education and a concurrent major in Mathematics. It prepares students to teach Mathematics in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3271 - Subject Matter Specific Methods I: Secondary Mathematics Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Mathematics Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4271.

(3 credits required)

EDSE4271 - Subject Matter Specific Methods II: Secondary Mathematics Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Mathematics Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3271/EDCI 5250.

(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Major Content

It is necessary to complete a minimum of 50 hours in math coursework. Work must include 27 credit hours of upper-division mathematics. The grade in each course of this 50-hour requirement must be C or better. A minimum GPA of 2.500 in major content courses is required.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general. Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

MATH4000 - History of Mathematics

Credits: 3

Explores the roots of mathematics and the people who made significant contributions to it. Mathematical subjects typically include algebra, calculus and number theory; both chronological and topical approaches are employed.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2205.

MATH4600 - Foundations of Geometry

Credits: 3

Broadens the student's understanding of the many faces of geometry and provides a context for the specific case of Euclidean geometry. Various approaches will be presented, including axiomatic, synthetic, coordinate, and transformational methods.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 3205 or MATH 3500.

Major Related Statistics Courses

Take **ONE** of the Following (STAT 2050 and STAT 2070 are recommended):

STAT2000 - Statistics and the World

Credits: 3

Discusses statistical reasoning and methods as related to today's society. Emphasizes ideas rather than specific techniques. Focuses on real examples of the use (and misuse) of statistics. Includes sampling, experimentation, descriptive statistics, elementary probability and statistical inference.

USP 2003-2014 Code U3QB,U3Q

Prerequisite: grade of C or better in MATH 0921 or level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600 or concurrent enrollment in MATH 1080.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220,

5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

Depth & Sequence Courses

Take **ONE** of the Following Selected Pairs:

Pair 1

MATH4200 - Analysis 2: Advanced Analysis

Credits: 3

A second course in analysis. Includes metric space topology, sequences and series of functions, and analysis in \mathbb{R}^n .

When Offered (Offered fall semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 2210, MATH 2250 and MATH 3205.

AND

MATH4205 - Analysis 3: Undergraduate Topics in Analysis

Credits: 3

Special topics in analysis. Content varies. May be repeated for credit.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 4200.

OR

Pair 2

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

AND

MATH4440 - Introduction to Partial Differential Equations I

Credits: 3

Survey of analytic methods for solving partial differential equations. Topics include: method of characteristics for solving first-order linear and quasi-linear equations; classification of second-order equations and canonical forms; background to separation of variables with applications; transform methods and Green functions; elliptic equations; heat and wave equations in one dimension.

Prerequisite: grade of C or better in MATH 2210 and MATH 2310.

OR

Pair 3

MATH4510 - Algebra II: Introduction to Group Theory

Credits: 3

An introduction to the fundamental properties of groups including: binary operations, groups, permutation groups, subgroups, homomorphisms, and quotient groups.

When Offered (Offered spring semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 3500.

AND

MATH4520 - Algebra III: Topics in Abstract Algebra

Credits: 3

Further examples and structure of rings and fields. Finite fields and number fields. Special topics.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 4510.

Breadth Electives

Take **TWO** of the following courses:

MATH3310 - Appl Diff Equations II

Credits: 3

Continues MATH 2310. Includes partial differential equations, Fourier series, boundary value problems, series solutions of ordinary differential equations, linear algebra, linear systems of equations and numerical methods.

Prerequisite: Prerequisites: grade of C or better in MATH 2210 and 2310.

MATH3700 - Combinatorics

Credits: 3

Provides an introduction to combinatorics and combinatorial algorithms, with applications to areas such as computer science and probability. Topics include general counting methods, recurrence relations, generating functions, inclusion-exclusion, partial orders, and graph theory.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2250.

MATH4150 - Secondary School on Campus

Credits: 1-4

Provides prospective teachers opportunity to study mathematics as it relates to the secondary school. Topics may vary from semester to semester. Emphasizes current trends and concerns of secondary school mathematics education.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2205 and concurrent with EDSE 4271.

MATH4230 - Introduction to Complex Analysis

Credits: 3

Develops the theory of functions of one complex variable. Topics include the algebra and geometry of complex numbers, functions of one complex variable, elementary functions, limits, continuity and differentiation. Differentiability leads to the Cauchy theorem, integral theorems, power series, residue theory and applications to integration theory and boundary value problems.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2210.

MATH4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed STAT 4255.

Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

MATH4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributionsIntroduces theory of estimation and hypothesis testing

Cross Listed STAT 4265.

Former Course Number [4260, 4010]

Prerequisite: MATH 4255.

MATH4300 - Introduction to Mathematical Modeling

Credits: 3

A model of a real world problem captures the essential features of the problem, while scaling it down to a manageable size. In this course, symbolic tools and mathematical techniques are used to construct, analyze and interpret various mathematical models which arise from problems in the physical, biological and social sciences.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250 or MATH 2310.

MATH4440 - Introduction to Partial Differential Equations I

Credits: 3

Survey of analytic methods for solving partial differential equations. Topics include: method of characteristics for solving first-order linear and quasi-linear equations; classification of second-order equations and canonical forms; background to separation of variables with applications; transform methods and Green functions; elliptic equations; heat and wave equations in one dimension.

Prerequisite: grade of C or better in MATH 2210 and MATH 2310.

MATH4500 - Matrix Theory

Credits: 3

Continuation from MATH 2250 of the study of matrices, an important tool in statistics, physics, engineering and applied mathematics in general. Concentrates on the structure of matrices, including diagonalizability; symmetric, hermitian and unitary matrices; and canonical forms such as Jordan form.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250.

OR

any 3000 or 4000 mathematics or statistics course allowed as an elective in the mathematics program.

Secondary Modern Languages Education with Concurrent Major in French, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Modern Language Education and a concurrent major in French (Formerly titled: Foreign Language). It prepares students to teach French in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2040 with a minimum grade of C or higher is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Only)

EDSE3276 - Subject Matter Specific Methods I: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Modern Language Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4276.
(3 credits required)

EDSE4276 - Subject Matter Specific Methods II: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Modern Language Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3276/EDCI 5250.
(4 credits required)

Residency (Offered Spring Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.
Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.
(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3
The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)
Corequisite: EDSE 4500

Concurrent Major Courses

At least 21 hours must be upper-division (3000-level or higher)

French Core

FREN2040 - Second Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

Take ONE of the following:

FREN2130 - Contemporary French Culture

Credits: 3

Designed as an introduction to contemporary French culture. It gives students an in-depth insight into contemporary French life. It also deals with issues affecting the French-speaking world in general: Quebec, Africa, New Caledonia, Switzerland, Monaco, etc.

USP 2015 Code U5H

Prerequisite: FREN 1020 or equivalent.

OR

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

Major Related Courses

EDCI4350 - Introduction to Second Language Acquisition

Credits: 3

Addresses theoretical and conceptual foundations of working with second language learners. Focus is on the classroom applications of this theoretical base to interactions with English language learners, curriculum, instruction, assessment and evaluation, classroom organization, and school-community relations. Native American language revitalization issues are featured.

Dual Listed EDCI 5350.

EDCI4450 - Issues In Multicultural Education

Credits: 3

Provides the future teacher and other interested students with a better understanding of current issues and social foundations of multicultural America. Enables more accurate educational decisions related to utilizing strengths and diversity of each cultural group.

Dual Listed EDCI 5450.

Former Course Number [4250]

Prerequisite: students must have at least 12 credit hours in education classes.

Take ONE of the following:

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

OR

THEA1100 - Acting I

Credits: 3

Acting I introduces students to the study of the actor's process with an emphasis on analyzing, rehearsing and performing scenes in front of an audience. The student will be introduced to exercises which promote creative expression. Scene work and scoring will focus on contemporary realism.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Restricted Theater majors or permission of instructor

Take ONE of the following:

EDCI4761 - Linguistics, Sociolinguistics, and Social Literacies for Teachers

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies that are necessary for understanding and working with children from diverse linguistic and cultural backgrounds. As such, the course was designed to redirect students' attention from a sole focus on schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring to school from their own sociocultural contexts.

Prerequisite: EDST 3480.

OR

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations; (d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

Foundations of Language

12 credits of FREN or courses related to the history, art or political science of the francophone world (consult your advisor). For those completing the ESL endorsement, six of these hours can be earned with EDCI 5430 and EDCI 5440 or with a study abroad in a French-speaking country. Study abroad is strongly recommended.

Electives

15 Credits of FREN Upper Division Electives at 3000+ Level

Language Proficiency Requirement

Completion of the OPI and WPT via the American Council on the Teaching of Foreign Languages (ACTFL) with a score of Advanced Low or better prior to enrollment in EDSE 4276.

Secondary Modern Languages Education with Concurrent Major in German, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Modern Language Education and a concurrent major in German (Formerly titled: Foreign Language). It prepares students to teach German in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3276 - Subject Matter Specific Methods I: Secondary Modern Language Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Modern Language Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4276.

(3 credits required)

EDSE4276 - Subject Matter Specific Methods II: Secondary Modern Language Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Modern Language Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3276/EDCI 5250.

(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Concurrent Major Courses

At least 24 hours must be upper-division (3000-level or higher)

German Core

GERM2040 - Second Year German II

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5H

Prerequisite: GERM 2030 or three years of high school German.

GERM3050 - Third Year German I

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3060 - Introduction to German Literature

Credits: 3

Introduces literature of Germany. Analyzes major literary types and elements of criticism. Emphasizes compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Prerequisite: GERM 3050.

Major Related Courses

EDCI4350 - Introduction to Second Language Acquisition

Credits: 3

Addresses theoretical and conceptual foundations of working with second language learners. Focus is on the classroom applications of this theoretical base to interactions with English language learners, curriculum, instruction, assessment and evaluation, classroom organization, and school-community relations. Native American language revitalization issues are featured.

Dual Listed EDCI 5350.

EDCI4450 - Issues In Multicultural Education

Credits: 3

Provides the future teacher and other interested students with a better understanding of current issues and social foundations of multicultural America. Enables more accurate educational decisions related to utilizing strengths and diversity of each cultural group.

Dual Listed EDCI 5450.

Former Course Number [4250]

Prerequisite: students must have at least 12 credit hours in education classes.

Take ONE of the following:

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

OR

THEA1100 - Acting I

Credits: 3

Acting I introduces students to the study of the actor's process with an emphasis on analyzing, rehearsing and performing scenes in front of an audience. The student will be introduced to exercises which promote creative expression. Scene work and scoring will focus on contemporary realism.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Restricted Theater majors or permission of instructor

Take ONE of the following:

EDCI4761 - Linguistics, Sociolinguistics, and Social Literacies for Teachers

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies that are necessary for understanding and working with children from diverse linguistic and cultural backgrounds. As such, the course was designed to redirect students' attention from a sole focus on schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring to school from their own sociocultural contexts.

Prerequisite: EDST 3480.

OR

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations; (d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

Foundations of Language

12 credits of GERM or courses related to the history, art or political science of the German-speaking world (consult your advisor). For those completing the ESL endorsement, six of these hours can be earned with EDCI 5430 and EDCI 5440 or with a study abroad in a German-speaking country. Study abroad is strongly recommended.

Electives

21 Credits of GERM Elective above 2030

Language Proficiency Requirement

Completion of the OPI and WPT via the American Council on the Teaching of Foreign Languages (ACTFL) with a score of Advanced Low or better prior to enrollment in EDSE 4276.

Secondary Modern Languages Education with Concurrent Major in Spanish, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Modern Language Education and a concurrent major in Spanish (Formerly titled: Foreign Language). It prepares students to teach Spanish in grades 6-12. A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2040 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Only)

EDSE3276 - Subject Matter Specific Methods I: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Modern Language Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4276.

EDSE4276 - Subject Matter Specific Methods II: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Modern Language Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3276/EDCI 5250.
(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.
Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)
Corequisite: EDSE 4500

Concurrent Major Courses

At least 27 hours must be upper-division (3000-level or higher)

Spanish Core

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN3060 - Third Year Spanish II

Credits: 3

Intensively reviews grammar and composition-skill development. Also emphasizes specialized lexicons, written and oral translation, as well as conversational fluency.

A&S College Core 2015 ASD

Prerequisite: SPAN 3050.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course is focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3

Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

Take ONE of the following:

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

OR

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

Take ONE of the following:

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

OR

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectical variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

Major Related Courses

EDCI4350 - Introduction to Second Language Acquisition

Credits: 3

Addresses theoretical and conceptual foundations of working with second language learners. Focus is on the classroom applications of this theoretical base to interactions with English language learners, curriculum, instruction, assessment and evaluation, classroom organization, and school-community relations. Native American language revitalization issues are featured.

Dual Listed EDCI 5350.

EDCI4450 - Issues In Multicultural Education

Credits: 3

Provides the future teacher and other interested students with a better understanding of current issues and social foundations of multicultural America. Enables more accurate educational decisions related to utilizing strengths and diversity of each cultural group.

Dual Listed EDCI 5450.

Former Course Number [4250]

Prerequisite: students must have at least 12 credit hours in education classes.

Take One of the following:

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

OR

THEA1100 - Acting I

Credits: 3

Acting I introduces students to the study of the actor's process with an emphasis on analyzing, rehearsing and performing scenes in front of an audience. The student will be introduced to exercises which promote creative expression. Scene work and scoring will focus on contemporary realism.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Restricted Theater majors or permission of instructor

Take ONE of the following:

EDCI4761 - Linguistics, Sociolinguistics, and Social Literacies for Teachers

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies that are necessary for understanding and working with children from diverse linguistic and cultural backgrounds. As such, the course was designed to redirect students' attention from a sole focus on schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring to school from their own sociocultural contexts.

Prerequisite: EDST 3480.

OR

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations; (d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

Foundations of Language

12 credits of SPAN or courses related to the history, art or political science of the Hispanophone world (consult your advisor). For those completing the ESL endorsement, six of these hours can be earned with EDCI 5430 and EDCI 5440 or with a study abroad in a Spanish-speaking country. Study abroad is strongly recommended.

Electives

- 12 Credits of SPAN Electives above 2030

Language Proficiency Requirement

Completion of the OPI and WPT via the American Council on the Teaching of Foreign Languages (ACTFL) with a score of Advanced Low or better prior to enrollment in EDSE 4276.

Secondary Modern Languages Education, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Secondary education programs are offered in French, German, and Spanish (Formerly titled: Foreign Language). A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options.

Modern Language Secondary Education programs require that all candidates score at the *Advanced Low* level or higher on the American Council of Teachers and Foreign Language Oral Proficiency Interview (OPI) and the Writing Proficiency Test (WPT) in their target language in order to be admitted to the Methods II course.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

All Professional Education requirements must be completed with a grade of C or higher.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Only)

EDSE3276 - Subject Matter Specific Methods I: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Modern Language Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4276.

EDSE4276 - Subject Matter Specific Methods II: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Modern Language Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3276/EDCI 5250.

Residency (Offered Spring Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.
Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)
Corequisite: EDSE 4500

Concurrent Majors:

Secondary Modern Languages Education with Concurrent Major in French, B.A.

Secondary Modern Languages Education with Concurrent Major in German, B.A.

Secondary Modern Languages Education with Concurrent Major in Spanish, B.A.

Secondary Science - Biological Science Education with Concurrent Major in Biology (BSSE), B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Biology Education and a concurrent major in Biology. It prepares students to teach Biology in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3
Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3
Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484,

EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.

(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.

(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Major Content

Required Biology Courses

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Plus Choose Two:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

Required Additional Coursework

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course

emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

OR

- LIFE2100 - Intro Research and Analysis Credits: 4
Note: LIFE 2100 can only be applied for one of the above (4) credit options.
Earth/Space Science (3-4 credits)

Elective Courses

9 hours - minimum. (with 6 hours of 3000-level or above and at least one course with an environmental focus); courses must come from ANVS, BOT, ENTO, KIN, LIFE, MICR, MOLB, PLNT, RNEW, or ZOO.

Secondary Science - Chemistry Education with Concurrent Major in Chemistry (CHSE), B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Chemistry Education and a concurrent major in Chemistry. It prepares students to teach Chemistry in grades 6-12.

A concurrent major will ensure that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.
(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.
(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.
Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses,

successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Chemistry Requirements

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

OR

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and

organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

OR

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

OR

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

OR

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for

only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

ADDITIONAL REQUIRED COURSEWORK:

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

OR

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Upper Division Elective Courses

6-Hours - minimum (6 hours of 3000-level or above)

Courses must come from:

- CHEM, LIFE, or MOLB

*Note-CHEM 4230 is highly recommended

Secondary Science - Earth Science Education with Concurrent Major in Environmental Systems Science (ESSE), B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Earth Science Education and a concurrent major in Environmental Systems Science. It prepares students to teach Earth Science in grades 6-12.

A concurrent major will ensure that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

*A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.
A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.*

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.
(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.
(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.
(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the

assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)
Corequisite: EDSE 4500

Environmental Systems Science Foundations

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L

USP 2015 Code U5PN

or (3) credit approved equivalent

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

OR

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

OR

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy

relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

OR

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

OR

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

OR

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ESS2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed GEOL 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

OR

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

ESS4950 - Exploring the Earth System

Credits: 3

Conduct critical and interdisciplinary assessments on complex topics addressing physical, biological, and human components of the Earth System. Through multiple written, oral, and digital communication products, students will

work independently and collaboratively to critically review existing literature, define knowledge gaps, analyze evidence, and synthesize results for multiple audiences.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ESS 1000 and either ESS 3480 or ENR 3450.

ESS4970 - Internship in Earth System Science

Credits: 1-6

Max Credit (Max. 6)

Offers students an individualized opportunity to connect their academic training, professional experiences, and future goals. Students must first consult with their Haub School advisor and have completed and appropriate internship, professional and/ or applied experience that provides exposure to complex environmental systems, scientific practices, and relevant interactions in the professional world.

Prerequisite: ESS 1000.

Spheres

Other options might be available in some categories

1. Anthrosphere - Choose 1 Course

AMST4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 4030.

Dual Listed AMST 5030.

Prerequisite: 3 hours in any interdisciplinary program.

ENR4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed AMST 4030.

Dual Listed ENR 5030.

Prerequisite: 3 hours in any interdisciplinary program.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOG 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

2. Atmosphere - Choose 1 Course

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

ATSC2200 - Severe and Unusual Weather

Credits: 3

A nontechnical course on severe and unusual weather events that occur around the globe. The focus of the course is on a wide range of weather events that have profound impacts on societies, economics, and cultures, and the material is presented in a qualitative manner such that is highly accessible by students coming from all backgrounds.

USP 2003-2014 Code U5PN

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

3. Biosphere - Choose 1 Course

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).
Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

GEOG4460 - Biogeography

Credits: 3

A systematic study of the distribution of plants and animals, communities and ecosystems, the processes that produce patterns of distribution and their change over time. Interactions of climate, soil geomorphology, biota and human activities are emphasized.

Former Course Number [G&R 4460, 3460]

Prerequisite: junior standing and GEOG 1010 or LIFE 2022 or LIFE 2023.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

OR complete all three of the following

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

4. Lithosphere Environmental Change - Choose 1 Course

ENR3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed SOIL 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

ENR4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430/CHE 4430.

Prerequisite: CHEM 1020.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological,

geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

5. Lithosphere Hydrology & Surface Processes - Choose 1 Course

ENR4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 4285.

Dual Listed ENR 5285.

Prerequisite: University Studies QA.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

Skills & Tools

Data Analysis - Choose 1 course

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

GEOL3250 - Geosciences and Computers

Credits: 4

An integrated introduction to the basic components of modern scientific computing and to illustrate basic computing concepts through geoscience applications.

USP 2003-2014 Code [I< >(none)]

Prerequisite: One USP designated science course with lab.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

GIS/Remote Sensing - Choose 1 course

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing

forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

Additional Math/Science Courses

*Note: The general B.S. in ESS will allow for students to complete STAT 2050 (or 2070) **or** MATH 2200 and either PHYS 1050 **or** PHYS 1110. However, the ESSE program will require MATH 2200 + PHYS 1110 to meet additional teaching endorsement requirements in other sciences.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

Note: MATH1405 is a prerequisite to MATH2200

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

Electives

A variable amount of elective courses is required to meet the minimum requirement. Work with your academic advisor to select appropriate elective courses. 13+ credit hours of electives are required to meet the UW minimum program requirement. Student enrolled in the ESSE concurrent major program are highly encouraged to take STAT 2050 or STAT 2070 as an elective course. This concurrent major program meets the 18+ credit hours that ESS requires for a minor.

Secondary Science - Earth Science Education with Concurrent Major in Geology (GSSE), B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfill University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Earth Science Education and a concurrent major in Geology. It prepares students to teach Earth Science in grades 6-12.

A concurrent major will ensure that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

*A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.
A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.*

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.
(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.
(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.
(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the

assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)
Corequisite: EDSE 4500

Required Geology Courses

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

OR

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

OR

GEOL4717 - Field Course in Geology

Credits: 1-8

Reviews field observation of geologic phenomena, methods of geologic mapping and interpretation of data collected. Course includes a six-week field trip.

When Offered (Offered early summer)

Former Course Number [GEOL 5100]

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

(Spring only course, MUST have 26 GEOL hrs completed before enrolling)

Required Additional Courses

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

ASTR1050 - Survey of Astronomy

Credits: 4

Consists of 3 lecture periods and a two-hour laboratory in observational and laboratory astronomy. Observing sessions are scheduled after dark and held when weather permits. Designed primarily for non-science majors.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

Elective Courses:

Choose 6 courses from the following recommended list to obtain the minimum required hours.

ATSC2000 - Introduction to Meteorology

Credits: 4

First course in meteorology for students with minimal background in math and science. Provides general and practical understanding of weather phenomena. Emphasizes observational aspects of the science, meteorological view of the physical world and the impact the science has on life and society. Includes three hours of lecture and one laboratory per week. Includes atmospheric composition and structure, radiation, winds and horizontal forces, stability and vertical motions, general circulation, synoptic meteorology, clouds and precipitation, severe storms and atmospheric optics.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL2050 - Principles of Paleontology

Credits: 4

Max Credit 4

Examines principles, biological and geological, that underlie general study of ancient life on Earth. Includes interactions of evolutionary, taphonomic, and paleogeographic concepts within various approaches to paleobiology and systematic paleontology. Optional field trip.

When Offered (Normally offered spring semester)

Prerequisite: 1000-level GEOL or LIFE 1000 or LIFE 1010

GEOL2070 - Introduction to Oceanography

Credits: 4

Survey of ocean processes, including the major subdisciplines of physical, geological, chemical, and biological oceanography. Studies the form of the world ocean; composition and chemistry of seawater; circulation, currents, waves and tides; nutrients and organisms; estuaries and coastal processes; origin and distribution of deep-sea sediments; and impacts of human activities.

When Offered (Normally offered the first half of the fall semester)

Prerequisite: GEOL 1005, GEOL 1100, 1200, GEOL 1500 or ENR 1500; MATH 1405 or MATH 1450.

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4444 - Geohydrology

Credits: 4

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 5444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust. Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL4835 - Applied/Exploration Geophysics

Credits: 3

Discusses the fundamentals of Applied or Exploration Geophysics, encompassing lecture, laboratory classes and discussion of case histories. It covers the Seismic Refraction, Seismic Reflection, Gravity, and Magnetics methods. Provides a solid grounding about the exploration of the Earth's subsurface for mineral and hydrocarbon resources, and environmental issues.

Dual Listed GEOL 5835.
Former Course Number [GEOL 4970]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210 and MATH 2200.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

Secondary Science - Physics Education with Concurrent Major in Physics (PHSE), B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on

developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Physics Education and a concurrent major in Physics. It prepares students to teach Physics in grades 6-12.

A concurrent major will ensure that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.

(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.

(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Major Content

Physics Core

Introductory Courses

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Choose 1 Course

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body

radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR2320 - General Astronomy II

Credits: 4

Covers the properties of stars, stellar atmospheres and stellar evolution, interstellar matter, galaxies and cosmology including models of the universe, the Big Bang, and dark energy. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS3640 - Modern Electronics and Experimental Techniques

Credits: 4

Introduced to analog and digital circuits/devices and computer interfacing with laboratory equipment and experiments. Includes computer programming, the analysis of experimental data, and report writing. Apply the skills developed in this class to interface with and control representative instrumentation used in experimental physics laboratories.

Prerequisite: PHYS 2320.

Choose 1 Option

Option A

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

Option B

ASTR1050 - Survey of Astronomy

Credits: 4

Consists of 3 lecture periods and a two-hour laboratory in observational and laboratory astronomy. Observing sessions are scheduled after dark and held when weather permits. Designed primarily for non-science majors.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

AND

ASTR2320 - General Astronomy II

Credits: 4

Covers the properties of stars, stellar atmospheres and stellar evolution, interstellar matter, galaxies and cosmology including models of the universe, the Big Bang, and dark energy. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

Option C

ASTR1000 - Descriptive Astronomy

Credits: 3

Covers essential features of the solar system, stellar astronomy and time measurement.

USP 2003-2014 Code U5PN, U3SE

USP 2015 Code U5PN

A&S College Core 2015 Students who have taken ASTR 2310 may not earn credit in ASTR 1000, and not more than 4 credit hours may be earned by taking both ASTR 1000 and ASTR 1050.

AND

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

Electives

- PHYS Elective, 2000-level or higher, Minimum 2 Credits
- PHYS Elective, 3000-level or higher, Minimum 3 Credits

4000 Level Courses

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: P HYS 4 210.

OR

ASTR4610 - Introduction to Astrophysics

Credits: 3

Includes astrophysical sources of radiation, radiation transport, nonequilibrium processes, stellar atmospheres, stellar interiors and the interstellar medium.

Prerequisite: ASTR 2310, PHYS 2310 and concurrent registration in PHYS 4210 and PHYS 4410.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

Required Additional Science Courses

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ASTR1050 - Survey of Astronomy

Credits: 4

Consists of 3 lecture periods and a two-hour laboratory in observational and laboratory astronomy. Observing sessions are scheduled after dark and held when weather permits. Designed primarily for non-science majors.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

OR

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

Required Mathematics Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and

applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Secondary Science Education, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Concurrent majors in Science Education are offered in Biology, Chemistry, Environmental System Science, Geology, and Physics.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. A grade of C or better must be earned in each course included in the major content. A minimum GPA of 2.75 in major content courses is required.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3
Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Only)

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.
(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.
(4 credits required)

Residency (Offered Spring Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Concurrent Majors

- Secondary Science - Biological Science Education with Concurrent Major in Biology (BSSE), B.A.
- Secondary Science - Chemistry Education with Concurrent Major in Chemistry (CHSE), B.A.
- Secondary Science - Earth Science Education with Concurrent Major in Environmental Systems Science (ESSE), B.A.
- Secondary Science - Earth Science Education with Concurrent Major in Geology (GSSE), B.A.
- Secondary Science - Physics Education with Concurrent Major in Physics (PHSE), B.A.

Secondary Social Studies Education with Concurrent Major in History, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Social Studies Education and a concurrent major in History. It prepares students to teach Social Studies in grades 6-12.

A concurrent major will ensure that graduates are "highly qualified" teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

All Professional Education requirements must be completed with a grade of C or higher.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Only)

EDSE3273 - Subject Matter Specific Methods I: Secondary Social Studies Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Secondary Social Studies Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4273.

EDSE4273 - Subject Matter Specific Methods II: Secondary Social Studies Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Social Studies Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3273/EDCI 5250.

Residency

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

History Core Requirements - 36 Credit Hours Minimum

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

OR

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

OR

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

- HIST 2000 level and above elective Credits: 3

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

- Native American content course (NAIS/HIST) Credits: 3
- 3000 or 4000-level HIST electives Credits: 12

Required Additional Content - 27 Credit Hours Minimum

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

OR

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

- ECON elective Credits: 3
- PSYC elective Credits: 3
- SOC or ANTH elective Credits: 3
- Single foreign language Credits: 8

Secondary Social Studies Education with Concurrent Major in Political Science, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Social Studies Education and a concurrent major in Political Science. It prepares students to teach Social Studies in grades 6-12.

A concurrent major will ensure that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.

A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Only)

EDSE3273 - Subject Matter Specific Methods I: Secondary Social Studies Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Secondary Social Studies Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4273.

EDSE4273 - Subject Matter Specific Methods II: Secondary Social Studies Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Social Studies Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3273/EDCI 5250.

Residency

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

Political Science Core Requirements - 33 Credit Hours Minimum

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

OR

POLS1250 - Introduction to Comparative Government

Credits: 3

How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.

A&S College Core 2015 ASG

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

OR

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

- POLS 48XX Credits: 3
- POLS electives Credits: 18
 - At least 9 hours of the 18 total must be 3000 or 4000-level
 - At least 6 hours of the 18 total must be related to the U.S. Constitution
 - Highly recommend POLS 4100 and 4110

Required Additional Content - 36 Credit Hours Minimum

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester
USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester
USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH
OR

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

OR

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE
USP 2015 Code U5PN
Former Course Number [G&R 1010]

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG
Former Course Number [G&R 1000]
OR

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG
Former Course Number [G&R 1020]

- ECON elective Credits: 3
- PSYC elective Credits: 3
- SOC or ANTH elective Credits: 3
- Single foreign language Credits: 8

Secondary Social Studies Education, B.A.

This degree program leads to initial teaching licensure (leading to teaching certification) with secondary concurrent majors.

University Studies Program Requirements

Several Professional Education and Core Content courses fulfil University Studies Program requirements.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Professional Education Requirements

Graduates of this program earn a Bachelor's Degree in Social Studies Education and a concurrent major in History or Political Sciences. It prepares students to teach Social Studies in grades 6-12.

A concurrent major ensures that graduates are highly qualified teachers and will expand career possibilities.

A minimum of 120 hours are required to obtain a UW baccalaureate degree, though, each program's hours will vary depending on major and additional options. All major courses must be passed with a grade of C or better. A minimum GPA of 2.75 in major content courses is required. A minimum of 42 credits must be upper-division.

An initial background check must be completed prior to starting any field or practicum experience. Student fees cover the cost of this initial background check so work with your College of Education advisor for details.

Foundations

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)
USP 2003-2014 Code U3CS
USP 2015 Code U5H
Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

ITEC2360 - Teaching with Technology

Credits: 3

Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

Completion of EDST 2450 with a minimum grade of C or better is a prerequisite for the following courses:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

*A minimum 2.75 UW cumulative GPA is required for registration in EDST 3100 and EDST 3101.
A copy of your valid Wyoming Substitute Teaching Permit must be on file with the Teacher Preparation and Advising Office no later than the first day of class.*

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)
USP 2003-2014 Code U3O, U3WB
USP 2015 Code U5C2
Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COMI with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

Assessment

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

Methods (Offered Fall Semester Only)

EDSE3273 - Subject Matter Specific Methods I: Secondary Social Studies Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Secondary Social Studies Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4273.
(3 credits required)

EDSE4273 - Subject Matter Specific Methods II: Secondary Social Studies Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Social Studies Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3273/EDCI 5250.
(4 credits required)

Residency (Offered Spring Semester Only)

EDSE4500 - Residency in Teaching

Credits: 1-16
Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.
Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.
(12 credits required)

EDSE4550 - Residency Applications and Synthesis

Credits: 3
The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And
A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)
Corequisite: EDSE 4500

Major Content

Concurrent majors in social studies education are offered in History (120 minimum credits total), and Political Science (120 minimum credits total).

Majors must maintain a G.P.A. of 2.500 in major content courses and earn a grade of C or better in all content classes.

Concurrent Majors

- Secondary Social Studies Education with Concurrent Major in History, B.A.
- Secondary Social Studies Education with Concurrent Major in Political Science, B.A.

Minor

Early Childhood Education Options

The College of Education provides a few different options in early childhood at the University of Wyoming.

Early Childhood Education minor:

Students in related bachelor's degree programs take an additional 22 credits (7 or 8 courses) of specified coursework to complete and earn the minor. This minor does not need to include an option from the following lists, but it can. If a student chooses an internship as the elective course, then that student is eligible for option A or B below. (The College of Education teaches 15-18 of the required 22 credits)

EDEC1020 - Introduction to Early Childhood Education

Credits: 3

Introduces students to the field of early childhood education through lecture, discussion, observation and participation. The student will be exposed to different programs currently in operation in the community and region. Special emphasis will be placed on evaluating early childhood education as a career.

Former Course Number [EDCI 1020]

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

OR

PSYC2300 - Developmental Psychology

Credits: 3

Introduces psychological development, including age-related changes in thinking, emotion, and behavior. Major theories, methodologies, and empirical discoveries are surveyed in an exploration of developments beginning with conception, with emphasis on social, affective, and cognitive developments in childhood and infancy and their implications for policy and practice.

When Offered (Normally offered spring semester)

Prerequisite: A grade of C or better in PSYC 1000.

AND

FCSC2122 - Child Development Lab

Credits: 1

Laboratory observation course designed for students with a background in child development theory. Students learn child observation techniques, how to write laboratory reports, and how to apply them to evaluating a child's development in all domains.

Prerequisite: PSYC 2300.

EDEC2000 - Engaging Families in Early Childhood Settings

Credits: 3

Focus on the philosophical, psychological, and sociocultural aspects of working with families and children in early childhood educational, home, and community settings.

EDEC3000 - Observing Young Children

Credits: 3

The general goal of the course is to introduce students to observation and recording techniques appropriate for assessing the growth and development of young children in the school setting. A secondary goal is to understand how observation and recording techniques can facilitate curriculum planning and parent-teacher conferences.

Prerequisite: EDEC 1020 and FCSC 2121.

EDEC3220 - Curriculum and Learning Environments in Early Childhood Education

Credits: 3

Early childhood curriculum and instructional practices will be reviewed, developed, and integrated with a focus on the role of learning environments, materials and play in supporting the teaching and learning process. Students have the opportunity to design meaningful learning experiences through practicum.

Former Course Number [EDCI 3220]

Prerequisite: EDEC 1020 and FCSC 2121 (or both PSYC 2300 and FCSC 2122).

EDEC4320 - Oral and Written Language Acquisition

Credits: 3

Introduces the student to the nature of language development as it pertains to oral and written communication in education. Recent research in the areas of oral and written language acquisition is compared and contrasted. Implications for facilitating the development of all language modes in educational settings is emphasized.

Former Course Number [EDCI 4320]

Prerequisite: EDST 3480 or equivalent, junior standing and declared Elementary Education or Family and Consumer Sciences major.

One approved elective (3 credits or more) from the list below:

*Note some course options taken at community colleges can meet this requirement (example EDEC 1100, 1105 or 1300).

*If students enrolled in the minor are also planning on getting their B-5 licensure or B-8 endorsement, the internship courses applicable to each option should be selected.

EDEC2275 - Literature for Young Children

Credits: 3

Introduce major genres and conventions. Will develop critical skills for reading and writing about children's literature and culture; interpretive skills to enrich the understanding of literature for readers

USP 2003-2014 Code U3CH

Prerequisite: ENGL 1010 and sophomore standing.

EDEL2280 - Literature for Children

Credits: 3

A survey course, the purpose of which is to prepare prospective elementary teachers and library-media specialists to provide knowledgeable service in the use of print and non-print materials for children. Includes study of evaluative criteria, wide reading, viewing and listening as well as discussion of literature for children.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

Former Course Number [LIBS 2280]

Prerequisite: successful completion of ENGL 1010, sophomore standing, education major.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3129 - Social Development in Young Children

Credits: 3

Designed to provide professional child development and early childhood education majors with an opportunity to learn more about how to encourage healthy social development in young children. In addition, topics of self-esteem, emotional regulation, and secure attachment will be discussed in depth with regards to how they affect overall development.

Prerequisite: FCSC 2121 or PSYC 2300.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4127 - Directing Preschool and Daycare Programs

Credits: 3

Effective methods for establishing and operating preschool and day-care programs for children under six years of age. Includes programming, classroom management, parent involvement and administration of food and nutrition programs.

USP 2003-2014 Code U3WC

Prerequisite: FCSC 2121, EDEC 1020 or 3210; junior standing.

EDCI4140 - Storytelling

Credits: 3

An investigation of storytelling as an art and as an aid to instruction. Emphasis is on literature for preschool and elementary age children.

Dual Listed EDCI 5140.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [LIBS 4140]

Prerequisite: junior standing or EDCI 4120 is recommended.

EDEC4350 - Health Management Issues in Early Education

Credits: 3

Provides the student the opportunity to examine the implications of a child's health status on his/her personal, educational, social and cognitive development. Provides personnel working closely with the young child with disabilities and his/her family an understanding of the issues related to health concerns and a framework for intervention planning. Special emphasis is placed on concerns specific to the child in a day care, preschool or other school setting.

Prerequisite: junior standing and consent of the instructor.

EDEC5220 - Children with Disabilities

Credits: 3

Purpose is to introduce students to the effects of a disability on the development of the young child. Recent research in the area of early childhood special education will be examined. Educational implications will be emphasized.

Prerequisite: Bachelor's degree in education.

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

AND

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

EDCI5580 - Internship1

Credits: 8

Max Credit (Max 12)

An internship experience may be required as part of the planned program in curriculum and instruction. A maximum of eight hours may be counted in meeting the minimum requirements of a graduate degree, but additional credit may be taken beyond this limit for the recording of appropriate supervised experience.

Prerequisite: 15 hours of education, consent of department head, and graduate standing.

FCSC4130 - Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early childhood education majors with an in-depth experience working with children from birth to age five. Students gain experience including planning lessons, teaching, assessing children and conducting parent conferences.

Prerequisite: FCSC 2121; EDEC 3000; EDEC 3220; senior standing.

Minor Option 1: Early Childhood Education B-5 licensure:

Students in the Human Development and Family Sciences (HDFS) degree (and other related degree options) take additional credits/courses (6 credits from either EDEC 4580/EDEC 5580 or FCSC 4130 internship *this internship could be included within the minor program making it +3 total credits) to earn licensure through several pathways (see below).

**Additional to the stand alone minor but must be enrolled in minor. (Can lead to PTSB initial licensure)*

- i. HDFS students minor in early childhood leads (includes 6 credits of internship - offered by FCS) to B-5 licensure
- ii. Professional Child Development (online degree) - no minor because all minor courses are required for major (includes 6 credits of internship offered - by FCS) to B-5 licensure
- iii. Other related majors complete the minor and internship EDEC 4580 for B-5 licensure

Minor Option 2: Early Childhood Education B-8 endorsement:

Students in the Elementary Education degree program take an additional 7 courses to earn this add on endorsement. *Additional to the stand alone minor but must be enrolled in minor.

- i. Elem Ed students who student teach in a K-3 setting and complete all minor coursework and the internship EDEC 4580 (6 credits) are eligible to earn the endorsement; 7 courses

Non-degree seeking student Early Childhood Education options:

There are two options for non-degree seeking students who already hold a bachelor's degree. These are noted on the ECE Minor ACALOG page, but these students are not undergraduates and not enrolled in the minor.

- **B-8 endorsement** for any non-degree seeking student who already holds an elementary K-6 license can take the required 19 credits of coursework and a 6-credit internship EDEC 4580 to qualify for a B-8 endorsement.
- **B-5 initial teacher license** option for non degree seeking students holding a bachelor's degree in a related area (Human Development, Psychology, Communication Disorders, etc) and complete an internship EDEC 4580 in a B-5 setting. *(Can lead to PTSB initial licensure)*

Early Childhood Special Education B-5 endorsement:

Post-bac graduate certificate students who already have an Elementary Education, Family Consumer Sciences/Child Development, or other related degree options take an additional 8 courses (26 credits) to earn this add on endorsement. *(Can lead to PTSB certification)*

This is a pre-k program and does not prepare candidates to work in kindergarten or primary grade classrooms.

For more information, visit the web page (www.uwyo.edu/ste/early-childhood-education/early-childhood-special-education.html)

EDEC5220 - Children with Disabilities

Credits: 3

Purpose is to introduce students to the effects of a disability on the development of the young child. Recent research in the area of early childhood special education will be examined. Educational implications will be emphasized.

Prerequisite: Bachelor's degree in education.

EDEC5230 - Curriculum and Materials for Young Children with Disabilities

Credits: 3

Involves the study and development of curriculum strategies appropriate for the child with disabilities from birth through age five.

Prerequisite: graduate standing.

EDEC5240 - Evaluation of Young Children with Disabilities

Credits: 3

Prepares students to select, administer, and interpret evaluation tools appropriate for planning with young children with disability.

Prerequisite: graduate standing.

EDEC5250 - Legal Issues in Early Childhood Special Education

Credits: 2

Introduces students to the legal issues surrounding the education of young children with disabilities. The intent and implications of P. L. 99457 will be explored and examined to better assist the specialist in serving children with disabilities and their families.

Prerequisite: EDEC 5220.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

EDEC4350 - Health Management Issues in Early Education

Credits: 3

Provides the student the opportunity to examine the implications of a child's health status on his/her personal, educational, social and cognitive development. Provides personnel working closely with the young child with disabilities and his/her family an understanding of the issues related to health concerns and a framework for intervention planning. Special emphasis is placed on concerns specific to the child in a day care, preschool or other school setting.

Prerequisite: junior standing and consent of the instructor.

EDEC4320 - Oral and Written Language Acquisition

Credits: 3

Introduces the student to the nature of language development as it pertains to oral and written communication in education. Recent research in the areas of oral and written language acquisition is compared and contrasted. Implications for facilitating the development of all language modes in educational settings is emphasized.

Former Course Number [EDCI 4320]

Prerequisite: EDST 3480 or equivalent, junior standing and declared Elementary Education or Family and Consumer Sciences major.

EDEC5580 - Internship in Early Childhood/Early Childhood Special Education

Credits: 1

Max Credit (Max. 6)

The internship experience allows the early childhood/early childhood special education program candidate to demonstrate the knowledge and skill gained from coursework offered throughout the EC/ESCE programs. Candidates enroll in the internship after completion of all required courses in the programs.

Dual Listed EDEC 4580.

Prerequisite: permission of the instructor is required.

Additional Information:

EDEC 1020 must be completed with C or higher before students are able to declare the ECE minor.

Graduate

Counseling, M.S.

The MS degree in Counseling program offers concentrations in school counseling and mental health counseling prepares you to become certified as a school counselor or with the training needed to become a provisionally licensed mental health counselor.

Options

- Counseling, M.S., Concentration in Mental Health Counseling
- Counseling, M.S., Concentration in School Counseling

Curriculum Requirements

The master of science degree in counseling is a 61 credit hours program. Full-time students can complete their chosen specialty in a 2-year period if they begin courses during the summer of their initial year and complete between 6-9 credit hours each summer and 9-12 credit hours each spring and fall.

Required Courses (49 Credit Hours)

- CNSL 5060 Counseling Ethics and Professional Issues (3 credit hours)
- CNSL 5110 Group Procedures (3 credit hours)
- 5140 Counseling and Addictions(3 credit hours)
- 5170 Career Across the Lifespan(3 credit hours)
- 5175 Human Growth and Development (3 credit hours)
- 5180 Assessment in Counseling (3 credit hours)
- 5200 Couples and Family Theory and Application (3 credit hours)
- 5210 Group Experience (1 credit hours)
- 5310 Pre-Practicum in Counseling (3 credit hours)
- 5320 Practicum in Counseling - 100 clock hours, 40 direct client hours (3 credit hours)
- 5330 Counseling Children and Adolescents (3 credit hours)
- 5340 Play Therapy (3 credit hours)
- 5350 Multicultural Counseling (3 credit hours)
- 5630 Advanced Issues in Counselor Preparation (3 credit hours)
- 5640 Diagnosis, Psychopathology and Psychopharmacology (3 credit hours)
- 5650 Counseling Theories (3 credit hours)
- EDRE 5530 Introduction to Research (3 credit hours)

Specialization Area Courses (12 Credit Hours)

School Counseling

- CNSL 5120 School Counseling Strategies and Techniques (3 credit hours)
- CNSL 5125 School Counseling II (3 credit hours)
- CNSL 5580 Supervised Internship (600 clock hours, 240 direct clienthours) (6 credit hours)

Community Mental Health Counseling

- CNSL 5130 Mental Health Counseling (3 credit hours)
- CNSL 5150 Mental Health Counseling II (3 credit hours)

Additional Information:

The UW counseling program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) and is offered on campus in Laramie, or as an intensive weekend program for working professionals at UW Casper.

The UW Mental Health Counseling Program

Through small classes and clinical experiences, UW's mental health program prepares you to serve in settings that include community agencies, integrated delivery systems, hospitals, addictions treatment centers and private practice.

The UW School Counseling Program

The school counseling program equips you with the knowledge and skills to become a school leader who works with students, teachers, administrators, parents and other community members to promote culturally relevant P-12 student growth. The school counseling program allows you to earn this degree with no previous P-12 experience.

About Counseling

In UW's highly regarded counseling program, you will acquire the theoretical foundation and practical experience necessary to work with a wide-range of clients, from P-12 students to adults, families and couples.

As a counseling graduate student, you will become part of a cohort community with whom you'll study, learn and grow. You will also work with an award-winning team of faculty, who will guide you toward developing your

counseling identity as you progress through your practicum and supervised internship. By the time you graduate, you will be well-prepared to step into a counseling position in any organization.

Counseling, M.S., Concentration in Mental Health Counseling

The MS degree in Counseling program offers concentrations in school counseling and mental health counseling prepares you to become certified as a school counselor or with the training needed to become a provisionally licensed mental health counselor.

Program Requirements

Core Courses

CNSL5060 - Counseling Ethics and Professional Issues

Credits: 3

Designed to provide students with a philosophical base for making ethical decisions in the professional situations they encounter. In addition, it involves a chance to discuss many specific ethical and professional issues that are commonly encountered in the profession.

Prerequisite: program admission or consent of instructor.

CNSL5110 - Group Procedures

Credits: 3

Designed as an introduction to group work used in various organizational settings. Basic group techniques and procedures are covered using lecture/ discussion methods, video, observation, and participation in practicing group leadership skills. Participation in a group experience during the course is required.

Prerequisite: CNSL 4520/CNSL 5520, six semester hours of education and/or psychology, consent of instructor, and graduate standing.

CNSL5140 - Counseling & Addictions

Credits: 3

Focuses on students acquiring specialized knowledge of assessment and multi-disciplinary treatment of chemical and other addictions.

Prerequisite: six hours in administration of justice, psychology, sociology, or social work at the 4000 or 5000 level.

CNSL5170 - Counseling and Career Across the Lifespan

Credits: 3

Offers an overview of human lifespan functioning with a primary focus on psychosocial development and counseling and career development across the lifespan. Additionally, this course presents the opportunity to examine the role of career and its influences on personal development.

CNSL5175 - Human Growth and Development

Credits: 3

Provides an understanding of the nature and needs of individuals at all developmental levels, across the entire lifespan, and in diverse multicultural contexts through addressing theories of individual and family development, transitions across the life span, theories of learning, personality development, and neurobiological behavior.

Prerequisite: Instructor permission and bachelors degree.

CNSL5180 - Assessment in CNSL

Credits: 3

Emphasis is on counselor development for facilitating client self-understanding through the application of various assessment procedures and knowledge about educational information systems and tools.

Prerequisite: graduate standing, 15 hours in education and/or behavioral sciences.

CNSL5200 - Couple and Family Theory

Credits: 3

Provides students with a foundation in conceptualizing and working with couple and family systems. Areas to be addressed include the history of couple and family counseling, ethical issues, professional orientation and an introduction to major systems theories. Participants are expected to explore their own family of origin.

Prerequisite: admission to program.

CNSL5210 - Group Experience

Credits: 1

Designed to provide a structured growth group experience through both in-class experience and reading. It is designed for students involved in human relationship fields. In-class groups are led by advanced group counseling students under the supervision of the faculty instructor.

Prerequisite: graduate standing and consent of instructor.

CNSL5310 - Pre-Practicum

Credits: 3

The first semester of a one-year sequence focused on learning, developing and practicing the fundamental process of counseling. Students do role-playing and have supervised experience with clients in a laboratory setting. Individual supervision is provided. Individual, live and observation of supervision is extensive.

Prerequisite: graduate standing, program approval.

CNSL5320 - Practicum

Credits: 3

Second course in a two semester sequence which includes class work, supervised counseling with clients in laboratory, extensive individual, group, live and observational supervision.

Prerequisite: graduate standing, CNSL 5310, program approval.

CNSL5330 - Counseling Children and Adolescents

Credits: 3

Students increase knowledge and skills in the processes of counseling children and adolescents.

Prerequisite: six hours in education and/or behavioral sciences.

CNSL5340 - Play Therapy

Credits: 3

Provides students with an overview of the field of play therapy. The historical roots of play therapy and the importance of play in child development will be explored. Various play therapy theories and techniques for assessment and intervention and professional issues will be surveyed.

Prerequisite: graduate standing or consent of instructor.

CNSL5350 - Multicultural Counseling

Credits: 3

Increases counselor competency and skills with diverse clients.

Prerequisite: admission to the UW counseling program.

CNSL5630 - Trauma-Informed Counseling

Credits: 3

This capstone course helps prepare students to understand and work with clients around trauma issues in mental health and school settings. Previous learning will be reviewed and synthesized with knowledge about trauma-informed care across the lifespan, including psychological first aid. Research-based best practices, counselor wellness, and effective service delivery are emphasized.

Prerequisite: graduate standing.

CNSL5640 - Diagnosis, Psychopathology, and Psychopharmacology

Credits: 3

Introduction to the etiology, prevention, and treatment of mental and emotional disorders. Includes a focus on the skills of biopsychosocial case conceptualization and treatment planning, and multi-axial differential diagnosis using the current edition of the Diagnostic and Statistical Manual. Also addresses basic classifications, indications and contraindications of common pharmacological interventions.

Prerequisite: program consent.

CNSL5650 - Counseling Theories

Credits: 2-3
Max Credit (Max. 3)

Designed to increase understanding of major counseling theories, with an emphasis on the integration of theoretical and philosophical assumptions with personal viewpoints.

Prerequisite: previous or concurrent enrollment in CNSL 4520/CNSL 5520 or equivalent, admission to counseling program, consent of instructor.

EDRE5530 - Introduction To Research

Credits: 3
Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

Core Subtotal: 49 Credits

Mental Health Counseling

CNSL5130 - Mental Health Counseling

Credits: 3
Encompasses specific counseling and professional development issues encountered by licensed counselors working in mental health agencies or private practice. Understanding the nature of the clientele and the issues, strategies for resolving client difficulties, collaborative practice, ethics, advocacy, knowledge and skills related to diversity and social justice are considered.

Prerequisite: enrollment in Counselor Education program, successful completion or enrollment in CNSL 5060, CNSL 5650 and CNSL 5310.

CNSL5150 - Mental Health Counseling II

Credits: 3
Explores the leadership role of the professional counselor within a variety of mental health settings. Areas of application include program development, best practices, management, evaluation, consultation, social justice and supporting client advocacy.

Prerequisite: graduate standing, program admission and CNSL 5130.

CNSL5580 - Supervised Internship

Credits: 1-6
Max Credit (Max. 16)

Provides a capstone clinical experience, preparing graduates to enter the practice of counseling PK-12 schools, mental health settings, and student affairs services in higher education. Students engage in professional counseling activities at approved placement sites.

Prerequisite: graduate standing, CNSL 5310, CNSL 5320 and consent of the designated field setting authority.

Subtotal: 12 Credits

Minimum Total: 61 Hours

Additional Information:

The UW Master of Science degree in Counseling program offers concentrations in school counseling and mental health counseling that will prepare you to help people across the lifespan. Ours is a broad-based program that prepares you to become certified as a school counselor or provides you with the training needed to become a provisionally licensed mental health counselor. The UW counseling program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) and is offered on campus in Laramie, or as an intensive weekend program for working professionals at UW Casper.

Counselor Education and Supervision, Ph.D.

The UW Ph.D. program in counselor education and supervision is targeted to students who already hold a master's degree from a CACREP-accredited institution or equivalent and are seeking to become counselor educators and advanced practitioners.

Learning Outcome Areas Advanced Foundations

Ph.D. students with a 48-hour CACREP equivalent Master's degree are required to complete 12 semester hours of courses beyond their Master's preparation (in consultation with their adviser and committee). Ph.D. students with a 60-hour CACREP equivalent Master's program can petition up to 12 hours of their Master's coursework to fulfill this requirement.

Counseling and Supervision

CNSL5340 - Play Therapy

Credits: 3

Provides students with an overview of the field of play therapy. The historical roots of play therapy and the importance of play in child development will be explored. Various play therapy theories and techniques for assessment and intervention and professional issues will be surveyed.

Prerequisite: graduate standing or consent of instructor.

CNSL5860 - Doctoral Practicum in Counselor Education

Credits: 1-8
Max Credit (Max. 8)

Enrollment is limited to five graduate students per instructor. In this practicum, advanced graduate students are given an intensive supervised experience in counseling students over an extended period of time. The actual counseling experience is supplemented by input and evaluation seminars for all enrollees and by supervisory conferences designed to improve sensitivity and skill in counseling.

Prerequisite: admission to the doctorate program in counseling, mastery of basic interviewing and counseling skills, and consent of instructor.

CNSL5865 - Supervision Theory

Credits: 3
Provides students with the theoretical, knowledge and research base of clinical supervision as it relates to the counseling profession.

Prerequisite: CNSL 5860.

CNSL5875 - Doctoral Practicum in Supervision

Credits: 1-6
Max Credit (Max. 6)

Designed to provide the prospective counseling educator or supervisor with an understanding of the learning process in counseling and the supervisory behaviors requisite for improving the competencies and professional growth of counselors. Specialized knowledge, skills, and attitudes related to the act of supervising are supplemented by various methods and techniques such as videotape, films, film-tape synchronization, simulation material, role-playing, group dynamics, communication games, interpersonal recall, interaction and content analysis, and micro-counseling.

Prerequisite: CNSL 5860, graduate standing, and consent of instructor.

Teaching, Leadership and Advocacy

CNSL5871 - Doctoral Seminar I: Professional Identity and Ethics

Credits: 3
The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar I focuses on counselor education identity development and professional ethics for future counselor educators.

Prerequisite: Admission as a Counselor Education & Supervision PhD Student.

CNSL5872 - Doctoral Seminar II: Diversity and Social Change

Credits: 3

The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar II focuses on the role of diversity and social change in counselor education.

Prerequisite: Admission as a Counselor Education & Supervision PhD Student.

CNSL5873 - Doctoral Seminar III: Research, Assessment & Scholarship

Credits: 3

The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar III focuses on the role of research, assessment and scholarship in counselor education.

Prerequisite: Admission as a Counselor Education & Supervision PhD student.

CNSL5874 - Doctoral Seminar IV: Leadership, Consultation and Advocacy

Credits: 3

The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar IV focuses on the role of leadership, consultation and advocacy in counselor education.

Prerequisite: Admission as a Counselor Education & Supervision PhD Student.

PRST5070 - Introduction to College Teaching

Credits: 3

This course is designed to provide students with an understanding of instructional theory and experiences in applying teaching and assessment methods relevant to the role of an educator in higher education. Linking theories, perspectives, and principles of effective teaching and learning to practice in higher education is a priority of the course. Practicing and experiencing "hands-on" activities will be prime formats of the class.

Prerequisite: graduate standing.

- CNSL 5990 - Internship Credits: 6

Research and Scholarship

12 credits chosen from the following (or equivalent) in consultation with major adviser and graduate committee.

EDRE5600 - Introduction to Quantitative Research

Credits: 3

Basic concepts of educational survey research design, statistics, and measurement. The focus is on descriptive statistics

(measures of central tendency, variability, percent and frequency distribution, bivariate correlation, graphical displays, testing hypotheses about proportions). Students develop questionnaires and plan, conduct, and report on a survey study.

EDRE5610 - Educational Research: Group Comparison Research

Credits: 3

Concepts of experimental and ex post facto research designs, statistics, and measurement. The focus is on inferential statistics. Students construct attitude scales and other instruments used in research and they plan, conduct, and report on a group comparison study.

Prerequisite: EDRE 5600.

EDRE5620 - Correlational Research

Credits: 3

Max Credit 3

Concepts of correlational research, statistics, and measurement. Focus is on the design and analysis of results from correlational studies. Statistical topics include MANOVA, multiple regression, factor analysis, and discriminant analysis. Includes measurement topics in classical measurement theory and additional topics in validity and reliability. Plan, conduct, and report on a correlational study.

Prerequisite: EDRE 5600

EDRE5630 - Educational Research IV: Multivariate Research

Credits: 3

An advanced educational research, statistics, and measurement course. Design and analysis of results from studies with several dependent and independent variables. Includes multivariate statistics such as MANOVA, discriminant analysis, canonical correlation, multidimensional scaling, structural equation modeling, logit regression. Measurement topics include generalizability theory, item response theory, equating, and standard setting.

Prerequisite: At least one of the following: EDRE 5610 or EDRE 5620

EDRE5645 - Phenomenology, Case Study, and Grounded Theory in Qualitative Research

Credits: 3

In-depth examination of phenomenology (with great emphases on its philosophical roots), qualitative case study, and grounded theory. Characteristics of each qualitative tradition will be explored by way of critiquing published peer reviewed journal articles. Students will conduct and report on a mini study.

Prerequisite: EDRE 5640

EDRE5655 - Ethnography and Narrative Inquiry in Qualitative Research

Credits: 3

In-depth exploration of narrative inquiry (including autoethnography) and educational ethnography. Issues of ethics, politics, diversity, and the researcher's role will be integral to the course. Students will conduct and report on a mini study.

Prerequisite: EDRE 5630

- EDRE 5650 - Adv. Qual Research Credits: 3

EDRE5670 - Mixed Methods Research

Credits: 3

Provide an overview of mixed methods research to graduate students who are already familiar with quantitative and qualitative research. Specifically, they will learn the definition, history and foundations, and specific types of mixed methods designs. Also plan a mixed methods research study.

Prerequisite: EDRE 5600 and EDRE 5640.

Dissertation

PRST5890 - Directed Professional Study

Credits: 1-9

Similar to PRST 5880. Provides additional opportunity for students to pursue advanced graduate work through independent research. Projects are done under the direction of a graduate faculty member.

Prerequisite: graduate standing.

Total: 72 Credits

Additional Information:

Doctoral students are required to have completed a minimum of a 48-hour Master's degree from a program of study equivalent to a CACREP accredited Masters program in Counselor Education. These requirements are based upon the 2015 CACREP Standards.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Hold a Master's degree from an accredited institute of higher education.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample.
- Three (3) years of P-12 teaching experience or its equivalent.
- Minimum 3.000 GPA on a 4.000 scale on the applicant's most recent degree from an accredited institution, plus transcripts from all other schools attended.
- GRE minimum score of Verbal:153, Quantitative:144.
- TOEFL score of 540 (paperbased), 76 (internet exam) or IELTS score of 6.5 or above are required for international, non-native English speaking applicants. Until further notice, due to COVID-19 related

postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency.

Curriculum and Instruction, Ph.D., Concentration in Curriculum Studies

Offered online with a residency component, the UW curriculum and instruction program allows you to choose from among four concentrations to satisfy many of your requirements at a distance or face-to-face residency experiences.

Required Courses

REQUIRED COURSES (80 CREDIT HOURS)

Program Knowledge Base

Students must take 6 credit hours of the required courses listed below.

- PRST 5610 Intro to Doctoral Studies (3 credit hours)
- EDCI 5810 Writing for Professional Publication (3 credit hours)

Students must then select an additional 6 credit hours of elective courses. Course selection is subject doctoral committee approval.

- EDCI 5600 Diversity in Education (3 credit hours)
- EDCI 5800 Curriculum Development (3 credit hours)
- EDAD 5720 - Educational Leader as Change Agent (3 credit hours)
- EDAD 5650 - Educational Leader as Communicator (3 credit hours)
- EDCI 5665 History & Philosophy of Education (3 credit hours)
- EDCI 5730 Learning & Cognition (3 credit hours)
- PRST 5900 Practicum in College Teaching (3 credit hours)
- Other graduate-level courses determined in consultation with committee

Advanced Research Courses

Students must take 6 credit hours of the required courses listed below.

- EDRE 5600 - Ed Research 1: Descriptive (3 credit hours)
- EDRE 5640 - Intro to Qualitative Research (3 credit hours)

Students must then select an additional 6 credit hours of elective research courses. Course selection is subject doctoral committee approval.

- EDRE 5121 - Ethics in Research and Professional Practice (3 credit hours)
- EDRE 5530 - Introduction to Research (3 credit hours)

- EDRE 5550 - Action Research (3 credit hours)
- EDRE 5610 - Ed Research 2: Group Comparison (3 credit hours)
- EDRE 5620 - Ed Research 3: Correlational (3 credit hours)
- EDRE 5630 - Ed Research 4: Multivariate (3 credit hours)
- EDRE 5650 - Advanced Qualitative Research Methods (3 credit hours)
- EDRE 5870 - Mixed Methods or other Seminar (3 credit hours)
- Other graduate-level research course determined in consultation with committee

Practicum/Internship

Two credit hours. Must be determined with doctoral committee.

- EDCI 5580 - Internship (2 credit hours)

Curriculum and Instruction Specialization

Students must select a minimum of 15 credit hours around one area at the 4000 level or better; courses below are menu options, not requirements Course selection is subject doctoral committee approval.

- ITEC 5030 Introduction to Online Teaching (3 credit hours)

Foundations of Education

- ADED 5050 Learning Theories for Education (3 credit hours)
- ADED 5510 Adult Ed Movement in the US (3 credit hours)
- ADED 5680 Issues in Higher Education (3 credit hours)
- ADED 5710 International and Comparative Education (3 credit hours)
- EDCI 5665 History & Philosophy of Education (3 credit hours)
- EDCI 5050 MSGI Issues in Education (3 credit hours)
- ADED 5260 Educational Issues in Race, Class & Gender (3 credit hours)
- FCSC 5114 Human Lifespan Development (3 credit hours)
- FCSC 5117 Understanding Community Leadership (3 credit hours)
- FCSC 5122 Developmental Contexts Across the Lifespan (3 credit hours)
- EDCI 5070 International Issues in Education (3 credit hours)
- Other graduate-level coursework determined in consultation with committee (3 credit hours)

Early Childhood/Elementary Education

- EDCI 5140 Storytelling (3 credit hours)

- EDCI 5160 Recent Trends in Children's Literature (3 credit hours)
- EDEC 5210 Special Topics in Early Childhood Education (3 credit hours)
- EDCI 5050 MSGI Issues in Education (3 credit hours)
- ADED 5260 Educational Issues in Race, Class & Gender (3 credit hours)
- EDEC 5240 Eval Young Children W/Disabilities (3 credit hours)
- EDEC 5220 Children with Disabilities B-5 (3 credit hours)
- EDEC 5230 Curriculum for Young Children with Disabilities (3 credit hours)
- EDEC 5250 Legal Issues in Early Childhood Special Education Health Management (3 credit hours)
- EDEC 4350 Issues in Early Childhood Special Education (3 credit hours)
- FCSC 4124 Families of Young Children with Special Needs (3 credit hours)
- FCSC 5120 Infancy and Toddlerhood (3 credit hours)
- FCSC 5129 Seminar in Child Development (3 credit hours)
- FCSC 5132 Seminar in Family Studies (3 credit hours)
- FCSC 5112 Family Decision and Resource Management (3 credit hours)
- FCSC 5138 Family Stress/Coping (3 credit hours)

American Indian Education

- EDCI 5110 Educational Foundations of American Indian Education (3 credit hours)
- EDCI 5121 History and Philosophy of American Indian Education (3 credit hours)
- EDCI 5130 Cultural Foundations of American Indian Education (3 credit hours)
- EDCI 5141 Instructional Methods in American Indian Education (3 credit hours)
- Other graduate-level coursework determined in consultation with committee (3 credit hours)

English as a Second Language

- EDCI 5350 Introduction to Second Language Acquisition (3 credit hours)
- EDCI 5430 ESL Theory and Methods I (3 credit hours)
- EDCI 5440 ESL Theory and Methods II (3 credit hours)
- EDCI 5760 Social Literacies (3 credit hours)
- Other graduate-level coursework determined in consultation with committee (3 credit hours)

Secondary Content Area

- 15 hours of content-area graduate-level coursework determined in consultation with committee

Dissertation in Practice

Students must take all 12 credit hours listed below.

- EDCI 5980 - Dissertation Research (6 credit hours)
- EDRE 5660 Dissertation Prospectus Writing (6 credit hours)

OTHER REQUIREMENTS

After coursework is completed, you must satisfy the below requirements before completing your program and gaining your doctoral credential.

- **Preliminary Exam** - After completing your coursework you will need to take a preliminary exam.
- **Program Outcomes** - You must submit written demonstration to show you have met the learning outcomes determined by your program, department, or committee.
- **Dissertation** - After your preliminary exam, you will present and defend your doctoral dissertation.
- **Residency** - You must satisfy all requirements of your residency.

Additional Information:

Application Process:

Applications for the Doctor of Philosophy in Curriculum and Instruction, Curriculum Studies concentration are due **September 1** for spring semester admission and **February 1** for summer or fall semester admission.

Applications for the PhD in Curriculum Studies are only reviewed two times per year: immediately after September 1 and immediately after February 1. If you require an earlier decision, please apply for the deadline a year prior to ensure your application can be reviewed in time for planning international study.

Minimal Admissions Criteria for PhD Program

Applicants must meet the following criteria to be considered for admission; however, meeting minimal admissions criteria does not automatically ensure admission to the program.

- Master's degree from an accredited institute of higher education.
- It is highly recommended these courses are taken prior to admission, but can be taken within the first semesters of admission to the PhD Program. EDRE 5530 Intro to Research, EDCI 5000 Principles of Curriculum, EDCI 5450 Issues in Multicultural Education, and EDCI 5790 Advanced Instructional Strategies, or equivalent coursework.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample, an indicator of the applicant's proficiency in writing. For a full description of the letter of intent and scoring categories, see guideline below.
- Three (3) years of P-12 teaching experience or its equivalent.
- Copy of GRE scores, current within the last five years.

- Three letters of recommendation, completed by an individual familiar with the applicant's academic performance, a current or recent supervisor, and/or a selected colleague and/or community member.
- Transcript evaluation for undergraduate/graduate degree completion, reflecting a minimum 3.0 GPA on a 4.0 scale on the applicant's most recent degree from an accredited institution, plus transcripts from all other schools attended.
- A TOEFL score of 525 (paper-based), 197 (computer-based) or above is required for international students. Students may occasionally be admitted provisionally with lower test scores.
- Submission of all required supplemental materials:

Required Supplemental Materials

- Three Letters of Recommendation
- Sample of academic writing
- Transcripts reflecting most recent degree (3.0 GPA on a 4.0 scale required) from an accredited institution plus transcripts from all other schools attended. Unofficial transcripts can be submitted through the online application. Official ones will be required if admitted.
- Copy of GRE scores
- Letter of Intent describing career goals and reasons for pursuing a graduate degree at the University of Wyoming
- Resume
- Demonstration of teaching experience
- A TOEFL score of 525 (paper-based), 197 (computer exam) or above is required for international students. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

Please note that meeting minimal admissions criteria does NOT automatically ensure admission to a program.

Guidelines for Letter of Intent

A letter of intent must be submitted with other required admissions materials. The letter of intent serves as a writing sample, an indicator of the applicant's proficiency in writing. The admissions committee will be examining both the quality of the written sample and the depth of its content. In the letter of intent please address the following questions:

- **Teaching Experiences:** Provide a detailed description of your teaching experiences including how many years you have taught as well as what grades and/or subjects you have taught. Describe crucial aspects of your teaching experience and how you have developed as a teacher as a result of these experiences. Finally explain how your teaching background will influence your graduate studies.
- **Personal Strengths:** Explain what you will bring to our program and your classes that may demonstrate your ability to be a successful graduate student and ability to contribute to the learning environment.
- **Academic Goals:** Describe in detail why you wish to pursue a Doctor of Education in Curriculum and Instruction, including why you want to do so at this time and how you are planning to use the degree in the future. Include a description of specific areas of study you are interested in and include your goals for graduate study and why these goals are important?

- Potential Advisor(s): If you have communicated with a professor(s) in your area of interest and/or she or he has indicated willingness to work with you on your doctorate degree program, please include her or his name in your letter.

The letter should be typed (double-spaced) on 8.5 by 11 inch paper. Letters of intent will be scored by a rubric that evaluates two areas:

- Ideas/Content Development; and,
- Organization/Structure/Mechanics/Format.

Each category is ranked as Outstanding, Proficient, Marginal, or Deficient. An overall score of Proficient is required for acceptance to the Doctor of Philosophy degree program.

Guidelines for Academic Resume

Include the following in your resume:

- Personal Information: Name and Contact Information (Address, Phone numbers, email)
- Education: Institution, City, State, Dates Attended, Major, and Degree
- Work Experience: Dates, Job Title, Employer, City, State
- Professional experiences such as: Publications, Presentations and Grants; Continuing Education Activities, Awards/Honors Received; Community and Volunteer Activities; Professional Memberships; other pertinent information

General Requirements for Curriculum & Instruction PhD in Curriculum Studies

Minimum of 81 total credits required. Students may transfer up to 30 credits from a master's degree program completed at an accredited institution.

Residency Information

PhD Program Requirements | College of Education

If you feel that you have met any degree requirements through a previously obtained master's degree or coursework at another institution, contact your advisor to determine the correct procedure. Note that the Introduction to Doctoral Studies course requirement may not be waived.

Minimum of 79 total credits required in the following areas:

Core courses (minimum of 9 credits)

All PhD option areas require PRST 5610 (Intro to Doctoral Studies). In addition, doctoral students, with direction from their committees, will choose a minimum of two additional courses from the remaining five core courses:

- PRST 5900 (Practicum in College Teaching)
- EDCI 5600 (Diversity)
- EDCI 5810 (Writing for Publication)
- EDCI 5730 (Learning and Cognition)

- EDAD 5720 (Leader as Change Agent)
- EDRE 5660 (Dissertation/Thesis Prospectus Writing)

Cognate courses and advanced courses (minimum of 18 credits)

Advanced research courses (minimum of 12 credits)

Dissertation Hours

All PhD Students are required to have a minimum of 12 dissertation credit hours.

Other Requirements

- Preliminary exam (after coursework is completed): Guidelines determined by program, department, or committee
- Program Outcomes: Written demonstration is required to show PhD outcomes are met (determined by program, department, or committee)
- Dissertation (after preliminary exam): Guidelines determined by program, department, or committee
- Residency (check with program area for specific requirements)

Notes: These requirements for a PhD in Education are minimum requirements only. Refer to specific program options for additional requirements, including admissions criteria. Options approved prior to May 2009 may have different requirements.

Curriculum and Instruction, Ph.D., Concentration in Literacy Education

Offered online with a residency component, the UW curriculum and instruction program allows you to choose from among four concentrations to satisfy many of your requirements at a distance or with face-to-face experiences.

Required Courses

REQUIRED COURSES (79 CREDIT HOURS)

Program Knowledge Base

Students must complete 9 hours of core courses. You must take the required course listed below and then select an additional 6 credit hours of courses in consultation with your doctoral advisor and committee.

- PRST 5610 - Introduction to Doctoral Study (3 credit hours) *Required*

Electives chosen in consultation with committee:

- EDCI 5600 - Diversity in Education (3 credit hours)
- EDRE 5660 - Proposal Writing (3 credit hours)
- EDAD 5720 - Educational Leader as Change Agent (3 credit hours)

- EDCI 5810 - Writing for Professional Publication (3 credit hours)
- CNSL 5900 - Practicum in College Teaching (3 credit hours)

Advanced Research Courses

Students must take a minimum of 12 hours of research methods in quantitative, qualitative, or other methodologies. Student must take the required courses listed below and then select an additional 3 credit hours of courses in collaboration with their doctoral advisor and committee.

- EDRE 5530 - Introduction to Research (3 credit hours) *Pre-requisite if not taken as part of the master's work. Does not meet doctoral level requirements.*
- EDRE 5600 - Ed Research 1: Descriptive (3 credit hours) *Required*
- EDRE 5640 - Intro to Qualitative Research (3 credit hours) *Required*

Electives chosen in consultation with committee:

- EDRE 5610 - Ed Research 2: Group Comp. (3 credit hours)
- EDRE 5620 - Ed Research 3 - Correlational (3 credit hours)
- EDRE 5630 - Ed Research 4: Multivariate (3 credit hours)
- EDRE 5550 - Action Research (3 credit hours)
- EDRE 5645 - Phenomenology, Case Study, Grounded Theory (3 credit hours)
- EDRE 5655 - Ethnography & Narrative Inquiry (3 credit hours)
- EDRE 5870 - Introduction to Discourse Analysis (3 credit hours)
- EDRE 5670 - Mixed Methods Research (3 credit hours)

Literacy Education Concentration

A student must enroll in all 21 credit hours listed below. If additional courses are needed, they can be selected from graduate-level courses within the literacy program or from other relevant academic departments at the UW. Course selection decisions will be made collaboratively by the doctoral student, their advisor and committee.

- LTED 5480 - Issues in English as a Second Language and Bilingual Education
- LTED 5800 - Theoretical Perspectives on Literary Processes and Practices
- LTED 5810 - Theoretical Perspectives on Writing
- LTED 5830 - Review, Critique, and Synthesis of Literacy Research
- LTED 5850 - Foundational Scholars in Social Science Research
- LTED 5860 - History of Literacies
- LTED 5880 - Public Digital Scholarship

Dissertation Hours

Students must enroll in a minimum of 12 hours of dissertation research credit during the period they plan, implement, and defend their dissertation.

- EDCI 5980 Dissertation Research (6 credit hours) *Required*
- EDRE 5660 Dissertation Prospectus Writing (6 credit hours)

OTHER REQUIREMENTS

After coursework is completed, you must satisfy the below requirements before completing your program and gaining your doctoral credential.

- **Preliminary Exam** - After completing your coursework you will need to take a preliminary exam.
- **Program Outcomes** - You must submit written demonstration to show you have met the learning outcomes determined by your program, department, or committee.
- **Dissertation** - After your preliminary exam, you will present and defend your doctoral dissertation.
- **Residency** - You must satisfy all requirements of your residency.

Additional Information:

Graduate students will take advanced coursework in Literacy Education, collaborate with faculty on grants and research projects, and have the opportunity to teach and supervise students in undergraduate literacy education courses. In addition to acquiring a breadth of knowledge in foundational areas in literacy education, students will have an opportunity to focus on specific areas in literacy education, such as Emergent Literacy, Family Literacy, Early Childhood Literacy, Elementary Grade Literacy, Adolescent Literacy, Disciplinary Literacy, Children's and Young Adult Literature, English Education, Literacy Teacher Education, New Literacies, Evaluation and Instruction of Students with Reading Difficulties, Literacy Education for English Learners, and Literacy Education for Culturally Diverse Students.

Application Process

For students to be considered for admission to the PhD in Literacy Education program, they must:

- **Submit all application materials. Please note: Preference will be given to applicants who apply on or before February 1 each year for the following year.**

Deadlines

- Applications for program are due **September 1** for spring semester admission and **February 1** for summer or fall semester admission.
- Complete an online application to the Literacy Education PhD Program. Submit supporting materials with the online application (see below).
- Have a minimum cumulative GPA of 3.00 in prior undergraduate or graduate work
- Interview with Literacy Education Program faculty, either in person or via telephone
- Master's degree is preferred

Supporting materials include:

- A current resume or vita;
- A detailed letter that expresses why the applicant wishes to pursue a PhD in Literacy Education, including the applicant's career goals; the applicant's prior experiences in literacy or literacy education (e.g., relevant teaching or other educational experiences); previous university degrees, programs, certificates, or emphases related to literacy; potential areas of focus in a literacy doctoral program; potential research interests; and any other information the applicant considers to be relevant to her or his admission;
- Three Letters of Recommendation from those who can speak to the applicant's intellect, scholarly abilities, teaching ability, or other qualifications for doctoral study. These letters typically would be former professors, supervisors, or administrators;
- An official report of the Graduate Record Examination (GRE) that was taken within the preceding 5 years;
- An Application for a Graduate Assistantship should the student wish to seek one;
- An academic writing sample is not required, but is preferred.
- TOEFL or IELTS test is required for international students. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency.

Coursework:

A minimum of 54 hours beyond the master's degree are required as follows:

- **Research:** A minimum of 12 hours of research methods in quantitative, qualitative, or other methodologies are required. The courses will be selected collaboratively by the doctoral student and her or his PhD advisor and committee such that the research methodology training is thorough, rigorous, and compatible with the student's dissertation research plans and anticipated career research focus.
- **Core:** Students must complete 9 hours of core courses. Students must enroll in PRST 5610, "Introduction to Doctoral Study," and two of the following courses selected collaboratively by the doctoral student and her or his PhD advisor and committee:
 - PRST 5900 Practicum in College Teaching
 - EDCI 5600 Diversity in Education
 - EDCI 5810 Writing for Professional Publication
 - EDCI 5730 Learning Theories: Research & Praxis
 - EDCI 5665 History & Philosophy of Education
- **Literacy Education:** A minimum of 21 hours of doctoral literacy coursework is required, which includes the following seven courses (i.e., LTED 5800, 5880, 5860, 5830, 5850, 5480, and 5810). Additional courses may be selected from existing and new advanced, graduate-level courses within the Literacy Program Area; from courses in other departments in the College of Education; and from other relevant academic departments at the University (e.g., Anthropology, Communication Disorders; English, Family and Consumer Sciences; African American, Chicano, American Indian, or Women's Studies; Psychology, Sociology). Course selection decisions will be made collaboratively by the doctoral student in consultation with the

student's PhD advisor and committee based on the doctoral student's prior graduate work and post-doctorate career goals.

- **Dissertation Research:** Students must enroll for a minimum of 12 hours of dissertation research credit during the period they plan, implement, and defend their dissertation.
- **Preliminary Examination:** The Preliminary Examination (also called the Comprehensive Examination) for the PhD in Literacy Education is governed by policies specified in Chapter 1 of the UW Student Handbook/Thesis & Dissertation Format Guide. Program-specific procedures for the preliminary examination for the PhD in Literacy Education are as follows

Research Apprenticeship:

Doctoral students are required to participate in a research apprenticeship in which they work closely with a faculty member in order to gain experience and skills in conducting research. The apprenticeship may involve an ongoing faculty project or may be a project initiated by the student and faculty member. Examples of acceptable apprenticeships include:

- writing an IRB or grant proposal
- collecting and analyzing data (e.g., a qualitative analysis, a statistical analysis)
- writing a research report for publication independently or collaboratively with a faculty member
- presenting theoretical or empirical work at a professional conference independently or collaboratively with a faculty member
- a project that enhances the student's ability to conduct rigorous educational research.

The Research Apprenticeship must be approved in advance by the doctoral committee, and at the committee's discretion, students may enroll for independent study graduate credit as part of the Research Apprenticeship experience

Curriculum and Instruction, Ph.D., Concentration in Mathematics Education

Mathematics Education is a new specialization in the UW Curriculum and Instruction doctoral program which includes the creation of innovative emphases and approaches for solidly prepared scholar-leaders for the field of Mathematics Education.

Required Courses

- **Program Knowledge Base**
Select 15 credit hours from the below list. Students should consult their advisor before choosing to take either EMAT 5150 or EMAT 5160.
 - EMAT 5150
 - EMAT 5160
- EDCI5600 - Diversity in Education Credits: 3
- EDCI5730 - Learning and Cognition Credits: 3

- EDAD5720 - Educational Leader as Change Agent Credits: 3
- EDAD5650 - Educational Leader as Communicator Credits: 3
- EDRE5660 - Dissertation/Thesis Prospectus Writing Credits: 3
-
- **Mathematics Education Specialization**
Students must take all 18 credit hours listed below.
- EMAT5100 - Theory and Research for Mathematical Learning Credits: 3
- EMAT5200 - Advanced Study of Mathematics Curriculum, Assessment, and Evaluation Credits: 3
- EMAT5300 - Theory and Practice for Mathematics Teaching and Teacher Education Credits: 3
- EMAT5400 - Analysis and Critique of Research in Mathematics Education Credits: 3
- EMAT5600 - Quantitative Reasoning & Modeling in Mathematics and Science Education Credits: 3
- EMAT5700 - Principles and Methods for Integrated Teaching & Learning Mathematics & Science Credits: 3
- EMAT Culture, Power and Identity in Mathematics Education, Credits: 3
-

Advanced Research Courses

Select 9 credit hours from the below list. Coursework in both qualitative and quantitative research is required and courses can be taken outside the College of Education. Course selection is subject to doctoral committee approval.

- EDRE5600 - Introduction to Quantitative Research Credits: 3
- EDRE5610 - Educational Research: Group Comparison Research Credits: 3
- EDRE5620 - Educational Research: Correlational Research Credits: 3
- EDRE5630 - Educational Research IV: Multivariate Research Credits: 3
- EDRE5550 - Action Research Credits: 3
- EDRE5640 - Introduction to Qualitative Research Credits: 3
- EDRE5645 - Phenomenology, Case Study, and Grounded Theory in Qualitative Research Credits: 3
- EDRE5655 - Ethnography and Narrative Inquiry in Qualitative Research Credits: 3
- EDRE5670 - Mixed Methods Research Credits: 3

- **Practicum/Internship**

Two credit hours. Must be determined with doctoral committee.

- EDCI5580 - Internship1 Credits: 8

- **Dissertation in Practice**

Students must take a minimum of 6 credit hours.

- EMAT5980 - Dissertation Research Credits: 1-12

Additional Information:

Deadlines

Applications for program are due **September 1** for spring semester admission and **February 1** for summer or fall semester admission.

Application Materials

All supporting materials should be submitted through the online application system.

Required materials for consideration into the Curriculum & Instruction PhD program in Mathematics Education include:

- Writing sample (an article, master's thesis, or well done project/course paper)
- An application letter, which discusses yourself, your experience, and your potential research interests
- A resume or curriculum vita
- Three letters of reference
- Transcripts from all universities attended. Unofficial transcripts can be loaded to the online application system, but if admitted to the University, official transcripts will need to be sent prior to beginning the program
- Copy of GRE scores
- International students must submit scores for a language proficiency exam, such as TOEFL or IELTS. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.
- Master's degree in mathematics, mathematics education, or a related area is required
- A minimum of three years of teaching experience is required

Program Requirements

Overall, the doctoral program will require at least 81 semester hours completed within a coherent program of study developed and approved by the candidate's Major Professor and Doctoral Committee (which may include transferring up to 30 approved graduate semester hours from work completed toward a master's degree).

The overall structure includes:

Course Type	Hours Required
College-wide core	9 hours
Mathematics	9 hours
Mathematics Education	18 hours
Electives	21 hours
Research & dissertation	24 hours
Total	81 hours

To satisfy Mathematics Education hours (18), the following EMAT courses (four required and two joint electives with Science Education) are offered:

Theory and Research for Mathematical Learning and Development
Theory and Practice for Mathematics Teaching and Teacher Education
Advanced Study of Mathematics Curriculum, Assessment and Evaluation
Analysis and Critique of Research in Mathematics Education
Quantitative Reasoning and Modeling in Mathematics and Science Education
Principles and Methods for Integrated Teaching and Learning of Mathematics and Science

These advanced Mathematics Education courses along with graduate study in Mathematics and Statistics, and Quantitative and Qualitative Research Methodologies, collectively build knowledge of theoretical and empirical perspectives to lead to a solid competence for engaging in both scholarly and practical work in the field at all levels. One program goal is to stimulate and guide each student to develop their dissertation research as a first step within a well-defined research program that can encompass the initial years of their post-doctoral scholarship.

Annual Review of Progress/Program Timeline

The following provides a framework to specify general expectations and be suggestive of the scope and sequence of the program, while realizing that all specific courses will be selected in consultation with the Major Professor and approved by the Doctoral Committee to satisfy the individual goals and needs of the student. An overall GPA of 3.0 must be maintained.

Year 1 (minimum 18 hours)

- Complete two mathematics education courses, receiving at least a B in each.
- Complete at least one college-wide core course (e.g., EDCI 5870 Introduction to Doctoral Studies)
- Complete at least one appropriate graduate mathematics course
- Complete two research methodology courses
- Completion of electives as recommended
- Identify and establish the choice of Major Professor; in consultation develop a program of study; establish the Doctoral Committee
- At year-end, submit preliminary proposal of research interests and ideas, and an annual self-evaluation; begin development of Reading List

Year 2 (minimum 18 hours)

- Complete two mathematics education courses, receiving at least a B in each.
- Complete at least one college-wide core course
- Complete at least one appropriate graduate mathematics course
- Complete two research methodology courses
- Completion of electives as recommended
- In Fall, conduct initial Doctoral Committee meeting; discuss and approve program of study; preliminary discussion of research interests
- Maintain and extend the Reading List; by mid-Spring, share it with the Doctoral Committee for review and feedback

- At year-end, submit an updated proposal of potential dissertation research, and an annual self-evaluation
- Submit a proposal to write and present a scholarly paper to a recognized mathematics education research conference (typically in collaboration with other graduate students and/or one or more faculty members)
- Conduct Doctoral Committee meeting to finalize Reading List and to frame and plan for completion of the written comprehensive exams before the end of Fall term

Year 3 (minimum 18 hours)

- Complete all additional courses on the approved Program of Study
- Enroll in at least 6 hours of dissertation research to conceptualize and develop the dissertation research proposal (which may include a pilot or preliminary study)
- Complete oral exams, and the defense and approval of the dissertation research proposal; obtain IRB approvals as needed
- Begin dissertation research project: complete detailed plans, collect data, engage analyses, begin writing as appropriate
- Submit a scholarly manuscript to a recognized mathematics education research journal (typically in collaboration with other graduate students and/or one or more faculty members)
- Submit an annual status report and self-evaluation

Year 4/Year 5 (as needed)

- Enroll in at least 6 hours of dissertation research each semester
- Continue toward completion of the dissertation research
- Finish writing, and defend the dissertation research; present your research at a Mathematics Education colloquium
- As feasible, begin developing one or more scholarly manuscripts based upon the dissertation
- Conduct search and interviews for seeking a post-doctoral position

In the culture of our program, we seek to function as faculty and students in a dynamic community of active scholars. As such, we acknowledge that many significant developmental experiences for doctoral students must and will take place outside formal course venues. Therefore, all students and faculty are expected to be vitally involved in ongoing research, development, and outreach projects and activities in which continuous interaction and collaboration occurs, within Mathematics Education and other disciplines.

Curriculum and Instruction, Ph.D., Concentration in Science Education

The Curriculum and Instruction PhD Program in Science Education prepares students for productive careers in apprenticeship model to produce scholarly work in science education.

Course Requirements

REQUIRED COURSES (81 CREDIT HOURS)

Program Knowledge Base

Select 9 credit hours from the below list.

- PRST 5610 - Intro to Doc Studies (3 credit hours)
- PRST 5070 - Intro to College Teaching (3 credit hours)
- EDCI 5600 - Diversity in Education (3 credit hours)
- EDRE 5660 - Proposal Writing (3 credit hours)
- EDCI 5730 - Learning and Cognition (3 credit hours)
- EDCI 5810 - Writing for Professional Publications (3 credit hours)

Advanced Research Courses

Select 18 credit hours from the below list. Coursework in both qualitative and quantitative research is required and courses can be taken outside the College of Education. Course selection is subject doctoral committee approval.

- ESCI 5200 - Contemporary Science Education Research (3 credit hours)
- EDRE 5530 - Intro to Research (3 credit hours)
- EDRE 5610 - Ed Research 2: Group Comparison (3 credit hours)
- EDRE 5620 - Ed Research 3: Correlational (3 credit hours)
- EDRE 5630 - Ed Research 4: Multivariate (3 credit hours)
- EDRE 5640 - Intro to Qualitative Research (3 credit hours)
- EDRE 5645 - Phenomenology, Case Study, and Grounded Theory in Qualitative Research (3 credit hours)
-

Research in Science Education

Students must take all 6 credit hours listed below.

- ESCI 5300 Research in Science Ed I (3 credit hours)
- ESCI 5350 Research in Science Ed II (3 credit hours)

Mathematics Education Specialization

Select 9 credit hours from the below list. Course selection is subject doctoral committee approval.

- ESCI 5250 - Cognition and Learning in Science and Math Education
- ESCI 5600 - History and Philosophy of Science and Mathematics Education
- ESCI 5610 - Informal Science Learning Environments
- ESCI 5630 - Science Teacher Education & K12 Professional Development
- EDCI 5870 - Special Topics in Science Education
- Relevant EMAT courses

Electives

Students should work with their advisor to select 21 credit hours to complete the elective requirement. Note that some or all of the elective courses are courses completed as part of the master's degree.)

Dissertation

Students must take a minimum of 6 credit hours.

- ESCI 5100 - Science Education Research Colloquium (1-6 credit hours)

Additional Information:

The Curriculum and Instruction PhD Program in Science Education prepares students for productive careers in scholarly inquiry at research & outreach centers and universities. In an apprenticeship model, students study with a cadre of professionally active faculty to produce scholarly work, take advanced coursework in science education,

collaborate with faculty on grants and research projects, and have opportunities to teach undergraduate courses in education and science.

Program Specific Requirements

- As part of the online application, provide a letter of intent. In this letter, describe why you wish to pursue a PhD in Science Education, including your career goals; your prior experiences in science or science education (e.g., relevant teaching or other educational experiences); previous university degrees, programs, certificates, or emphases related to science; potential areas of focus in a science doctoral program; potential research interests; and any other information you consider to be relevant to your admission.

Additional Requirements and Important Information

- GRE scores are required. The admissions committee will consider the Verbal Reasoning and Quantitative Reasoning scores in its determination. Effective July 1, 2016 applicants must have GRE scores of 153 Verbal and 144 Quantitative Reasoning or higher to be considered for admission. Minimum scores do not guarantee admission. Other criteria, as well as faculty capacity, will be considered in the admission process.
- Applicants need to contact a member of the Science Education PhD Program faculty, either in person or via telephone, to discuss career and research goals. This assists us in assigning a graduate advisor upon admission.
- Following the application review, the program faculty will make a recommendation regarding admission for Graduate Study at UW. Applicants will be notified of the decision by email. Applications will be considered at any time, but students who apply by January 15 will receive full consideration for graduate assistantships for the following academic year.
- Applicants are evaluated on alignment of research interests with those of existing faculty, clarity of application letter and goals, prior teaching or work experience, letters of recommendation, transcripts (including GPA) and previous research experience with an accompanying sample of professional writing if available, according to the Science Education PhD Admissions Rubric.
- International students must have TOEFL scores of 540 (paper based test), 76 (internet based test), 197 (computer based test) or IELTS scores of 6.5 higher. Minimum scores do not guarantee admission. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

Program Details

The Curriculum & Instruction PhD. Option in *Science Education* prepares students for productive careers in scholarly inquiry at research & outreach centers and universities. In an apprenticeship model, students study with a cadre of professionally active faculty to produce scholarly work, take advanced coursework in science education, collaborate with faculty on grants and research projects, and have opportunities to teach undergraduate courses in education and science.

Coursework

The Science Education PhD option requires a minimum of 81 semester credits of coursework and dissertation hours. As many as 30 credit hours from a Masters degree program may be applied to the PhD program, subject to committee approval.

Courses must be taken in the following areas:

- Doctoral Studies (3 courses)
- Science Education Core (3 courses)
- Research in Science Education (2 courses)
- Research methods/Graduate Science Content (6 courses)
- Science Education Research Colloquium (1-6 credits)
- Dissertation (minimum of 6 credits)

Residency

The standard residency requirement is a minimum of one (1) semester. The purpose and intent of a residency requirement is to provide close, collaborative teaching, research, and writing opportunities with faculty members. Summer terms will count toward this requirement. If personal circumstances will not accommodate a semester on campus in Laramie, contact the Program Coordinator for possible options.

Additional Expectations

In order to be successful, students need to demonstrate throughout the program an understanding of research methodologies, data analysis, and academic writing.

Although not necessarily available for graduate credit, the following activities are expected to be completed, as approved, monitored, and assessed by a students' committee, prior to defense.

- Completed, supervised teaching internship during graduate program (e.g., GTA)
- A total of 18 graduate hours in science
- Submission of a scholarly manuscript, judged publishable by the committee
- Presentation at a professional conference on scholarly work

This program will allow students to focus on one of three areas of science education: Earth and Space, Energy, and Environment

Education, Ed.D., Concentration in Curriculum and Instruction

Pursue your PhD in Education with a concentration in Curriculum and Instruction in a program that is offered entirely online! Continue in your current role as you gain expertise to take your career to the next level.

Required Courses

Required Courses (80 credit hours)

The Doctor of Education in Education with a concentration in Curriculum and Instruction program is 80 credit hours and all courses are delivered entirely online. You must have three years of classroom teaching experience, a master's degree to apply to the program. Applicants must also complete EDRE 5530 - Introduction to Research or an equivalent course prior to entering the program.

Program Knowledge Base

Students must take all 15 credit hours listed below.

- EDCI 5600 - Diversity in Education (3 credit hours)
- EDCI 5730 - Learning and Cognition (3 credit hours)
- EDAD 5720 - Educational Leader as Change Agent (3 credit hours)
- EDAD 5650 - Educational Leader as Communicator (3 credit hours)
- EDRE 5660 - Proposal Writing (3 credit hours)

Advanced Research Courses

Select 9 credit hours from the below list. Coursework in both qualitative and quantitative research is required and courses can be taken outside the College of Education. Course selection is subject doctoral committee approval.

- EDRE 5600 - Ed Research 1: Descriptive (3 credit hours)
- EDRE 5610 - Ed Research 2: Group Comparison (3 credit hours)
- EDRE 5620 - Ed Research 3: Correlational (3 credit hours)
- EDRE 5630 - Ed Research 4: Multivariate (3 credit hours)
- EDRE 5550 - Action Research (3 credit hours)
- EDRE 5640 - Intro to Qualitative Research (3 credit hours)
- EDRE 5650 - Advanced Qualitative Research Methods (3 credit hours)

Practicum/Internship

Two credit hours. Must be determined with doctoral committee.

- EDCI 5580 - Internship (2 credit hours)

Curriculum and Instruction Specialization

Students must take the required courses listed below and select an additional 12 credit hours of elective courses in the Curriculum and Instruction area. Course selection is subject doctoral committee approval.

- EDCI 5790 - Learning Theories & Instructional Principles (3 credit hours) *Required*
- EDCI 5800 - Curriculum Development (3 credit hours) *Required*

Final Project: Dissertation in Practice or Other Project Option

Students must take all 6 credit hours listed below.

- EDCI 5980 - Dissertation Research (6 credit hours)

Final (Applied) Project Options

Doctor of Education students will use research methods to explore practical leadership problems. Applied projects are problem-based and may be collaborative. Projects may involve evaluating curriculum, designing and implementing professional development or training, developing applications to be used in local settings (e.g., early childhood-12

education, corporate and government centers), as well as other projects designed to advance knowledge in a specific field or setting.

Suggested project formats and brief descriptions are:

Dissertation of Practice

- A dissertation of practice is original practice-based empirical research with data collection expected from primary sources.

Local Case Study

- A case study is a descriptive, exploratory, or explanatory analysis of a person, group, or event. Thomas (2011, p. 354) offered the following definition of case study: "Case studies are analysis of persons, events, decisions, periods, projects, policies, institutions, or others systems that are studied holistically by one of more methods."

Faculty Directed Individual or Team-based Inquiry

- This type of inquiry involves individual or a small group of students working together on a single project under the guidance of a faculty member. Data can be obtained from primary or secondary sources.

Documentary on an Educational Issue

- A documentary is an in-depth and extensive study with an analysis presented in video form accompanied by a written summary of the purpose and outcome.

Submitted Manuscript

- A full-length research manuscript must be submitted to a refereed mid- or top-tier national or international scholarly journal.

Program Evaluation

- A program evaluation report typically uses both qualitative and quantitative research methods to examine and collect data on a current program that is in place in a school or another organization.

Additional project formats may be proposed and approved by the student's committee as long as they meet the requirements listed above.

Final Project Processes

As in the traditional dissertation process, all students are expected to meet with their committees to gain project approval (at the pre-prospectus and/or prospectus stage). The Report of Final Examination will indicate whether or not the final project is acceptable to the committee. *The deadline for submitting projects to Mountain Scholar Digital Collections or dissertations or other projects in a dissertation format to ProQuest is the same as the Report of Final Examination, the last day of classes for the semester during which a student intends to graduate.* All projects will be evaluated by committee members and also by the student.

Additional Information:

Admission Requirements

Applications for the Doctor of Education (EdD) program with a concentration in Curriculum and Instruction are reviewed for admission in fall and spring semesters. All applications will be completed through the UW Admissions website: <http://www.uwyo.edu/admissions/apply.html>.

Applicants are required to submit the following supplemental material:

- Letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample.
- Recent GRE scores.
- Three letters of recommendation, completed by an individual familiar with the applicant's academic performance, a current or recent supervisor, and/or a selected colleague and/or community member.
- Academic Resume/Curriculum Vitae
- Transcripts
- TOEFL/IELTS scores (for international, non-native English speaking applicants). Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Hold a Master's degree from an accredited institute of higher education.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming.
- Three (3) years of P-12 teaching experience or its equivalent.
- Minimum 3.000 GPA on a 4.000 scale on the applicant's bachelor's degree from an accredited institution, plus transcripts from all other schools attended.
- GRE minimum score of Verbal:153, Quantitative:144.
- TOEFL score of 540 (paperbased), 76 (internet exam) or IELTS score of 6.5 or above are required for international, non-native English speaking applicants. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Graduate Assistantships

Applicants interested in a Graduate Assistantship must submit a graduate assistantship application at the time of admission application process or consult student's advisor or school director thereafter.

Education, Ed.D., Concentration in Educational Leadership

Offered entirely online, UW's educational leadership Ed.D. program will prepare you for top-level leadership positions in K-12 educational settings as assistant superintendents and superintendents.

Requirements

Core Educational Leadership Courses

HIED5630 - Advanced Organizational Leadership

Credits: 3

Examines central issues in advanced organizational leadership to prepare practitioners for leadership roles in educational settings. Working individually and as a member of a group, students will conduct conceptual analyses and complete a literature review paper and an organizational case study.

Prerequisite: Admission to the program.

EDAD5600 - Educational Leader as Manager of Human Resources

Credits: 3

Focuses on linking theory related to organizations (including Bureaucracy Theory), decision-making and organizational effectiveness with effective practices in management of organizational personnel.

Prerequisite: graduate standing.

EDAD5650 - Educational Leader as Communicator

Credits: 3

Focuses on inter- and intra-personal communication skills; group facilitation; organization and community public relations; parent and community involvement; negotiation; and conflict management.

Prerequisite: graduate standing.

EDAD5700 - Educational Leader For Instruction

Credits: 3

Focuses on the study of curriculum development and implementation, instructional practice, assessment and staff development.

Prerequisite: graduate standing.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discussion research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDAD5750 - Educational Leader for the Board and Community

Credits: 3

Concentrates on the administrator as the leader of an organization's board and community.

Prerequisite: graduate standing.

EDAD5800 - Educational Leader as Resource Manager

Credits: 3

Focuses upon the successful management and operation of the organizations fiscal resources, facilities, and support services. Includes work in the areas of transportation, food service, funding and budget, compensation, facilities, legal issues, calendar, special education, and policy influence.

Prerequisite: graduate standing.

EDAD5815 - Advanced School Law

Credits: 3

Designed to provide advanced information concerning K-12 school law as it relates to public education. Students will acquire a deeper understanding of legal issues that routinely arise in the K-12 school setting.

Prerequisite: Admission into the UW Educational Leadership EdD/ PhD Doctoral Program.

EDAD5850 - Educational Leader as Direction Setter

Credits: 3

Investigates how the educational leader can effectively create a futuristic vision and mission for the organization after assessing the existing culture and climate, and organizational readiness for change.

Prerequisite: graduate standing.

Internship

EDAD5580 - Supervised Internship in Educational Administration

Credits: 1-8

Max Credit (Max. 12)

Expand student knowledge by providing an intensive clinical experience in educational administration along with other activities that involve practical experiences with peers and with practising K-12 administrators.

Prerequisite: Admission into the UW Educational Leadership Principal Certificate, Master's or EdD Doctoral program.

Educational Research Courses

(at least 1 quantitative and 1 qualitative)

EDRE5600 - Introduction to Quantitative Research

Credits: 3

Basic concepts of educational survey research design, statistics, and measurement. The focus is on descriptive statistics (measures of central tendency, variability, percent and frequency distribution, bivariate correlation, graphical displays, testing hypotheses about proportions). Students develop questionnaires and plan, conduct, and report on a survey study.

EDRE5610 - Educational Research: Group Comparison Research

Credits: 3

Concepts of experimental and ex post facto research designs, statistics, and measurement. The focus is on inferential statistics. Students construct attitude scales and other instruments used in research and they plan, conduct, and report on a group comparison study.

Prerequisite: EDRE 5600.

EDRE5620 - Correlational Research

Credits: 3

Max Credit 3

Concepts of correlational research, statistics, and measurement. Focus is on the design and analysis of results from correlational studies. Statistical topics include MANOVA, multiple regression, factor analysis, and discriminant analysis. Includes measurement topics in classical measurement theory and additional topics in validity and reliability. Plan, conduct, and report on a correlational study.

Prerequisite: EDRE 5600

EDRE5640 - Introduction to Qualitative Research

Credits: 3

This course introduces qualitative research. Students will explore the foundations, social science theories, methods, and processes of qualitative research and will learn to critically evaluate published research. Emphases will include basic design principles, trustworthiness, and analysis. Students will engage in original data collection and will produce a mini report.

Prerequisite: EDRE 5530.

EDRE5645 - Phenomenology, Case Study, and Grounded Theory in Qualitative Research

Credits: 3

In-depth examination of phenomenology (with great emphases on its philosophical roots), qualitative case study, and grounded theory. Characteristics of each qualitative tradition will be explored by way of critiquing published peer reviewed journal articles. Students will conduct and report on a mini study.

Prerequisite: EDRE 5640

EDRE5655 - Ethnography and Narrative Inquiry in Qualitative Research

Credits: 3

In-depth exploration of narrative inquiry (including autoethnography) and educational ethnography. Issues of ethics, politics, diversity, and the researcher's role will be integral to the course. Students will conduct and report on a mini study.

Prerequisite: EDRE 5630

EDRE5670 - Mixed Methods Research

Credits: 3

Provide an overview of mixed methods research to graduate students who are already familiar with quantitative and qualitative research. Specifically, they will learn the definition, history and foundations, and specific types of mixed methods designs. Also plan a mixed methods research study.

Prerequisite: EDRE 5600 and EDRE 5640.

EDRE5870 - Seminar

Credits: 1-8

Max Credit (Max. 8)

Additional Requirements:

EDRE5660 - Dissertation/Thesis Prospectus Writing

Credits: 3

Prepare graduate students to plan, develop, and write research proposals suitable for a dissertation/thesis. In consultation with the committee chair, students will focus on their own problem for research, conduct a literature review, choose appropriate methods for investigating the problem, and write a research proposal.

Prerequisite: at least two of the following: EDRE 5600, EDRE 5610, EDRE 5620, EDRE 5630, EDRE 5640, EDRE 5645, EDRE 5655, EDRE 5670, or EDRE 5870.

- EDAD 5980 - Dissertation Research Credits: 6

Additional Information:

Admission Requirements

In order to be considered for admission, applicants must meet the following minimum requirements:

- Hold a Master's degree from an accredited institute of higher education.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample.
- Three (3) years of P-12 teaching experience or its equivalent.
- Minimum 3.000 GPA on a 4.000 scale on the applicant's most recent degree from an accredited institution, plus transcripts from all other schools attended.
- GRE minimum score of Verbal:153, Quantitative:144.
- TOEFL score of 540 (paperbased), 76 (internet exam) or IELTS score of 6.5 or above are required for international, non-native English speaking applicants. Until further notice, due to COVID-19 related

postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

Final Project Options

All Doctor of Education students will use research methods to explore practical leadership problems. Applied projects are problem-based and may be collaborative. Projects may involve evaluating curriculum, designing and implementing professional development or training, developing applications to be used in local settings (e.g., early childhood-12 education, corporate and government centers), as well as other projects designed to advance knowledge in a specific field or setting.

The following requirements apply to all projects:

- Research-based (literature review)
- Scholarly, academic writing using APA style
- Primary or secondary data
- Authored by individual or small groups of students
- Uploaded to **ProQuest** for dissertations of practice or other projects in a dissertation format, and uploaded to the **Mountain Scholar Digital Collections** for projects in a non-dissertation format

Suggested project formats and brief descriptions are:

Dissertation of Practice

- A dissertation of practice is original practice-based empirical research with data collection expected from primary sources.

Local Case Study

- A case study is a descriptive, exploratory, or explanatory analysis of a person, group, or event. Thomas (2011, p. 354) offered the following definition of case study: "Case studies are analysis of persons, events, decisions, periods, projects, policies, institutions, or others systems that are studied holistically by one of more methods."

Faculty Directed Individual or Team-based Inquiry

- This type of inquiry involves individual or a small group of students working together on a single project under the guidance of a faculty member. Data can be obtained from primary or secondary sources.

Documentary on an Educational Issue

- A documentary is an in-depth and extensive study with an analysis presented in video form accompanied by a written summary of the purpose and outcome.

Submitted Manuscript

- A full-length research manuscript must be submitted to a refereed mid- or top-tier national or international scholarly journal.

Program Evaluation

- A program evaluation report typically uses both qualitative and quantitative research methods to examine and collect data on a current program that is in place in a school or another organization.

Additional project formats may be proposed and approved by the student's committee as long as they meet the requirements listed above.

Final Project Processes

As in the traditional dissertation process, all students are expected to meet with their committees to gain project approval (at the pre-prospectus and/or prospectus stage). The Report of Final Examination will indicate whether or not the final project is acceptable to the committee. *The deadline for submitting projects to Mountain Scholar Digital Collections or dissertations of practice or other projects in a dissertation format to ProQuest is the same as the Report of Final Examination, the last day of classes for the semester during which a student intends to graduate.* All projects will be evaluated by committee members and also by the student.

Please note: After submitting the required steps for the Mountain Scholar Digital Collections you will receive a confirmation email. Please forward this email to your chair, Clayleen Rivord in the College of Education Dean's Office, and Robert Ratterree in the Office of the Registrar.

Education, Ed.D., Concentration in Higher Education Administration

All Higher Education Administration students can work as administrators and professional staff to supervise, design, deliver, and coordinate high quality formal and informal education programs to adults across the lifespan.

Required Courses

REQUIRED COURSES (75 CREDIT HOURS)

- EDAD 5720 Leader as Change Agent (3 credit hours)
- EDAD 5850 Leader as Direction Setter (3 credit hours)
- HIED 5260 Educational Issues in Race, Class, & Gender (3 credit hours)
- HIED 5600 Higher Education Finance (3 credit hours)
- HIED 5630 Advanced Organizational Leadership (3 credit hours)
- HIED 5640 Leadership Development (3 credit hours)
- HIED 5650 Law of Higher Education (3 credit hours)
- HIED 5670 Community College Issues & Leadership (3 credit hours)
- HIED 5680 Issues in Higher Education (3 credit hours)
- EDRE 56XX First Research Course (3 credit hours)
- EDRE 56XX Second Research Course (3 credit hours)
- EDRE 56XX Third Research Course (3 credit hours)
- EDRE 5660 Dissertation Prospectus (3 credit hours)
- PRST 5980 Dissertation Research (6 credit hours)

Additional Information:

The Ed.D. is the terminal professional degree in education designed for students who desire to improve their professional practice as educators. The Ed.D. is delivered through distance delivery system and requires a minimum of 77 semester hours beyond the bachelor's degree, of which 41 hours must be taken in the student's chosen field, and 6 hours of dissertation. Candidates may, with the approval of the faculty, transfer up to 30 semester hours from previous graduate level coursework. A bachelor's degree and a master's degree are required of all students to be admitted to the Ed.D. program.

Required on-campus orientation during first fall semester.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Hold a Master's degree from an accredited institute of higher education.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample.
- Three (3) years of P-12 teaching experience or its equivalent.
- Minimum 3.000 GPA on a 4.000 scale on the applicant's most recent degree from an accredited institution, plus transcripts from all other schools attended.
- GRE minimum score of Verbal:153, Quantitative:144.
- TOEFL score of 540 (paperbased), 76 (internet exam) or IELTS score of 6.5 or above are required for international, non-native English speaking applicants. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency.

All Doctor of Education students will use research methods to explore practical leadership problems. Applied projects are problem-based and may be collaborative. Projects may involve evaluating curriculum, designing and implementing professional development or training, developing applications to be used in local settings (e.g., early childhood-12 education, corporate and government centers), as well as other projects designed to advance knowledge in a specific field or setting.

The following requirements apply to all projects:

- Research-based (literature review)
- Scholarly, academic writing using APA style
- Primary or secondary data
- Authored by individual or small groups of students
- Uploaded to **ProQuest** for dissertations of practice or other projects in a dissertation format, and uploaded to the **Mountain Scholar Digital Collections** for projects in a non-dissertation format

Suggested project formats and brief descriptions are:

Dissertation of Practice

- A dissertation of practice is original practice-based empirical research with data collection expected from primary sources.

Local Case Study

- A case study is a descriptive, exploratory, or explanatory analysis of a person, group, or event. Thomas (2011, p. 354) offered the following definition of case study: "Case studies are analysis of persons, events, decisions, periods, projects, policies, institutions, or others systems that are studied holistically by one of more methods."

Faculty Directed Individual or Team-based Inquiry

- This type of inquiry involves individual or a small group of students working together on a single project under the guidance of a faculty member. Data can be obtained from primary or secondary sources.

Documentary on an Educational Issue

- A documentary is an in-depth and extensive study with an analysis presented in video form accompanied by a written summary of the purpose and outcome.

Submitted Manuscript

- A full-length research manuscript must be submitted to a refereed mid- or top-tier national or international scholarly journal.

Program Evaluation

- A program evaluation report typically uses both qualitative and quantitative research methods to examine and collect data on a current program that is in place in a school or another organization.

Additional project formats may be proposed and approved by the student's committee as long as they meet the requirements listed above.

Final Project Processes

As in the traditional dissertation process, all students are expected to meet with their committees to gain project approval (at the pre-prospectus and/or prospectus stage). The Report of Final Examination will indicate whether or not the final project is acceptable to the committee. *The deadline for submitting projects to Mountain Scholar Digital Collections or dissertations of practice or other projects in a dissertation format to ProQuest is the same as the Report of Final Examination, the last day of classes for the semester during which a student intends to graduate.* All projects will be evaluated by committee members and also by the student.

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Education, Ed.D., Concentration in Learning, Design, and Technology

The Ed.D. in Learning, Design and Technology will provide students with advanced research methods to study and identify educational opportunities in various settings while developing and evaluating new ways to address those opportunities.

Course Requirements

The EdD program is 75 credits. The theory, research, and resulting instructional principles are addressed in courses in the following areas: (a) instructional design, visual literacy, and change (b) media development and production; and (c) instructional management, implementation, and technology integration. Graduate students in the program can take all of their coursework online. The EdD uses a Dissertation in Practice format for dissertation research. UW is a member of the Carnegie Project on the Education Doctorate.

Required Courses (75 credits*)

Foundational Knowledge Base

Students may transfer up to 30 credits toward the total program from a related master's degree. Transfer credits need to be accepted by the program faculty. If a student lacks credits in this area, they may take courses available through the Learning, Design, and Technology MS Program.

Program Knowledge Base

Students must successfully complete all 27 credit hours listed below.

- HIED 5630 Advanced Organizational Leadership (3 credit hours)
- ITEC 5660 (LDTE 5660): Interactive Learning Systems (3 credit hours)
- ITEC 5870 (LDTE 5700): Issues, Practice, and Research in LDT (3 credit hours)
- LDTE 5710: Transformational Learning (3 credit hours)
- ITEC 5870 (LDTE 5720): Critical Perspectives and Applications of Technology Integration (3 credit hours)
- ITEC 5870 (LDTE 5730): Game Design and Development (3 credit hours)
- ITEC 5870 (LDTE 5740): Global and Cultural Perspectives in LDT (3 credit hours)
- ITEC 5870 (LDTE 5750): Technology Innovations: Past, Present, and Future (3 credit hours)
- ITEC 5760 (LDTE 5760): Instructional Design Applications (3 credit hours)
- ITEC 5070 (LDTE 5070): Trends (3 credit hours) [can be substituted for a relevant course]

** new LDTE prefix is in the process of phasing into the program beginning Fall 2022; ITEC is still active and counts in the program of study until transition is complete.*

- **Research Methods**

- Students must successfully complete 12 credit hours in educational research.
- Required: Research Courses
 - EDRE 5600 Ed Research 1: Descriptive Research (3 credit hours)
 - EDRE 5640 Intro to Qualitative Research (3 credit hours)
 - EDRE 5660 Dissertation/Thesis Prospectus Writing (3 credit hours)

Select at least one additional research course:

Quantitative:

- EDRE 5610 Ed Research: Group Comparison (3 credit hours)
- EDRE 5620 Ed Research: Intro to Qualitative Research (3 credit hours)

Qualitative:

- EDRE 5645 Ed Research: Phenomenology, Case study, and Grounded Theory in Qualitative Research (3 credit hours)
- EDRE 5620 Ethnography and Narrative Inquiry in Qualitative Research (3 credit hours)

Dissertation or Approved Project

Students must successfully complete the exam and dissertation process. **A minimum of 6 credit hours of dissertation research** are required for the program of study.

All Doctor of Education students will use research methods to explore practical leadership problems. Applied projects are problem-based and may be collaborative. Projects may involve evaluating curriculum, designing and implementing professional development or training, developing applications to be used in local settings (e.g., early childhood-12 education, corporate and government centers), as well as other projects designed to advance knowledge in a specific field or setting.

The following requirements apply to all projects:

- Research-based (literature review)
- Scholarly, academic writing using APA style
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Program Evaluation

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Additional project formats may be proposed and approved by the student's committee as long as they meet the requirements listed above.

Final Project Processes

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The Ed.D. program requires a minimum of 81 credit hours beyond the bachelor's degree. Candidates may, with the approval of the committee, transfer up to 30 credit hours from previous graduate-level coursework in a closely related field. The program is delivered online with the exception of some the spring residencies.

- Program knowledge base: 48 credits
- Research: 9 credits
- Professional Writing: 6 credits
- Electives: 12 credits
- Dissertation: 6 credits

Additional Information:

Unlike the Ph.D. in Learning, Design and Technology, the Ed.D. program emphasizes applied research, culminating in the completion of a problem-based dissertation or project. Rather than leading to an academic career, the Ed.D. is designed for educators who want to contribute to the educational technology field at the highest levels of practice.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Hold a Master's degree from an accredited institute of higher education.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample.
- Three (3) years of P-12 teaching experience or its equivalent.
- Minimum 3.000 GPA on a 4.000 scale on the applicant's most recent degree from an accredited institution, plus transcripts from all other schools attended.
- GRE minimum score of Verbal:153, Quantitative:144.
- TOEFL score of 540 (paperbased), 76 (internet exam) or IELTS score of 6.5 or above are required for international, non-native English speaking applicants. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency.

Required on campus orientation during first fall semester.

The Ed.D. is the terminal professional degree in education designed for students who desire to improve their professional practice as educators. The program moves beyond the foundations of distance education, instructional design, and technology integration to focus on advanced application and research. Students apply design, development, and evaluation principles to explore authentic challenges and develop real solutions in diverse settings (e.g., K-12 education, corporate and government centers, and higher education institutions). Through these experiences, students learn how to use advanced research methods to explore workplace problems, design and deliver solutions, and implement and evaluate change. Emphasis is placed on in-depth mentoring and collaboration, advanced research, development of real-world applications, and training solutions offered through distance delivery platforms.

Education, Ed.D., Concentration in Mathematics Education

Graduates with a PhD in Education with a concentration in Mathematics Education at the UW are equipped with cutting-edge applied research skills, mathematics pedagogy expertise, and a commitment to issues of equity, inclusion and social justice.

Required Courses

Program Knowledge Base

Select 15 credit hours from the below list. Students should consult their advisor before choosing to take either EMAT 5150 or EMAT 5160.

- EMAT 5150
- EMAT 5160

EDCI5600 - Diversity in Education

Credits: 3

Provides practicing teachers and graduate level students with an understanding of the macrolevel influences on diversity in education. Includes an examination of competing models of diversity in education as well as reviews critical scholarly work in the field (including alternative methodological frameworks for engaging in this research). Includes competencies for developing advocacy-oriented skills and dispositions.

Prerequisite: graduate level students only.

EDCI5730 - Learning and Cognition

Credits: 3

The purpose of this course is to explore and critically analyze various learning theories from 1900 to present, including, but not limited to, behaviorism, constructivism, information processing, situated cognition, meaning learning, and cognitivism. Focus is on applying learning theories to impact K-12 student outcomes.

Prerequisite: graduate standing or permission of instructor.

EDAD5720 - Educational Leader as Change Agent

Credits: 3

Focuses on the study of change theory, change processes, change dynamics, decision-making models, and implementation of change in the organization setting.

Prerequisite: graduate standing.

EDAD5650 - Educational Leader as Communicator

Credits: 3

Focuses on inter- and intra-personal communication skills; group facilitation; organization and community public relations; parent and community involvement; negotiation; and conflict management.

Prerequisite: graduate standing.

EDRE5660 - Dissertation/Thesis Prospectus Writing

Credits: 3

Prepare graduate students to plan, develop, and write research proposals suitable for a dissertation/thesis. In consultation with the committee chair, students will focus on their own problem for research, conduct a literature review, choose appropriate methods for investigating the problem, and write a research proposal.

Prerequisite: at least two of the following: EDRE 5600, EDRE 5610, EDRE 5620, EDRE 5630, EDRE 5640, EDRE 5645, EDRE 5655, EDRE 5670, or EDRE 5870.

Mathematics Education Specialization

Students must take all 18 credit hours listed below.

EMAT5100 - Theory and Research for Mathematical Learning

Credits: 3
Max Credit (Max. 6)

Advanced study of theory and research related to learning of mathematics, with attention to significant human mental development factors. Critically examines the scholarly basis for mathematical learning, including reviews of epistemological foundations, research-based factors, core issues, and advocacies for educational practices.

Prerequisite: enrollment in Mathematics Education Ph. D. specialization or permission of the instructor.

EMAT5200 - Advanced Study of Mathematics Curriculum, Assessment, and Evaluation

Credits: 3
Max Credit (Max. 6)

Advanced study of theory, research and practices related to curriculum, assessment and evaluation in mathematics education. Critically examines the historical and contemporary influences on these, including mathematical, philosophical, psychological, pedagogical, social and political forces and factors.

Prerequisite: enrollment in Mathematics Education Ph. D. program or permission of the instructor.

EMAT5300 - Theory and Practice for Mathematics Teaching and Teacher Education

Credits: 3

Advanced study of theory and research of mathematics teaching teacher education. Examines the scholarly basis for current rationales and practices, including a critical review of evidential effectiveness, core issues, and advocacies for reform. A major emphasis will include analysis and critique of significant theoretical and research literature.

Prerequisite: enrollment in Mathematics Education Ph. D. program or permission of the instructor.

EMAT5400 - Analysis and Critique of Research in Mathematics Education

Credits: 3

Both theoretical and empirical research and scholarship in the field of mathematics education are critically analyzed. Students develop a deep understanding of pivotal historical and contemporary literature that helped shape the field of mathematics education and begin a formative development of their research interests.

Prerequisite: at least two from EMAT 5100, EMAT 5200, or EMAT 5300.

EMAT5600 - Quantitative Reasoning & Modeling in Mathematics and Science Education

Credits: 3

Advanced study of theories, issues, research and practices for teaching and learning mathematics and science focused on quantitative reasoning and mathematical modeling (QRaMM). Analysis of fundamental constructs relevant to QRaMM in education. Activities engage the scholarship of critical analysis, and interdisciplinary applications aimed at

student knowledge and expertise in QRaMM.

Prerequisite: Graduate student status.

EMAT5700 - Principles and Methods for Integrated Teaching & Learning Mathematics & Science

Credits: 3

Advanced study of theory, research, and practice for teaching and learning mathematics and science using integrated approaches in curriculum, pedagogy, learning, and assessment. The course will be production oriented, with activities and developments aimed at stimulating and supporting manuscripts to be published in STEM-appropriate venues.

Prerequisite: Graduate student status.

- EMAT Culture, Power and Identity in Mathematics Education, Credits: 3

Advanced Research Courses

Select 9 credit hours from the below list. Coursework in both qualitative and quantitative research is required and courses can be taken outside the College of Education. Course selection is subject doctoral committee approval.

EDRE5600 - Introduction to Quantitative Research

Credits: 3

Basic concepts of educational survey research design, statistics, and measurement. The focus is on descriptive statistics (measures of central tendency, variability, percent and frequency distribution, bivariate correlation, graphical displays, testing hypotheses about proportions). Students develop questionnaires and plan, conduct, and report on a survey study.

EDRE5610 - Educational Research: Group Comparison Research

Credits: 3

Concepts of experimental and ex post facto research designs, statistics, and measurement. The focus is on inferential statistics. Students construct attitude scales and other instruments used in research and they plan, conduct, and report on a group comparison study.

Prerequisite: EDRE 5600.

EDRE5620 - Correlational Research

Credits: 3

Max Credit 3

Concepts of correlational research, statistics, and measurement. Focus is on the design and analysis of results from correlational studies. Statistical topics include MANOVA, multiple regression, factor analysis, and discriminant analysis. Includes measurement topics in classical measurement theory and additional topics in validity and reliability. Plan, conduct, and report on a correlational study.

Prerequisite: EDRE 5600

EDRE5630 - Educational Research IV: Multivariate Research

Credits: 3

An advanced educational research, statistics, and measurement course. Design and analysis of results from studies with several dependent and independent variables. Includes multivariate statistics such as MANOVA, discriminant analysis, canonical correlation, multidimensional scaling, structural equation modeling, logit regression. Measurement topics include generalizability theory, item response theory, equating, and standard setting.

Prerequisite: At least one of the following: EDRE 5610 or EDRE 5620

EDRE5550 - Action Research

Credits: 3

Introduces experienced classroom teachers to action research methodology. Action research studies will be reviewed and critiqued. Students will learn to plan, implement, and write up an action research study conducted in a classroom setting.

Prerequisite: graduate standing.

EDRE5640 - Introduction to Qualitative Research

Credits: 3

This course introduces qualitative research. Students will explore the foundations, social science theories, methods, and processes of qualitative research and will learn to critically evaluate published research. Emphases will include basic design principles, trustworthiness, and analysis. Students will engage in original data collection and will produce a mini report.

Prerequisite: EDRE 5530.

EDRE5645 - Phenomenology, Case Study, and Grounded Theory in Qualitative Research

Credits: 3

In-depth examination of phenomenology (with great emphases on its philosophical roots), qualitative case study, and grounded theory. Characteristics of each qualitative tradition will be explored by way of critiquing published peer reviewed journal articles. Students will conduct and report on a mini study.

Prerequisite: EDRE 5640

EDRE5655 - Ethnography and Narrative Inquiry in Qualitative Research

Credits: 3

In-depth exploration of narrative inquiry (including autoethnography) and educational ethnography. Issues of ethics, politics, diversity, and the researcher's role will be integral to the course. Students will conduct and report on a mini study.

Prerequisite: EDRE 5630

EDRE5670 - Mixed Methods Research

Credits: 3

Provide an overview of mixed methods research to graduate students who are already familiar with quantitative and qualitative research. Specifically, they will learn the definition, history and foundations, and specific types of mixed methods designs. Also plan a mixed methods research study.

Prerequisite: EDRE 5600 and EDRE 5640.

Practicum/Internship

Two credit hours. Must be determined with doctoral committee.

EDCI5580 - Internship1

Credits: 8

Max Credit (Max 12)

An internship experience may be required as part of the planned program in curriculum and instruction. A maximum of eight hours may be counted in meeting the minimum requirements of a graduate degree, but additional credit may be taken beyond this limit for the recording of appropriate supervised experience.

Prerequisite: 15 hours of education, consent of department head, and graduate standing.

Dissertation in Practice

Students must take a minimum of 6 credit hours.

EMAT5980 - Dissertation Research

Credits: 1-12

Max Credit (Max 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

Additional Information:

Offered entirely online, you can pursue the Ed.D. in mathematics education while you continue in your current position. Learn and bond with the same group of students during the course or your Ed.D. studies- our program is cohort-based.

Admission Requirements

In order to be considered for admission, applicants must meet the following minimum requirements:

- Hold a Master's degree from an accredited institute of higher education.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample.
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Final Project Options

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Education, M.A., Concentration in Curriculum and Instruction

The UW Master of Arts in Educ. with a concentration in C&I will help you become the teacher who advocates for students, mentors younger colleagues & thinks outside conventional wisdom to leverage best practices into innovative programs and practices

Requirements

- Minimum of 32 hours of graduate credit
- Many courses delivered using distance technologies
- Core Courses: 16 hours of program area core graduate credits
- Concentration: 15+ hours in either a certificate or endorsement program, academic content area, or general curriculum and instruction area of interest (with direction and consent of faculty adviser)

Capstone Consisting of One of the Following:

Plan A (Thesis)

EDCI5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Plan B (Non-Thesis)

EDCI5090 - Plan B Research

Credits: 1-3
Max Credit (Max. 9)

Under the guidance of a committee chair, the enrolled graduate student will complete a scholarly Plan B project. Plan B projects emerge from practice, typically involving a problem of interest within a student's school, classroom, or work site. Admission in the Curriculum and Instruction graduate program required.

Prerequisite: graduate standing.

National Board Certificate

EDCI5890 - Directed Professional Study

Credits: 1-6
Max Credit (Max. 9)

Provides additional opportunity for the student to pursue advanced graduate work through independent research. Projects are done under the direction of a graduate faculty member offered in the areas of business education and distributive education.

Prerequisite: consent of the instructor, the department head, and graduate standing.

EDCI5515 - National Board Certification Seminar

Credits: 1-3
Max Credit (Max. 12)

Provides information and support for teachers in the National Board Certification process. Content includes: reviewing, understanding, and applying best practice research; development of differentiated instruction; integration of formative assessment and reflective practice; understanding problem solving across the curriculum; and focuses on writing strategies for National Board Certification success.

Prerequisite: graduate student standing.

C&I Program Core:

EDCI5500 - Classroom Assessment

Credits: 3
Provides reading, discussion, and research examining a variety of classroom-based assessments with a focus on the alignment of teaching, learning, and classroom assessment at the P-12 level.

Prerequisite: graduate status.

EDCI5000 - Principles of Curriculum

Credits: 3

Provides an overview of general understandings fundamental to the study of all aspects of curriculum to include pre-school, kindergarten thru high school. Consideration is given to the various factors, institutions and societal issues that impinge on and affect the decision making processes of curriculum developers.

Prerequisite: graduate standing in education.

EDCI5450 - Issues in Multicultural Education

Credits: 3

Provides future and inservice teachers and other interested students with a better understanding of current issues and social foundations of multicultural America. Enables more accurate educational decisions related to utilizing strengths and diversity of each cultural group. Additional assignments are required of students completing this course for graduate credit.

Dual Listed EDCI 4450.

Prerequisite: 12 credit hours of education classes.

EDCI5790 - Learning Theories and Instructional Principles

Credits: 3

This course focuses on making connections between theoretical perspectives on teaching and learning, empirical work, and the actual practice of teaching. As a result, learners should expect to examine multiple learning theories, read research based on those theories, explore pedagogy that grows out of these theories, and integrate theory into practice in their own classrooms.

Prerequisite: graduate standing.

EDRE5550 - Action Research

Credits: 3

Introduces experienced classroom teachers to action research methodology. Action research studies will be reviewed and critiqued. Students will learn to plan, implement, and write up an action research study conducted in a classroom setting.

Prerequisite: graduate standing.

OR

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

EDCI5400 - Midpoint Portfolio Reflection

Credits: 1

Allows students to reflect, self-assess, and receive guidance related to their progress in the C&I Master's Program. Requirements include: self assessment of progress toward the C&I program outcomes, completion of a series of research abstracts, formation of the students' graduate committees and approval of programs of study.

Prerequisite: admission to the Curriculum and Instruction Master's Program and completion of at least 12 hours of EDCI coursework.

Areas of Concentration

- Certificates or Endorsements
 - Early Childhood Special Education (see www.uwyo.edu/ste/earlychildhood-education/earlychildhood-special-education.html)
 - English as a Second Language (see www.uwyo.edu/ste/curriculum-instruction/english-second-language/)
 - Literacy (see www.uwyo.edu/ste/elementary-education/endorsements/certificateof-literacy.html)
- Content Studies - Math, History, Art, Music, Science, Teachers of American Indian Children
- Curriculum and Instruction Studies - focus on special education, educational leadership, diversity studies, counseling, instructional technology, etc.

Additional Information:

About Curriculum and Instruction

The UW Master of Arts in Education with the curriculum and instruction concentration is for educators with a minimum of one year teaching experience who are looking to gain a variety of pedagogical knowledge and research experience. The degree will give you the knowledge and research expertise to take your passion into a career of continuous exploration and improvement.

Offering a highly customizable program, UW's MA in curriculum and instruction allows you to pursue additional expertise in your content area, add endorsements such as literacy, ESL, early childhood special education or develop specialties in content or curriculum. You can even use your degree as a pathway to National Board Certification, which also meets your capstone project requirement.

The program is offered fully online making it possible for you to advance your career while also maintaining your current teaching schedule.

Program Specific Admission Requirements

Applications for the Master of Arts degree in Education with an Area of Concentration in Curriculum and Instruction are reviewed for admission two times each year. To be considered for admission, applications must be completed and submitted by September 1st for spring semester admission, and February 1st for summer/fall admission. Incomplete applications will not be considered. International students are encouraged to apply a semester earlier to allow sufficient time for paperwork. All applications will be completed through the UW Admissions website: <http://www.uwyo.edu/admissions/apply.html>.

Applicants are required to submit the following materials:

- letter of intent;
- academic resume, including information about teaching experience;
- contact information for three references;
- TOEFL or IELTS scores (for international, non-native English speaking applicants); Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.
- college transcripts.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Score of 3 or 4 on a letter of intent. This letter serves as a writing sample, and takes the place of GRE scores in the admission process;
- One year of P-12 teaching experience or its equivalent. This requirement may be waived for applicants who have been admitted to the Teaching Elementary School or the Teaching Secondary Content Graduate Certificate program. Such applicants will be considered for admission on a conditional basis, pending successful completion of the Teaching Elementary School or Teaching Secondary Content Graduate Certificate program;
- Minimum 3.000 GPA on a 4.000 scale on the applicant's most recent bachelor's degree from an accredited institution;
- International, non-native English speaking applicants must have a TOEFL score of 525 (paper-based), 197 (computer exam) or above or an IELTS score of at least 6.5. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

MA Program Requirements

Curriculum & Instruction

The Master of Arts degree in Education is offered in two options:

- Plan A, which requires writing a thesis
- Plan B, which requires a written paper based on a scholarly project

A minimum of 32 semester hours beyond the Bachelor's degree is required. All course work and degree requirements must be approved by the student's graduate committee.

The Master of Arts degree in Education consists of a set of core courses and one of three emphases: Certificates/Endorsements, Content Studies, or Curriculum Studies. All students are required to complete the core courses and one of the three emphases. Specific courses are outlined below.

View the M.A. Degree Program Overview and Application Instructions packet for forms and details.

Core Courses: (17-20 credit hours) students are required to take core courses:

- Assessment (3 credit hours): EDCI 5500 - Classroom Assessment
- Curriculum (3): EDCI 5000 - Principles of Curriculum
- Diversity (3): EDCI 5450 - Issues in Multicultural Education
- Instruction (3): EDCI 5790 - Advanced Instructional Strategies (Learning Theories & Instructional Principles as of Fall 2017)
- Research (3): EDRE 5530 - Intro to Research or EDRE 5550 - Action Research
- Midpoint Review (1): EDCI 5400 - Portfolio Reflection (1) (EDCI 5400 represents a midpoint evaluation and must be taken no later than 2 semesters [may include a summer semester] before graduation).
- Capstone Experience (1-4): Plan A thesis (4) OR Plan B project (2) OR National Board Certification (1-3). Students, as guided by an academic advisor, may pursue a Plan A thesis or a Plan B non-thesis. Generally, one can think of the Plan A thesis as a research project that emerges when a student finds that a problem of interest has not been addressed in the research literature. A Plan B non-thesis is a research project that emerges from practice, typically involving a problem of interest within a student's school, classroom, or work site.

Emphases (15-18 credit hours with approval from Committee)

Certificates/Endorsements

- Early Childhood/ECSE (25-26 hours required-18 may be applied to elective credit)
- English as a Second Language (15 credit hours)
- Literacy (18-21 credit hours)

Content Studies (15 to 18 hours)

This specialization is intended for those practicing teachers who are pursuing the "highly qualified" status. Coursework will primarily be taken in students' content areas (e.g., History, English, etc. 4000 and 5000 level courses).

Curriculum Studies (15 to 18 hours)

This specialization is intended for those who are interested in focusing on issues of curriculum and instruction.

- Potential coursework:
 - National Board Certification (See below for more information)
 - EDCI 5800 - Curriculum Development
 - Research Methods
 - Educational Leadership
 - Counseling
 - Instructional Technology
 - Special Education
 - Literacy
 - English as a Second Language (ESL)
 - Diversity
 - Teachers of American Indian Children
 - Graduate level content courses

Capstone Experience

- EDCI 5960 Thesis/Plan A (4 credit hours)
- EDCI 5090 Plan B Research/Plan B project (2 credit hours) (EDCI 5890 Directed Professional Study prior to Summer 2017)
- EDCI 5890 Directed Professional Study/National Board Certification (1 credit hour)

TOTAL: 32 minimum semester hours

Areas of Emphasis

Certificates/Endorsements Emphasis

The Certificates/Endorsements emphasis allows practicing teachers to take coursework toward eligibility for certificates/endorsement in Literacy, Early Childhood Education, English as a Second Language, or Teachers of American Indian Children through the state of Wyoming's Professional Teaching Standards Board. These endorsements are only available to teachers who hold valid teaching certification in the state of Wyoming.

Content Studies Emphasis

The Content Studies emphasis is designed to allow practicing teachers to pursue further education in a particular content area - such as history, English, math, etc. -- through 4000 and 5000-level courses in those content areas. This coursework may be helpful particularly in the case of practicing teachers who are pursuing "highly qualified" status in a content area. Please note that this option is based on availability of graduate courses in other departments that the student may be interested. There is no guarantee of outreach course availability.

Curriculum Studies Emphasis

The Curriculum Studies emphasis is designed for practicing educators who are interested in gaining knowledge and expertise related to curriculum and instruction.

National Board Certification

FREQUENTLY ASKED QUESTIONS

Will there be classes offered to help me proceed through the National Board Certification process?

Yes, a series of seminars and workshops are offered through the Wyoming National Board Certification Initiative each semester. Information about these seminars and workshops is posted and updated on the Wyoming NBC website: <http://www.wnbc.org/>. Graduate level Curriculum and Instruction credit is available for these seminars (courses listed as EDCI 5515). These courses are designed to support teachers as they grow as professionals and simultaneously proceed through the Board Certification process and the UW Master's program.

Where will the classes be offered?

The classes are offered around the state of Wyoming to allow participation across the state. Dates and locations for upcoming seminars and workshops can be found on the Wyoming NBC website: <http://www.wnbc.org/>. Participants enroll in the courses through UW Outreach Credit Programs (toll free phone number: 1-800-448-7801). Up to 9 total credit hours of the seminars can be taken by enrolled graduate students. Up to 9 total seminar/workshop credit hours may be applied as electives in the Curriculum and Instruction Master's program.

Who will teach these classes?

The seminars are taught by Barbara Maguire, a Nationally Board Certified teacher and expert in the NBC process.

How many times can I take the NBC class?

Graduate students/National Board Candidates can enroll in the seminars as many times as necessary/desired. For those seeking graduate degrees, up to 9 credits can be applied to the Curriculum and Instruction Master's degree program as elective hours dependent upon the student's committee approval.

What about tuition?

Students will pay regular graduate tuition for the seminar classes. The current UW fee schedule can be found at the following website: http://www.uwyo.edu/sfa/cost_of_attendance/

Will I need to complete a Thesis or Plan B paper to finish my C&I degree? No, the NBC Portfolios will be accepted in Lieu of a Plan B Paper for teachers pursuing NBC Certification and a UW Master's degree simultaneously. This acceptance is dependent upon committee approval (not acceptance by the National Board). An agreement to utilize this procedure and maintain portfolio confidentiality has been reached between UW and the NBPTS (National Board for Professional Teaching Standards). The NBC portfolio must be submitted and defended (in a meeting with the student's graduate committee) prior to initial submission to the NBPTS. The committee's portfolio copies will be destroyed after the defense.

Note: The Rubric for Assessment of the presentation is provided below.

If I am already a National Board Certified teacher, can I apply my NBC work retroactively to a graduate degree?

No, the program is designed for those working on National Board Certification and a C&I Master's degree simultaneously.

How do I apply for a UW Curriculum and Instruction Graduate Program?

The graduate application and other information can be found here.

What if I have Additional Questions?

If you have additional questions, please contact the UW Department of Curriculum and Instruction (curriculum@uwyo.edu; 307-766-6371).

Assessment Checklist for National Board Certification (NBC)

Portfolio & Presentation

Committee members will evaluate the following areas and will determine if the student/NBC candidate accomplished each of these aims/activities at a level sufficient to warrant the substitution of the NBC portfolio and presentation for the Plan B requirement. S/U (Satisfactory/Unsatisfactory) will be assigned for each area, and an overall evaluation of "S" must be achieved for portfolio to serve in lieu of the Plan B paper.

_____ **Overall evaluation of the portfolio and presentation as suitable substitutes for Plan B**

paper/project and defense

Presentation of NBC Portfolio to Master's Committee:

_____ Student provides a brief overview of National Board Certification process and portfolio

_____ Student describes process of working on the portfolio (including connections to C&I courses

taken, time commitment, assessments and data analysis, and reflections)

_____ Student presents at least one explicit connection between the portfolio documentation and his/her C&I Master's Degree coursework (e.g. assessment strategy learned in literacy specific course was used to evaluate student work included in NBC portfolio), and explains ways processes informed each other

_____ Student describes challenges, pleasures, difficulties associated with the NBC process

_____ Student summarizes learning derived from portfolio process and completion

More information on National Board Certification:

- National Board Certification
- How to get started

Education, M.A., Concentration in Educational Leadership

The MA in Educational Leadership is an all online program to become a K-12 principal with a Wyoming principal certification.

Core Courses

The master's is a 33 credit program which includes the four core classes, 3 credits each:

EDAD5010 - Leadership for Curriculum Development

Credits: 3

Focuses on leadership skills that support curriculum and curriculum development in student learning and achievement. Key topics include: K-12 curriculum alignment; incorporating standards and community values; curriculum development, implementation, and evaluation; equity and access for diverse learning needs; and effective communication about curriculum.

Prerequisite: Admission to program or consent of instructor.

EDAD5020 - Leadership for School Organization

Credits: 3

Focuses on organizational leadership. Topics include: history of organizational leadership, leadership styles, change process, strategic planning, federal, state, and local governance as well as politics, power and policy, and school operations, to include budget, facilities, scheduling, recruitment, selection and induction.

Prerequisite: Admission to program or consent of instructor.

EDAD5030 - Leadership for School and Community Relations

Credits: 3

Focuses on the leadership role of the principal in building relations with students, staff, family, and community. Topics include school culture and climate, community and family involvement, public relations and communications, student discipline, and crisis management.

Prerequisite: admission to program or consent of instructor.

EDAD5040 - Leadership for Instruction

Credits: 3

Focuses on the principal as instructional leader. Topics include: developing a school vision of learning; employing effective instructional strategies, supervision and evaluation of teacher performance; integration of supervision, evaluation, and student achievement with professional development and professional learning communities, and instructional trends and issues within diverse learning communities.

Prerequisite: Admission to program or consent of instructor.

Other Courses

EDRE5580 - Supervised Internship

Credits: 1-8

Max Credit (Max. 12)

EDEX5720 - Special Education Law

Credits: 3

Provides prospective special education teachers and support personnel with overview of important case and statutory law in special education.

Prerequisite: Admission to program or consent of instructor.

EDAD5050 - Leadership for Democratic Schools

Credits: 3

Designed to increase awareness of future school leaders of the principles of equity and excellence in education focused on democratic practices. Topics include democratic educational practices, ethical leadership, renewal of public schools, and educational leadership in urban, suburban, and rural communities, and in ethnically and socio-economically diverse settings.

Prerequisite: graduate standing.

EDAD5150 - Assessment, Accountability, and Student Learning

Credits: 3

Focuses on the knowledge and skills necessary to lead schools in the alignment of standards, assessment, and

instruction. Topics include analysis and interpretation of assessment results and educational data, recent history and current context of educational accountability in Wyoming, role of assessment and accountability in improving student learning.

Prerequisite: graduate standing.

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

EDAD5080 - Introduction to School Law

Credits: 3

This course provides legal foundations of U. S. public schools and examines general principles of statutory and case law and applies judicial decisions to educational environments. Additionally, the course focuses on legal responsibilities, constraints, and opportunities for school leaders.

Prerequisite: admission into UW Educational Administration, K-12.

Additional Information:

As an educator, you're already making a difference. But what if you could influence what happens on the building-level? Could you be the person who helps teachers feel more empowered? Who knows how to bridge differences, build consensus and develop a school atmosphere where faculty, staff and families support one another in their common mission to nurture citizenship, critical thinking and a thirst for knowledge? Emphasizing courses in leadership issues specific to education such as instructional leadership, curriculum development and community relations, UW's online educational leadership program will also ground you in practice through an in-depth supervised internship in elementary, middle and high schools.

Application Deadlines

February 1 - If applying for following fall, or spring semester.

September 1 - If applying for following spring, or fall semester.

Admission Requirements

Domestic Students^{SEP}

GPA: 3.0^{SEP}

GRE: no requirement

International Students^{SEP}

TOEFL: 550 minimum written or 80 minimum online, OR IELTS: 6.5 minimum overall score

^{SEP}GRE: 147 min in each subtest and 4.0 minimum on analytical writing

Additional Requirements

Must have a minimum of 3 years teaching experience

How to Apply

Step 1: Apply to UW and the School of Counseling, Leadership, Advocacy and Design through the online applicant portal.

- Access the UW graduate applicant portal. Make sure to use the corresponding application admittance semester indicated above.
- After completing the initial information page, you will receive an email from the system including a link and your temporary username and password.
- Please complete the contact, academic, residency information, etc.
- Submit the application fee
- Submit ALL required documents to the online document portal (see below for details)
- Agree to admissions terms and submit your application

Step 2: Submit official copies of transcripts to UW Admissions.

Required Documents

Please include ALL documents listed below in order for your application to be considered.

- A letter of intent describing why you want to be an educational leader
- A current resume
- Copy of current teaching certificate
- Unofficial copies of transcripts (official copies should be sent to UW Admissions)
- A completed principal program application. Contact the School of Counseling, Leadership, Advocacy and Design for Application; Tiffany LeGal.
- A superintendent approval form signed by the superintendent of the district where you plan to perform your internship (scan and upload) Contact the School of Counseling, Leadership, Advocacy and Design for Application; Tiffany LeGal.
- Current recommendation letters addressing leadership skills from three different referees (the portal will send a request to each of them after you enter their email addresses):
 - two from referees who are familiar with your leadership skills
 - current principal

Education, M.A., Concentration in Higher Education Administration

The MA in Higher Educ Admin will give you a strong foundation in the history and "business" area's in America's higher learning system while gaining expertise in learning theory and adult education.

Program Specific Degree Requirements Master's Program

The M.A. program is a professional degree program that does not require a Plan A (thesis) or Plan B.

Required Courses

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

HIED5000 - Community College Leadership

Credits: 3

This course will introduce students to the challenges associated with instructional leadership at the community college. The course will identify and distinguish the macro (organizational) level of change but also the micro (individual) level of change in community college settings.

Prerequisite: Admission into MA program.

HIED5020 - Higher Education Systems

Credits: 3

The purpose of this course is to provide students with an overview of higher education as an industry, as a cultural institution, and social stability while also promoting social mobility. Special focus is given to the stratification and diversity of American higher education.

Prerequisite: Admission into MA program.

HIED5030 - Continuing and Professional Education

Credits: 3

This course will introduce graduate students to the main issues, trends, and problems that have defined the field of continuing and professional education. The course will also provide students with the foundational knowledge and skills needed to administer continuing and professional education programs.

Prerequisite: Admission into MA program.

HIED5040 - Higher Education Staffing

Credits: 3

This course provides students with a theoretical and practical overview of the research and best practices associated with the development of instructional staff at higher education institutions. Special attention is given to the use of mentoring higher education instructional staff.

Prerequisite: Admission into MA program.

HIED5050 - Workforce Training

Credits: 3

In this course, students study the process of preparing objectives, retaining instructional staff, defining content, selecting learning activities, and evaluating student learning in workforce education programs delivered by higher education institutions.

Prerequisite: Admission into MA program.

HIED5060 - Program Budgets and Instructions

Credits: 3

The purpose of this course is to familiarize managers with the core tasks needed for effective financial planning. Students are also introduced to the budgeting process in various public higher education institutions.

Prerequisite: Admission into MA program.

HIED5240 - Teaching Adults

Credits: 3

Developed upon the premise that individuals teach as they would expect to be taught. Focuses on methods for teaching adults in formal as well as informal settings. The learning styles literature is reviewed and implications for instructional settings are analyzed. Participants also critique their teaching performance through videotaped sessions.

Prerequisite: graduate standing.

HIED5610 - Planning and Evaluation of Instructional Systems

Credits: 3

Participants investigate the concepts, issues, methods, and attitudes involved in the planning and evaluation of instructional systems. Topics covered include planning processes, theory and technique, promotion, evaluation, setting objectives, and trend analysis.

Prerequisite: graduate standing.

HIED5660 - Community College

Credits: 3

Concerns the philosophy, organization, program, and administration of the community college.

Prerequisite: graduate standing and consent of instructor.

HIED5090 - Masters Capstone

Credits: 3

Provides exposure to situations students will likely encounter professionally. It establishes a forum where students apply and refine theories, principles, and skills learned during their programs. Students examine and critique current scholarship and document general degree specific competencies.

Cross Listed ITEC 5090.

Prerequisite: Check with advisor and complete required sequence of courses for Educational Administration (Adult and Postsecondary Education) or Instructional Technology masters degree programs prior to enrollment.

Additional Information:

Adult learning, rural access to continuing education, workforce training and institutional operations are just some of the issues you'll explore in UW's higher education administration master's program. Plus, the online master's degree program in higher education administration at the University of Wyoming balances theory with practice to give you the knowledge and skills you need to enter the field or advance at your current institution. Most importantly, you will gain an understanding of where you can make a difference as a leader in the vast field of post-secondary education. By the time you complete your program, you will be ready to level up your career and take your place as a skilled administrator in higher education, government or the nonprofit sector.

Application Deadlines:

January 15 - Fall/Summer

May 15- Fall

September 15 - Spring

How to Apply

Step 1: Apply to UW and the School of Counseling, Leadership, Advocacy and Design through the online applicant portal.

1. Click here to access the UW graduate applicant portal. Make sure to use the corresponding application admittance semester indicated above.
2. After completing the initial information page, you will receive an email from the system including a link and your temporary username and password.
3. Please complete the contact, academic, residency information, etc.
4. Submit the \$50 application fee
5. Submit ALL required documents to the online document portal (see below for details)

Step 2: Submit official copies of transcripts to UW Admissions.

Include ALL documents listed below in order for your application to be considered

- - **A letter of application.** You should discuss your professional and academic goals as well as share your perceptions about how the MA in Higher Education Administration (MA-HIED) will help in achieving those goals. Any special issues that you think the admissions committee should know about (e.g., undergraduate GPA below 3.0, past graduate HIED courses taken under the "six-credit rule", etc.) should also be highlighted.
 - **A professional resume or curriculum vitae.** No one format is "correct", but the information most important to include is work experience.

- **Three references provided.** Full contact information for three references who might speak to your academic potential and/or potential for a career in higher education, including an active email address, should be offered in a separate document clearly marked as "References". Once the Office of Admissions has this information, they will contact the references via email and request that they complete a questionnaire and upload a letter. It is a good idea to check with Admissions in advance of the admissions deadline regarding any reference letters that may still be outstanding, and follow up with any of those references.

Education, M.A., Concentration in Literacy Education

The M.A. in Educ with a concentration in Literacy Education focuses on research in literacy development, instruction and provide the practical tools needed to apply that knowledge in your classroom, school, or district.

K-6 Focus

TOTAL: 33 minimum semester hours

EDCI5710 - Genre-based, Discipline-based Literacies

Credits: 3

Designed to provide educators with knowledge of reading factors as they relate to various genres and disciplines. Includes new literacies, assessment and development of comprehension, writing and oral language as learning tools, techniques for the development of vocabulary, questioning and study strategies appropriate to various disciplines and genres.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discussion research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDCI5750 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part I

Credits: 3-6

Max Credit (Max. 6)

Examines contemporary research and practice in literacy instruction. Read about and discuss cutting-edge literacy methods related to 1) word recognition, 2) beginning and fluent text reading, 3) reading comprehension, and 4) vocabulary development. In addition, students will analyze their current literacy instruction and develop, implement, and evaluate lessons that involve new instructional approaches.

Prerequisite: EDEC 4320 or EDCI 4330, EDCI 5310 or EDCI 5320 or graduate standing in education.

EDCI5755 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part II

Credits: 3

Second of two related courses that address research in literacy instruction in elementary classrooms. The two-course sequence is required for students seeking the Wyoming K-5 Literacy Endorsement. Can also serve as a literacy content course in the Literacy Education Ph. D. option or as an elective in other graduate degree programs.

Prerequisite: EDCI 5750.

EDCI5760 - Social Linguistics Literacies

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies necessary for understanding and working with children from diverse linguistic and cultural backgrounds. Redirects focus from schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring from their own sociocultural contexts.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5320 - Writing Instruction K-5

Credits: 3

Examines contemporary research and practice in elementary writing instruction. Students will read and discuss cutting-edge instructional and assessment methods addressing writing skills and processes related to transcription, spelling, written language conventions, and genre-based writing. In addition, students will analyze their current writing instruction and develop, implement, and evaluate new approaches.

Prerequisite: graduate standing.

EDCI5360 - History of Lit Res & Instruction

This course traces the historical lineages of research and practice in literacy. Students will explore major paradigm shifts and epistemological perspectives related to various domains of knowledge within literacy research and instruction across time. Implications for current in-school and out-of-school practices are examined.

Prerequisite: Graduate Standing

EDCI5365 - Trends in Literacy Research

Credits: 3

Max Credit 3

Examines teachers as consumers of literacy research and the organizations that provide access to literacy research.

Analyzes the current science of reading movement and key recent research initiatives that impact literacy teaching.

Restricted Graduate Standing

EDCI5380 - Literacy Leadership

Credits: 3

Examines the role of educators as literacy leaders (e.g., specialist, coach, administrator, teacher leader) as it relates to students, parents, staff, and other stakeholders. Analyzes current trends as they affect the role of educators who serve as literacy leaders in school contexts.

Restricted Graduate Standing

Prerequisite: Graduate Standing

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

OR

EDRE5550 - Action Research

Credits: 3

Introduces experienced classroom teachers to action research methodology. Action research studies will be reviewed and critiqued. Students will learn to plan, implement, and write up an action research study conducted in a classroom setting.

Prerequisite: graduate standing.

EDCI5090 - Plan B Research

Credits: 1-3

Max Credit (Max. 9)

Under the guidance of a committee chair, the enrolled graduate student will complete a scholarly Plan B project. Plan B projects emerge from practice, typically involving a problem of interest within a student's school, classroom, or work site. Admission in the Curriculum and Instruction graduate program required.

Prerequisite: graduate standing.

6-12 Focus

TOTAL: 33 minimum semester hours

EDCI5710 - Genre-based, Discipline-based Literacies

Credits: 3

Designed to provide educators with knowledge of reading factors as they relate to various genres and disciplines. Includes new literacies, assessment and development of comprehension, writing and oral language as learning tools, techniques for the development of vocabulary, questioning and study strategies appropriate to various disciplines and genres.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discussion research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDCI5775 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part II (6-12)

Credits: 3

Designed to be the second in a two-course sequence that focuses on research and practice in adolescent literacy learning, teaching, and assessment. Will focus on applying research to practice.

Prerequisite: Graduate standing in education.

EDCI5760 - Social Linguistics Literacies

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies necessary for understanding and working with children from diverse linguistic and cultural backgrounds. Redirects focus from schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring from their own sociocultural contexts.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5370 - Writing Instruction 6-12

Credits: 3

Max Credit 3

Examines contemporary research and practice in writing instruction at the middle and high school level. Students will read about and discuss cutting-edge instructional and assessment methods addressing writing skills and processes related to transcription, spelling, written language conventions, and genre-based writing. In addition, students will analyze their current writing instruction and develop, implement, and evaluate lessons that involve new instructional approaches.

Restricted Graduate Standing

Prerequisite: Graduate Standing

EDCI5360 - History of Lit Res & Instruction

This course traces the historical lineages of research and practice in literacy. Students will explore major paradigm shifts and epistemological perspectives related to various domains of knowledge within literacy research and instruction across time. Implications for current in-school and out-of-school practices are examined.

Prerequisite: Graduate Standing

EDCI5365 - Trends in Literacy Research

Credits: 3
Max Credit 3

Examines teachers as consumers of literacy research and the organizations that provide access to literacy research. Analyzes the current science of reading movement and key recent research initiatives that impact literacy teaching.

Restricted Graduate Standing

EDCI5380 - Literacy Leadership

Credits: 3
Examines the role of educators as literacy leaders (e.g., specialist, coach, administrator, teacher leader) as it relates to students, parents, staff, and other stakeholders. Analyzes current trends as they affect the role of educators who serve as literacy leaders in school contexts.

Restricted Graduate Standing

Prerequisite: Graduate Standing

EDRE5530 - Introduction To Research

Credits: 3
Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

OR

EDRE5550 - Action Research

Credits: 3

Introduces experienced classroom teachers to action research methodology. Action research studies will be reviewed and critiqued. Students will learn to plan, implement, and write up an action research study conducted in a classroom setting.

Prerequisite: graduate standing.

EDCI5090 - Plan B Research

Credits: 1-3

Max Credit (Max. 9)

Under the guidance of a committee chair, the enrolled graduate student will complete a scholarly Plan B project. Plan B projects emerge from practice, typically involving a problem of interest within a student's school, classroom, or work site. Admission in the Curriculum and Instruction graduate program required.

Prerequisite: graduate standing.

Additional Information:

The UW M.A. in Education is offered fully online with a concentration in Literacy Education will help you become an expert literacy educator who has a deep knowledge of research in literacy development and instruction and the practical tools needed to apply that knowledge in your classroom, school, or district. The program consists of 11 courses, six of which constitute the UW Literacy Certificate program, which leads to the Wyoming state Reading Endorsement. Thus, while earning your master's degree, you will also complete the coursework necessary for the state Reading Endorsement. Throughout the program, you will interact with the UW Literacy Education faculty, a group of recognized literacy researchers who engage in many collaborative projects with Wyoming teachers.

Program Admission Requirements

Deadlines

The Master of Arts degree in Education with a Concentration in Literacy Education program utilizes rolling admissions. Applications are reviewed whenever they are submitted, and, upon acceptance, a student may immediately register for courses for an upcoming semester.

Minimal Admissions Criteria

Meeting minimal admissions criteria does NOT automatically ensure admission to the program.

- Bachelor's degree.
- A minimum 3.0 GPA on a 4.0 scale on the applicant's most recent degree from an accredited institution, plus transcripts from all other schools attended.
- A TOEFL score of 540 or above or an IELTS score of 6.5 or above is required for international students.
- Submission of all required supplemental materials

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Required Supplemental Materials

Educators wishing to apply for admission to the Master of Arts in Education with Concentration in Literacy Education must complete the Graduate Admissions application and pay the required fee. This application is available online through the admissions website.

In addition, applicants must submit the following supplemental material:

- an academic resume
- college transcripts
- One letter of reference (someone familiar with your academic or practitioner work in education)

International students must also submit passing scores on the Test of English as a Foreign Language (TOEFL).

All application materials can be uploaded to the online application. [Click here](#) for UW Graduate International Admissions information.

Guidelines for Academic Resume

Include the following in your resume:

- Personal Information: Name and Contact Information (Address, Phone numbers, email)
- Education: Institution, City, State, Dates Attended, Major, and Degree
- Work Experience: Dates, Job Title, Employer, City, State
- Professional experiences such as: Publications, Presentations and Grants; Continuing Education Activities, Awards/Honors Received; Community and Volunteer Activities; Professional Memberships; other

Program Requirements

The Master of Arts degree in Education with Concentration in Literacy Education consists of the 11 specific courses listed below.

Education, M.A., Special Education

The online UW Master of Education with a concentration in special education is a generalist program that will prepare you to work with K-12 students across a range of special needs, qualifying you to apply for a teaching endorsement with PTSB.

Required Courses

Required Courses (35 credit hours)

Program Core

Students must take all courses listed below.

- EDEX 5071 Teaching Students with Mild/Moderate Disabilities (3 credit hours)
- EDEX 5080 Teaching Students with Severe to Low Incidence Disabilities (3 credit hours)
- EDEX 5720 Special Education Law (3 credit hours)
- EDEX 5355 Assessment (3 credit hours)
- EDEX 5100 Practicum I (3 credit hours)
- EDEX 5110 Positive Behavior Support and Management (3 credit hours)

- EDEX 5120 Academic Instruction in General Education for Students with Disabilities (3 credit hours)
- EDEX 5200 Practicum II (3 credit hours)
- EDEX 5000 Collaboration/Professional Interdisciplinary Relationships (3 credit hours)
- EDEX 5250 Assistive Technology (2 credit hours)
- EDEX 5260 Transition Planning (2 credit hours)

Research Courses

Students must choose 3 credit hours from courses listed below.

- EDEX 5150 Research Applications in the Classroom 3
- EDRE 5530 Introduction to Research 3
- EDRE 5550 Action Research 3

Other courses

Students must choose one credit hour from the below courses.

- PRST 5920 Continuing Registration on campus (1 credit hour)
- PRST 5940 Continuing Registration off campus (1 credit hour)

Additional Information:

Application Deadlines

June 15 - If applying for the fall semester.

September 15 - If applying for the spring semester.

Admission Requirements

Domestic Students^[1]_{SEP}

GPA: 3.25^[1]_{SEP}

GRE: no requirement

International Students^[1]_{SEP}

TOEFL: 550 minimum written or 80 minimum online, OR IELTS: 6.5 minimum overall score

Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

^[1]_{SEP}GRE: 900/291 minimum

Additional Requirements

Current teaching certificate from the United States and must be K-12 (any grade band or subject area)

How to Apply

Step 1: Apply to UW and the School of Counseling, Leadership, Advocacy and Design through the online applicant portal. When filling out your application please refer to the following document: Guidelines and requirements for applications.

- Access the UW graduate applicant portal. Make sure to use the corresponding application admittance semester indicated above.
- After completing the initial information page, you will receive an email from the system including a link and your temporary username and password.
- Please complete the contact, academic, residency information, etc.
- Submit the application fee
- Submit ALL required documents to the online document portal (see below for details)
- Agree to admissions terms and submit your application

Step 2: Submit official copies of transcripts and test scores to UW Admissions.

- Official transcripts from all postsecondary institutions should be requested and sent to UW Admissions at the following address: *University of Wyoming Admissions*^[1]_[SEP]; 1000 E. University Ave.; ^[1]_[SEP]Laramie, WY 82071

Required Documents

Please include ALL documents listed below in order for your application to be considered.

- A 3-4 page, double-spaced professional writing sample (contact Tiffany LeGal in Counseling, Leadership, Advocacy and Design for the coring rubric), including:
 - A description of your professional goals
 - An explanation of your commitment to Special Education
 - An explanation of your philosophy of education
 - An explanation of how this Special Education program fits your goal
- A complete and current resume, including:
 - Educational experiences
 - Work experiences
 - Activities/honors
 - Other relevant information
- Program application. (download here)
- Copy of current teaching certificate
- Signed Memo of Understanding (see student handbook)
- Unofficial copies of transcripts (official copies should be sent to UW Admissions)

All classes for the Master of Art in Special Education program are taught using distance delivery methods so you can enjoy the convenience of expanding your education while working full-time in your current position. Upon completion of this program, students will be eligible to apply to the Wyoming Professional Teaching Standards Board for an endorsement in K-12 Special Education.

Education, M.S., Concentration in Learning, Design, and Technology

The PhD in Learning, Design and Technology will provide students with advanced research methods to study and identify education opportunities in various settings while developing and evaluating new ways to address those opportunities.

Required

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

ITEC5000 - Intro to the Field of Instructional Technology

Credits: 3

This course details faculty expectations and students' responsibilities in instructional technology graduate degree programs. It builds a knowledge base about program milestones, library research, APA writing guidelines, academic journals, and professional opportunities. ePortfolios are introduced and initiated to assess student progress over time.

Prerequisite: graduate standing in Instructional Technology.

ITEC5010 - Instructional Technology

Credits: 3

An introductory survey course in instructional technology. Covers psychological principles in communication theory, message design and instructional theory with emphasis on the application of technology toward achieving communications objectives. Includes hands-on experience with current presentation tools and techniques for a variety of instructional deliveries.

Dual Listed ITEC 4010.

Prerequisite: junior standing.

ITEC5020 - Technology and Distance Education

Credits: 3

A survey of the uses of telecommunication systems and other technologies in distance education. Covers instructional strategies, management concerns, and special issues associated with distance learning programs.

Prerequisite: graduate standing and consent of instructor.

ITEC5160 - Introduction to Instructional Design

Credits: 3

An introduction to theory and practice of instructional design. Intensive study of the instructional design process and application of the process to solve an instructional problem.

Prerequisite: graduate standing.

ITEC5350 - Multimedia Development

Credits: 3

An introduction to techniques, software, and applications used in the design, manipulation, and development of multimedia artifacts for instructional purposes. This course includes accelerated, hands-on activities to practice and apply message design principles in multimedia settings.

Prerequisite: graduate standing.

ITEC5320 - Message Design

Credits: 3

Introduces theoretical framework and skills necessary to evaluate and create visual representations of information. Topics of application include visual literacy, learning theories, instructional design, instructional technology, and information presentation.

Prerequisite: graduate standing.

ITEC5510 - Communication in Distance Education

Credits: 3

An introduction to the theory and practice of using communication tools for distance education purposes. Instructional issues related to the design, development, use, and evaluation of communication tools in public school, business, and other distance delivery settings are emphasized.

Prerequisite: graduate standing.

ITEC5550 - Theory of Change

Credits: 3

Explores the literature and research base within the theories, models, and processes of change, the diffusion of innovations, and the human side of educational reform. Learners explore practical applications of theoretical and research findings to behavioral change, diffusion of innovations, and principles and practices of planned change.

Prerequisite: graduate standing.

ITEC5560 - Design and Development of Instructional Systems

Credits: 3

Advanced study in instructional systems theory and design. Study and application of instructional design models used in education and training.

Prerequisite: ITEC 5160, graduate standing, and consent of instructor. Previous course work in educational psychology/learning theory is desirable.

ITEC5090 - Masters Capstone

Credits: 3

Provides exposure to situations students will likely encounter professionally. It establishes a forum where students apply and refine theories, principles, and skills learned during their programs. Students examine and critique current scholarship and document general degree specific competencies.

Cross Listed ADED 5090.

Prerequisite: Check with advisor and complete required sequence of courses for Educational Administration (Adult and Postsecondary Education) or Instructional Technology masters degree programs prior to enrollment.

Additional Information:

As a discipline, learning, design and technology translates teaching and learning theories into effective instruction across all ages and settings.

Offered entirely online, the UW master's degree program in learning, design and technology stresses rural access, distance delivery and diverse learning environments, making it possible for you to conveniently acquire the background and technology skills to become an instructional designer/technologist. Through hands-on learning and field work, you will not only develop instructional design proficiency, you will also create materials that demonstrate your abilities to produce dynamic, effective educational products.

Education, Ph.D., Concentration Learning, Design, and Technology

The PhD program in Learning, Design and Technology will prepare you to develop and analyze learning experiences across a variety of platforms and equip you with college-level teaching skills to inspire coming generations of instructional designers.

Required Courses

PROGRAM OF STUDY (REQUIRED 81 CREDITS)

Foundational Knowledge Base (30 credit hours) Students may transfer up to 30 credit hours toward the total program from a related master's degree. Transfer credits need to be accepted by the program faculty. If a student lacks credits in this area, they may take courses available through the Learning, Design, and Technology MS program.

LDT Doctoral Core (12 credit hours) Students must successfully compete 4 courses in Learning, Design, and Technology.

- ITEC 5870 (LDTE 5700): Issues, Practice, and Research in LDT
- ITEC 5870 (LDTE 5710): Transformational Learning
- ITEC 5870 (LDTE 5730): Game Design and Development, or LDTE 5720: Critical Perspectives and Applications of Technology Integration
- ITEC 5760 (LDTE 5760): Instructional Design Applications
- **new LDTE prefix is in the process of phasing into the program beginning Fall 22; ITEC is still active and counts in the program of study until transition is complete.*

LDT Electives (9 credits) Students select 9 credits of related course work in collaboration with their advisor. Elective courses should support the student's area of interest and can be from programs outside Learning, Design, and Technology.

- Examples of Electives:
 - ITEC 5070 (LDTE 5070): Trends _____ (3 credit hours)
 - LDTE 5750: Technology Innovations: Past, Present, and Future (3 credit hours)
 - ITEC 5870 (LDTE 5870):Seminar (1 to 3 credit hours)
 - ITEC 5880 (LDTE 5880): Special Problems (1 to 3 credit hours)
 - ITEC 5890 (LDTE 5890): Directed Professional Study (1 to 3 credit hours)
 - EDCI 5790: Learning Theories and Instructional Principles (3 credit hours)
 - EDAD 5750: Educational Leader for the Board and Community (3 credit hours)
 - HIED 5240: Teaching Adults (3 credit hours)
 - HIED 5260: Educational Issues Race, Class, and Gender (3 credit hours)
- **new LDTE prefix is in the process of phasing into the program beginning Fall 22; ITEC is still active and counts in the program of study until transition is complete.*

Research Methods (15 credit hours)

Students successfully complete 15 or more credit hours in Educational Research

Required Research Core:

- EDRE 5600 Ed Research 1: Descriptive Research (3 credit hours)
- EDRE 5640 Intro to Qualitative Research (3 credit hours)

Additional Research Courses: Select at least three additional research courses

Quantitative

- EDRE 5610 Ed Research: Group Comparison (3 credit hours)
- EDRE 5620 Ed Research: Correlation (3 credit hours)
- EDRE 5630 Ed Research: Multivariate (3 credit hours)

Qualitative

- EDRE 5645 Phenomenology, Case Study, and Grounded Theory in Qualitative Research (3 credit hours)
- EDRE 5655 Ethnography and Narrative Inquiry in Qualitative Research (3 credit hours)

Mixed Methods

- EDRE 5670 Mixed Methods Research (3 credit hours)

Writing Core (15 credit hours) students must successfully complete 15 or more credit hours in Educational research

- EDCI 5810 Writing for Publication (3 credit hours)
- EDRE 5660 Proposal Writing (3 credit hours)
- PRST 5980 Dissertation Research (variable, 9 credits total)

Additional Information:

In order to be considered for admission, applicants must meet the following minimum requirements:

- Hold a Master's degree from an accredited institute of higher education.
- Score of "Proficient" or higher on a letter of intent describing academic goals, teaching experiences, and reasons for pursuing a doctoral degree at the University of Wyoming. This letter serves as a writing sample.
- Three (3) years of P-12 teaching experience or its equivalent.

- Minimum 3.000 GPA on a 4.000 scale on the applicant's most recent degree from an accredited institution, plus transcripts from all other schools attended.
- GRE minimum score of Verbal:153, Quantitative:144.
- TOEFL score of 540 (paperbased), 76 (internet exam) or IELTS score of 6.5 or above are required for international, non-native English speaking applicants. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency.

Residency requirement: Four consecutive full-time semesters on campus

The Ph.D. program prepares students for careers in academia. The program consists of: (1) systematic inquiry and research; (2) focused courses and professional experiences in education and related fields; and (3) teaching and other related activities tailored to individual career goals. Students work closely with an advisor and faculty committee to select courses, conduct research, and develop professional experiences.

Effective preparation for the Ph.D. stems from collaborative research and inquiry into topics of mutual interest by students and faculty. The program is structured around a cognitive apprenticeship model. Students spend a major portion of their program working with faculty members on shared research and scholarship.

The Ph.D. program requires a minimum of 81 credit hours beyond the bachelor's degree and includes the following requirements:

- Professional courses: 15 credits
- Program knowledge base: 30 credits
- Research: 15 credits
- Electives: 9 credits
- Dissertation: 12 credits

Candidates may, with the approval of the committee, transfer up to 30 credit hours from previous graduate-level coursework in a closely related field.

Education, Play Therapy Certificate

The University of Wyoming Play Therapy certificate program will ensure you will have the skills required to decode that language and help the youngest and most vulnerable regain their voice.

Required Courses

Play Therapy Graduate Certificate Program Curriculum

This 7-hour graduate level certificate program requires three courses and is designed to be completed in one year.

- * CNSL 5341 Play Therapy and Expressive Arts (3 credit hours) Offered Fall Term
- * CNSL 5342 Theoretical Models of Play Therapy (1 credit hours) Offered J-Term (Winter Break)
- * CNSL 5343 Filial and Family Play Therapy (3 credit hours) Offered Spring Term

Additional Information:

The University of Wyoming Play Therapy certificate program is designed to meet the 150 clock training hours required by the Association for Play Therapy (APT) to become a Registered Play Therapist or a School-Based Registered Play Therapist. Play therapy includes a variety of treatment methods that apply the therapeutic benefits to help children learn to communicate with others, better express feelings, modify behavior, develop problem-solving skills, and learn a variety of ways of relating to others. It can be a powerful tool to help children and families reconnect and heal after a

traumatic experience. The program is designed for completion in one academic year with cohort groups beginning annually in the fall semester.

**APT awards the certification and students must be responsible for meeting their additional requirements in order to gain the credential.*

Education, School Principal Certificate

UW's 24-credit hour online school principal certificate program is designed for licensed teachers who hold a master's degree in education or related area from an accredited college or university.

Additional Information:

If you are ready for school building leadership and passionate about fostering a healthy school environment, you can prepare to become that kind of principal through UW's experiential school principal certificate program while maintaining your current teaching position. Offered online and emphasizing the study of educational leadership with an in-depth principal internship UW's school principal graduate certificate program allows you to acquire the knowledge and experience necessary to earn a Wyoming's Professional Teaching Standards Board endorsement as a K-12 principal.

Application Deadlines:

February 1 - If applying for following fall or spring semester

September 1 - If applying for following spring or fall semester

Apply to: https://universityofwyoming.force.com/ERx_Forms__Portal_Register

Required Documents

Please include ALL documents listed below in order for your application to be considered.

- A letter of intent describing why you want to be an educational leader
- A current resume
- Copy of current teaching certificate
- Unofficial copies of transcripts (official copies should be sent to UW Admissions)
- A completed principal program application
- A superintendent approval form signed by the superintendent of the district where you plan to perform your internship (scan and upload)
- Current recommendation letters addressing leadership skills from three different referees (the portal will send a request to each of them after you enter their email addresses):
 - two from referees who are familiar with your leadership skills
 - current principal

Required Courses (24 credit hours)

- EDAD 5010 Leadership for Curriculum Development (3 credit hours)
- EDAD 5020 Leadership for School Organization (3 credit hours)
- EDAD 5030 Leadership for School and Community Relations (3 credit hours)
- EDAD 5040 Leadership for Instruction (3 credit hours)
- EDAD 5580 Supervised Internship(6 credit hours)
- EDRE 5530 Introduction to Research (3 credit hours)
- EDAD 5080 Introduction to School Law (3 credit hours) Please note: this course is NOT required for students who

were admitted spring 2016 or earlier.

Higher Education

The Higher Education Administration program serves the formal academic leadership development needs of persons aspiring to become managers and leaders in higher education institutions.

Options

- Education, M.A., Concentration in Higher Education Administration
- Education, Ed.D., Concentration in Higher Education Administration
- Education, Higher Education Administration Option, Ph.D.

Additional Information:

This concentration offers the following graduate degrees in education: community college leadership certificate, master of arts (M.A.), doctor of education (Ed.D.), and Philosophy of Education (Ph.D.). The certificate program requires 15 credits beyond a master's degree. The master's program requires 33 credit hours beyond the bachelor's degree and is available online. The Ed.D. is the terminal professional degree in education designed for students who desire to improve their professional practice as educators. The Ed.D. requires a minimum of 75 semester hours beyond the bachelor's degree. A bachelor's and master's degree is required of all students to be admitted to an Ed.D. program. Candidates may, with the approval of the faculty, transfer up to 30 semester hours from previous course work.

Graduate study addresses the challenges faced by institutions and agencies in the design and delivery of post secondary education and the preparation of educators to meet these challenges.

Career Options

Graduates are employed specifically as faculty and administrators in community colleges and universities, adult learning consultants, and continuing professional educators.

Qualitative Research Methods Minor

The Qualitative Research Methods minor will provide graduate students access to a sequence of qualitative methods courses to enhance their understanding of research methods.

Required Courses

EDRE5640 - Introduction to Qualitative Research

Credits: 3

This course introduces qualitative research. Students will explore the foundations, social science theories, methods, and processes of qualitative research and will learn to critically evaluate published research. Emphases will include basic design principles, trustworthiness, and analysis. Students will engage in original data collection and will produce a mini report.

Prerequisite: EDRE 5530.

EDRE5645 - Phenomenology, Case Study, and Grounded Theory in Qualitative Research

Credits: 3

In-depth examination of phenomenology (with great emphases on its philosophical roots), qualitative case study, and grounded theory. Characteristics of each qualitative tradition will be explored by way of critiquing published peer reviewed journal articles. Students will conduct and report on a mini study.

Prerequisite: EDRE 5640

EDRE5655 - Ethnography and Narrative Inquiry in Qualitative Research

Credits: 3

In-depth exploration of narrative inquiry (including autoethnography) and educational ethnography. Issues of ethics, politics, diversity, and the researcher's role will be integral to the course. Students will conduct and report on a mini study.

Prerequisite: EDRE 5630

EDRE5670 - Mixed Methods Research

Credits: 3

Provide an overview of mixed methods research to graduate students who are already familiar with quantitative and qualitative research. Specifically, they will learn the definition, history and foundations, and specific types of mixed methods designs. Also plan a mixed methods research study.

Prerequisite: EDRE 5600 and EDRE 5640.

EDRE5580 - Supervised Internship

Credits: 1-8

Max Credit (Max. 12)

- Three additional credit hours, which may include special topics qualitative methods seminars in or outside of education (i.e., Field Methods in Anthropology - ANTH 5390; Ethics in Research and Practice - FCSC 5121; Feminist Research Methods - WMST 5210); submit courses for approval to the coordinator of the Educational Research program.

Quantitative Research Methods Minor

The Quantitative Research Methods minor will provide graduate students an opportunity to demonstrate a comprehensive expertise in quantitative research methods with knowledge to teach research methods at the university level.

Required Courses

EDRE5600 - Introduction to Quantitative Research

Credits: 3

Basic concepts of educational survey research design, statistics, and measurement. The focus is on descriptive statistics (measures of central tendency, variability, percent and frequency distribution, bivariate correlation, graphical displays, testing hypotheses about proportions). Students develop questionnaires and plan, conduct, and report on a survey study.

EDRE5610 - Educational Research: Group Comparison Research

Credits: 3

Concepts of experimental and ex post facto research designs, statistics, and measurement. The focus is on inferential statistics. Students construct attitude scales and other instruments used in research and they plan, conduct, and report on a group comparison study.

Prerequisite: EDRE 5600.

EDRE5620 - Correlational Research

Credits: 3

Max Credit 3

Concepts of correlational research, statistics, and measurement. Focus is on the design and analysis of results from correlational studies. Statistical topics include MANOVA, multiple regression, factor analysis, and discriminant analysis. Includes measurement topics in classical measurement theory and additional topics in validity and reliability. Plan, conduct, and report on a correlational study.

Prerequisite: EDRE 5600

EDRE5630 - Educational Research IV: Multivariate Research

Credits: 3

An advanced educational research, statistics, and measurement course. Design and analysis of results from studies with several dependent and independent variables. Includes multivariate statistics such as MANOVA, discriminant analysis, canonical correlation, multidimensional scaling, structural equation modeling, logit regression. Measurement topics include generalizability theory, item response theory, equating, and standard setting.

Prerequisite: At least one of the following: EDRE 5610 or EDRE 5620

EDRE5670 - Mixed Methods Research

Credits: 3

Provide an overview of mixed methods research to graduate students who are already familiar with quantitative and qualitative research. Specifically, they will learn the definition, history and foundations, and specific types of mixed methods designs. Also plan a mixed methods research study.

Prerequisite: EDRE 5600 and EDRE 5640.

EDRE5580 - Supervised Internship

Credits: 1-8
Max Credit (Max. 12)

Certificate

Community College Leadership Certificate

Whether you are already employed or seeking a community college-related career, UW's online community college leadership program offers a background in leadership studies along with courses that address issues in modern community colleges.

Requirements

The Community College Leadership Certificate Program requires 15 credit hours to include the following three required courses:

HIED5660 - Community College

Credits: 3
Concerns the philosophy, organization, program, and administration of the community college.

Prerequisite: graduate standing and consent of instructor.

HIED5600 - Higher Education Finance

Credits: 3
Provides an overview of the economics and finance of higher education in the United States with an emphasis on the analysis of financial policies and current issues at the institutional, state, and national levels.

Prerequisite: Admission to the program.

HIED5650 - Law of Higher Education

Credits: 3
Examine specific legal issues encountered by instructional leaders in higher education settings. Critically examines the basic rights and duties of institutional employees and students. It also explains when and how instructional leaders should refer matters to legal counsel.

Prerequisite: Admission to the program.

Two Elective Courses Are Chosen From the Following:

HIED5260 - Educational Issues Race, Class, and Gender

Credits: 3

Designed to help participants examine the current issues and debates in the literature of race, class, and gender from theoretical and practical perspectives. Related areas of ethnicity, national origin, sexual orientation, language, physical appearance, body size, and other constructs of difference will also be addressed.

Prerequisite: graduate standing.

HIED5630 - Advanced Organizational Leadership

Credits: 3

Examines central issues in advanced organizational leadership to prepare practitioners for leadership roles in educational settings. Working individually and as a member of a group, students will conduct conceptual analyses and complete a literature review paper and an organizational case study.

Prerequisite: Admission to the program.

HIED5640 - Leadership Development

Credits: 3

Examines central issues in the internal dimension of leadership to prepare leaders in postsecondary educational settings. Working individually and as a member of a group, students will conduct conceptual analyses and complete a literature review paper and a biographical case study of a postsecondary educational leader.

Prerequisite: Admission to the program.

HIED5670 - Community College Issues and Leadership

Credits: 3

Examine, analyze, the primary responsibility of instructional leaders at the community college, management of the curriculum. In particular, focus on the remedial/ developmental education programs, general education, the liberal arts transfer curriculum, technical education, and noncredit and contract training programs.

Prerequisite: Admission to the program.

HIED5680 - Issues in Higher Education

Credits: 3

Through examination of historical foundations and current trends, ADED 5680 delves into pressing issues in the academy, including but not limited to topics of tenure, governance, professional colleges, access and equity, curriculum and international needs.

Prerequisite: graduate standing.

Education, Teaching Elementary School (TES)/Teaching Secondary Content (TSC) Graduate Certificates

The College of Education provides two options for individuals with previously earned bachelor's degree to earn a teaching certification: Certificate for Teaching Elementary School (TES) and Certificate for Teaching Secondary Content (TSC).

Standard Course Sequence

Starting June, 2021 the standard sequence is a three-semester long slate of required classes, beginning in the summer, and continuing through the subsequent fall and spring semesters.

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

Summer Courses (BOTH TES & TSC)

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDST4000 - Foundations of Education for a Diverse Society

Credits: 3

Designed to acquaint students with philosophical, social, and political influences of North American education; to develop an understanding of the qualities of critical thinking for reflective teaching; to raise awareness of contemporary critical issues in education; to develop an understanding of individual differences, diversity, and multiculturalism. Practicum included.

Prerequisite: earned bachelor's degree from an accredited institution, a cumulative UW institutional GPA of 2.750 or better and EDST 2450.

EDCI5550 - The Art and Science of Teaching

Credits: 3

Students will engage in a variety of experiences related to teacher decision making. Students research a variety of curriculum and instruction topics to discern the range of theories and associated models and develop personal theories and methods they plan to employ in their classrooms.

Prerequisite: successful completion of EDST 4000 and earned Bachelor's degree from an accredited institution.

Practicum

EDCI5551 - Practicum Graduate Certificate

Credits: 1

This 1 credit hour course provides practicum experiences for students enrolled in EDCI 5550.

Prerequisite: Successful completion of, or concurrent enrollment in, EDCI 5550 and earned Bachelor's degree from an accredited institution.

- o The practicum can be taken in the summer in conjunction with EDCI 5550, or in the fall as a stand-alone class.
- o The 30 practicum hours can be met any time between January and December of the calendar year in which the students applies for and is admitted to the graduate certificate program.
- o Students may use up to 24 hours in a classroom substitute teaching (3 full days).
- o Students must spend a minimum of 6 hours of observing a professional teacher in a classroom of the appropriate subject or grade for the student's program (e.g., a student in the English Education program would need to observe a secondary English classroom and teacher for a minimum of 6 hours).
- o Students must complete the practicum hours before the end of the methods classes, and prior to residency. Student teaching residency will not count for the practicum.
- o Students will document the time, and submit proof of practicum hours to the EDCI 5551 faculty when they register for the class.

Fall Courses-ELEMENTARY (TES) (18 Credit Hours)

EDEL4109 - Elementary Humanities Education

Credits: 5

Content and pedagogy to develop the reflective practitioner of teaching humanities in the elementary school. The following themes are addressed: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

Former Course Number [EDUC 4109]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EDST 2550; concurrent enrollment in EDEL 4309 and EDEL 4409.

EDEL4309 - Elementary Literacy Education

Credits: 2-5

Max Credit (Max. 6)

Encompasses content and pedagogy to develop the reflective practitioner for teaching literacy in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC

Former Course Number [EDUC 4309]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; Grade C or better in EDST 3100, successful completion of specific content courses required in major; grade C or better in EDST 2550. Concurrent enrollment in EDEL 4109 and EDEL 4409.

This is taken in conjunction with EDEL 4309; the prefix is changed to meet graduate requirements.

EDEL4409 - Elementary Math/ Science Education

Credits: 5

Max Credit (Max. 6)

Includes content and pedagogy in teaching math/science in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC

Former Course Number [EDUC 4409]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EST 2550; concurrent enrollment in EDEL 4109 and EDEL 4309.

EDCI5250 - Advanced Topics in Pedagogy

Credits: 3

A graduate level seminar to be taken concurrently with undergraduate methods courses in specific content areas (EDSE 425X-4260, EDEL 4309).

Restricted EDCI 5250 is restricted to students pursuing teacher certification leading to a Master of Arts in Curriculum and Instruction.

Prerequisite: Successful completion of EDCI 5550, EDCI 5870, Seminar in Assessment, earned Bachelor's degree from an accredited institution.

EDST3550 - Educational Assessment

Credits: 2

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding

the assessment of students with special needs. Addresses the basic ideas of classroom test design.

Prerequisite: Prerequisites: Grade of C or better in a Q course, and EDST 2480, 2.75 Cumulative UW Institutional GPA.

EDCI5560 - Seminar in Assessment

Credits: 1

One credit hour course is designed for students in the (post baccalaureate) teaching credential program with master's option. Covers important concepts of assessment such as teachers as graders, self-and peer-assessment techniques, standardized assessment instruments, challenges facing new teachers, using assessment for planning/modifying instruction to improve learning experiences, and differentiated assessment in diverse classrooms.

Prerequisite: successful completion of (grade C or higher) or concurrent registration in EDST 2550 or EDST 3500.

Fall Courses - SECONDARY (TSC) (10 Credits)

- ITEC Module
- EDSE 4000 Level Course 4 Credits
- EDCI 5250 Advanced Topics in Pedagogy Credits: 3
- EDST 3550 Educational Assessment Credits: 2
- EDCI 5560 Seminar in Assessment Credits: 1

Spring Courses - ELEMENTARY (TES) (15 Credits)

These are all for Student Teaching.

EDEL4500 - Residency in Teaching

Credits: 1-16

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDSE 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses.

EDCI5580 - Internship1

Credits: 8

Max Credit (Max 12)

An internship experience may be required as part of the planned program in curriculum and instruction. A maximum of eight hours may be counted in meeting the minimum requirements of a graduate degree, but additional credit may be taken beyond this limit for the recording of appropriate supervised experience.

Prerequisite: 15 hours of education, consent of department head, and graduate standing.

Spring Courses SECONDARY (TSC) (15 Credit Hours)

These are all for Student Teaching.

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

- EDCI 5580 Internship1 Credits: 4 required

Additional Information:

The College of Education provides two options for individuals with previously earned bachelor's degree to earn a teaching certification: Certificate for Teaching Elementary School (TES) and Certificate for Teaching Secondary Content (TSC). The TES Option prepares individuals to qualify for a Wyoming teaching certificate in grades K-6. The TSC Option prepares individuals to qualify for a Wyoming teaching certificate in the middle and high school grades (6-12). Twelve hours of graduate-level coursework in either option can be applied to a subsequent UW master's degree in Curriculum and Instruction.

Overall Course Offerings: It is noted that the graduate certificate program can be a distance program; however, that does not preclude synchronous meetings or some scheduled on-campus intensive weekends (e.g., attending two Saturdays in the fall as part of the methods classes). Courses are not guaranteed to be asynchronous, meaning that students may have to sign in to Zoom at specific times to attend.

Online Instruction Certificate

The UW Online Instruction Certificate is a 4-class online program that will ground you in the theory and best practices of online education while giving you experiences solving problems and designing educational solutions using current technologies.

Requirements

The Online Instruction Certificate Program is a post-baccalaureate, credit bearing program that helps learners from all fields acquire necessary knowledge and skills to effectively develop and teach online courses in K-12, higher education, and business and industry settings. Courses familiarize learners with distance education and design theory to develop online materials that facilitate student access, engagement, communication, and information exchange. Emphasis is placed on tool use and the application of skills towards instructional development and implementation. Students who have been formally admitted to the Master of Science in Education with an emphasis in Instructional Technology may use certification courses to fulfill graduate degree requirements.

Coursework Credits: 12 Hours

The certificate program consists of 12 hours of coursework in four online courses:

ITEC5020 - Technology and Distance Education

Credits: 3

A survey of the uses of telecommunication systems and other technologies in distance education. Covers instructional strategies, management concerns, and special issues associated with distance learning programs.

Prerequisite: graduate standing and consent of instructor.

ITEC5030 - Introduction to Online Teaching

Credits: 3

Includes basic theory, techniques, strategies of teaching and managing the online environment. Covers foundations and domains of online teaching. Emphasizes online learning issues, topics, and practices. Builds a knowledge base in topics such as the selection and integration of distance learning technologies in teaching and providing learner support.

Dual Listed ITEC 4030.

Prerequisite: senior standing or 12 hours of education.

ITEC5160 - Introduction to Instructional Design

Credits: 3

An introduction to theory and practice of instructional design. Intensive study of the instructional design process and application of the process to solve an instructional problem.

Prerequisite: graduate standing.

ITEC5510 - Communication in Distance Education

Credits: 3

An introduction to the theory and practice of using communication tools for distance education purposes. Instructional issues related to the design, development, use, and evaluation of communication tools in public school, business, and other distance delivery settings are emphasized.

Prerequisite: graduate standing.

Principal Certificate

Offered online, UW's school principal graduate certificate program provides the knowledge and experience towards earning a Wyoming's Prof. Teaching Standards Board endorsement as a K-12 principal while maintaining your current teaching position.

Requirements

The endorsement/certificate is 24 credits which includes the four core classes, 3 credits each:

EDAD5010 - Leadership for Curriculum Development

Credits: 3

Focuses on leadership skills that support curriculum and curriculum development in student learning and achievement. Key topics include: K-12 curriculum alignment; incorporating standards and community values; curriculum development, implementation, and evaluation; equity and access for diverse learning needs; and effective communication about curriculum.

Prerequisite: Admission to program or consent of instructor.

EDAD5020 - Leadership for School Organization

Credits: 3

Focuses on organizational leadership. Topics include: history of organizational leadership, leadership styles, change process, strategic planning, federal, state, and local governance as well as politics, power and policy, and school operations, to include budget, facilities, scheduling, recruitment, selection and induction.

Prerequisite: Admission to program or consent of instructor.

EDAD5030 - Leadership for School and Community Relations

Credits: 3

Focuses on the leadership role of the principal in building relations with students, staff, family, and community. Topics include school culture and climate, community and family involvement, public relations and communications, student discipline, and crisis management.

Prerequisite: admission to program or consent of instructor.

EDAD5040 - Leadership for Instruction

Credits: 3

Focuses on the principal as instructional leader. Topics include: developing a school vision of learning; employing effective instructional strategies, supervision and evaluation of teacher performance; integration of supervision, evaluation, and student achievement with professional development and professional learning communities, and instructional trends and issues within diverse learning communities.

Prerequisite: Admission to program or consent of instructor.

EDAD5580 - Supervised Internship in Educational Administration

Credits: 1-8

Max Credit (Max. 12)

Expand student knowledge by providing an intensive clinical experience in educational administration along with other activities that involve practical experiences with peers and with practising K-12 administrators.

Prerequisite: Admission into the UW Educational Leadership Principal Certificate, Master's or EdD Doctoral program.

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

EDAD5080 - Introduction to School Law

Credits: 3

This course provides legal foundations of U. S. public schools and examines general principles of statutory and case law and applies judicial decisions to educational environments. Additionally, the course focuses on legal responsibilities, constraints, and opportunities for school leaders.

Prerequisite: admission into UW Educational Administration, K-12.

Additional Information:

UW's 24-credit hour, online school principal certificate program is designed for licensed teachers who hold a master's degree in education or related area from an accredited college or university. Utilize your coursework towards further degrees in educational leadership.

School District Superintendent

To help equip you for the diverse responsibilities superintendents face, the UW School District Superintendent Certificate program combines a robust curriculum of educational leadership courses with an internship in two districts, so you acquire the executive background and operational skills you'll need to serve in rural or urban school districts.

Required Courses

REQUIRED COURSES (26 CREDIT HOURS)

Students must complete 26 credit hours of the courses listed below. Students who have at least two years prior experience as a superintendent are not required to take EDAD 5580 Internship.

- EDAD 5850 Direction Setter (3 credit hours)
- EDAD 5720 Change Agent (3 credit hours)
- EDAD 5800 Resource Manager (3 credit hours)
- EDAD 5750 Board & Community (3 credit hours)
- EDAD 5650 Communication (3 credit hours)
- EDAD 5700 Instruction (3 credit hours)
- EDAD 5600 Manager and Developer of Human Resources (3 credit hours)
- EDAD 5815 Advanced School Law (3 credit hours)
- EDAD 5580 Internship (2 credit hours)

Additional Information:

As a school district's chief executive officer, you will serve a wide variety of roles from representing your district in public to working with district principals and the school board to foster student success.

To help equip you for the diverse responsibilities superintendents face, the UW School District Superintendent Certificate program combines a robust curriculum of educational leadership courses with an internship in two districts, so you acquire the executive background and operational skills you'll need to serve in rural or urban school districts.

The program also meets the requirements of the Wyoming Professional Teaching Standards Board for the district superintendent endorsement as well as the superintendency standards of the national Educational Leadership Constituents Council.

The Early Childhood Special Education Program (Birth to Five) Leading to Wyoming Certification

Post-baccalaureate students who have earned a BA/BS in Elementary Education, Family and Consumer Sciences/Child Development Option, or a related field in early childhood development are eligible for this program. This is a pre-k program and does not prepare candidates to work in kindergarten or primary grade classrooms.

For more information, visit the web page (www.uwyo.edu/ste/early-childhood-education/early-childhood-special-education.html)

Required Courses:

EDEC5220 - Children with Disabilities

Credits: 3

Purpose is to introduce students to the effects of a disability on the development of the young child. Recent research in the area of early childhood special education will be examined. Educational implications will be emphasized.

Prerequisite: Bachelor's degree in education.

EDEC5230 - Curriculum and Materials for Young Children with Disabilities

Credits: 3

Involves the study and development of curriculum strategies appropriate for the child with disabilities from birth through age five.

Prerequisite: graduate standing.

EDEC5240 - Evaluation of Young Children with Disabilities

Credits: 3

Prepares students to select, administer, and interpret evaluation tools appropriate for planning with young children with disability.

Prerequisite: graduate standing.

EDEX5720 - Special Education Law

Credits: 3

Provides prospective special education teachers and support personnel with overview of important case and statutory law in special education.

Prerequisite: Admission to program or consent of instructor.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

EDEC4350 - Health Management Issues in Early Education

Credits: 3

Provides the student the opportunity to examine the implications of a child's health status on his/her personal, educational, social and cognitive development. Provides personnel working closely with the young child with disabilities and his/her family an understanding of the issues related to health concerns and a framework for intervention planning. Special emphasis is placed on concerns specific to the child in a day care, preschool or other school setting.

Prerequisite: junior standing and consent of the instructor.

EDEC4320 - Oral and Written Language Acquisition

Credits: 3

Introduces the student to the nature of language development as it pertains to oral and written communication in education. Recent research in the areas of oral and written language acquisition is compared and contrasted. Implications for facilitating the development of all language modes in educational settings is emphasized.

Former Course Number [EDCI 4320]

Prerequisite: EDST 3480 or equivalent, junior standing and declared Elementary Education or Family and Consumer Sciences major.

EDEC5580 - Internship in Early Childhood/Early Childhood Special Education

Credits: 1

Max Credit (Max. 6)

The internship experience allows the early childhood/early childhood special education program candidate to demonstrate the knowledge and skill gained from coursework offered throughout the EC/ESCE programs. Candidates enroll in the internship after completion of all required courses in the programs.

Dual Listed EDEC 4580.

Prerequisite: permission of the instructor is required.

EDEC 5580 will be taken twice for this program.

1. EDEC 5580 (2 credit) Internship in Early Childhood Special Education Birth-3
2. EDEC 5580 (2 credits) Internship in Early Childhood Special Education 3-5

Endorsement

Early Childhood Endorsement

The College of Education provides 3 early childhood endorsement opportunities to UW students

Additional Information:

There are three early childhood endorsement programs available for students:

- * The B-8 endorsement program for elementary education majors
- * The B-5 endorsement program for Family and Consumer Sciences/Child Development option majors (or majors in other fields related to early childhood);
- * The Early Childhood Special Education Program (Birth to Five) Leading to Wyoming Certification for postbaccalaureate students with a degree in education or a field related to early childhood.

In addition, undergraduate elementary education majors may work toward the early childhood education endorsement as part of their elective requirements. Specific advising in each of the early childhood program options support students in their program development.

Secondary Biology Endorsement

Along with another science certification (such as Earth Science), earn a Biology teaching endorsement.

Requirements: 27 Hours (Minimum)

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Choose One of the Following:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

- Other BOT/ ZOO at the 3000/4000 level Credits: 3-4

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Choose One of the Following:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

- BOT/LIFE/MOLB/MICR/SOIL/ZOO at the 3000/4000 level Credits: 3-4

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.

Secondary Chemistry Endorsement

Along with another science certification (such as Earth Science), earn a Chemistry teaching endorsement.

Requirements: 27 Hours (Minimum)

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

Choose One of the Following:

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

GEOL4777 - Geochemistry of Natural Waters

Credits: 3

Studies physical chemistry applied to natural waters, and chemistry of rock weathering, sources and controls on major, minor and trace elements, plus problems related to introduced pollutants.

Cross Listed GEOL 5777.

Prerequisite: CHEM 1030 OR consent of instructor.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

- SOIL Upper Division Elective Credits: 3-4

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

OR

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

OR

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.

Secondary Computer Science Endorsement

The College of Education offers courses that lead to an endorsement (grades 6-12) from the Wyoming Professional Teaching Standards Board in computer science. Students can also receive a minor in computer science; see information in the College of Engineering and Applied Science section of this catalog for more information about the computer science minor.

The endorsement consists of 15 Credits (novice/intermediate) or 16 (intermediate/advanced) with an option to take all 20 hours for a computer science minor. It is recommended that students interested in obtaining the computer science minor apply to the program by their freshman year or the beginning of the sophomore year. Students are encouraged to examine course prerequisites.

Required Courses:

(15 Credits for novice/intermediate track)

OR

(16 Credits for intermediate/advanced track)

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on

algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

EDSE4280 - Subject Matter Specific Methods: Computer Science

Credits: 2

Introduction of content and pedagogy in Computer Science Education. Includes pedagogy, pedagogical content knowledge, and contact curriculums for teaching computer science at secondary school levels. A variety of instructional procedures will be employed including group work, modeling, lab work, micro-teaching, and lecture/demonstration.

Prerequisite: COSC 3100 or concurrent enrollment and COSC 3020.

Secondary Earth Science Endorsement

Along with another science certification (such as Biology), earn an Earth Science teaching endorsement.

Requirements Credits: 27 Hours (Minimum)

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal

specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

Choose One of the Following:

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

BOT4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed ATSC/ESS 4001/GEOL 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying

concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.

(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.

(4 credits required)

Secondary Physics Endorsement

Along with another science certification (such as Chemistry), earn a Physics teaching endorsement.

Requirements: 27 Hours (Minimum)

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.
(3 credits required)

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.
(4 credits required)

Special Education Director Endorsement

Students who successfully complete a Wyoming Principal's Certificate in Education Leadership and a Master's Degree or endorsement in Education (Special Education) can apply for endorsement as a Director of Special Education through Wyoming Professional Teaching Standards Board. The program is restricted to Wyoming students or students who have a contractual agreement with the University of Wyoming.

Students expecting to obtain this endorsement must complete both the Special Education Master's courses and also the Educational Leadership Certification courses.

Program Details for Director Endorsement

The endorsement program requirements are available by completing both the Special Education Master's program and the Educational Leadership Principal Certificate program. The program is offered through the UW Outreach School using distance education technology such as video conferencing, online, intensive weekends, or combinations of delivery methods. Upon completion of this program students are eligible to apply to the Wyoming Professional Teaching Standards Board for endorsement as a Director of Special Education.

Endorsement/Certificate

English as a Second Language Certificate leading to a Wyoming English as a Second Language Endorsement

The online graduate English as a Second Language certificate is a 15-credit program for preservice or in-service teachers and other fields where ESL skills might prove useful such as speech pathology.

Required Courses:

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations; (d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

EDCI4350 - Introduction to Second Language Acquisition

Credits: 3

Addresses theoretical and conceptual foundations of working with second language learners. Focus is on the classroom applications of this theoretical base to interactions with English language learners, curriculum, instruction, assessment and evaluation, classroom organization, and school-community relations. Native American language revitalization issues are featured.

Dual Listed EDCI 5350.

OR

EDCI5350 - Introduction to Second Language Acquisition

Credits: 3

Addresses theoretical and conceptual foundations of working with second language learners. Classroom applications of this theoretical base to interactions with English language learners, curriculum, instruction, assessment and evaluation, classroom organization, and school-community relations. Native American language revitalization issues are featured.

Dual Listed EDCI 4350.

Prerequisite: graduate standing.

EDCI5430 - Theory and Methods of ESL I

Credits: 3

Provides an overview of theoretical and practical considerations in the teaching of English as a second/foreign language; acquaints students with different approaches, methods and procedures in TESL/TEFL; examines issues in the profession; requires a teaching/tutoring component.

Prerequisite: EDCI 5350.

EDCI5440 - Theory and Methods of ESL II

Credits: 3

Continues the theoretical and practical considerations in the teaching of ESL. Emphasis on Specifically Designed Academic Instruction in English (SDAIE) and literacy development for intermediate and advanced English language learners. Application of different approaches, methods, and procedures in TESL/TEFL. Development of curriculum. Issues in the profession. Requires teaching/tutoring component.

Prerequisite: EDCI 5430.

EDCI5580 - Internship1

Credits: 8

Max Credit (Max 12)

An internship experience may be required as part of the planned program in curriculum and instruction. A maximum of eight hours may be counted in meeting the minimum requirements of a graduate degree, but additional credit may be taken beyond this limit for the recording of appropriate supervised experience.

Prerequisite: 15 hours of education, consent of department head, and graduate standing.

Additional Information:

The University of Wyoming (UW), College of Education (COE) offers English as a Second Language (ESL)-Endorsement Program (Add-on, K-12) to meet a growing need of English language learners in the nation (generally) and the state of Wyoming (specifically). Eligibility for this endorsement requires an initial teaching certificate in the state of Wyoming. The candidates in the program are undergraduate students who are working toward Wyoming teacher certification and teachers who already possess the state of Wyoming teaching certificate. Upon completion of the ESL endorsement program, the candidates receive the Wyoming Professional Teaching Standards Board (PTSB) endorsement. The candidates in the program are also graduates students in different disciplines, earning graduate ESL graduate certificate but not ESL endorsement. In 2017, the UW- ESL endorsement program received NATIONALLY RECONIZED decision by meeting all the requirements and standards of the TESOL SPA (Teaching English to Speakers of Other Languages Specialized Professional Association). In 2021, the UW-ESL endorsement program received an approval from PTSB.

Literacy Certificate Leading to a Wyoming Reading Endorsement

The online UW Graduate Certificate in Literacy serves Wyoming teachers and recent College of Education graduates who wish to gain a reading endorsement from the Wyoming Professional Teaching Standards Board (PTSB).

Required Courses:

EDCI5580 - Internship1

Credits: 8
Max Credit (Max 12)

An internship experience may be required as part of the planned program in curriculum and instruction. A maximum of eight hours may be counted in meeting the minimum requirements of a graduate degree, but additional credit may be taken beyond this limit for the recording of appropriate supervised experience.

Prerequisite: 15 hours of education, consent of department head, and graduate standing.

EDCI5710 - Genre-based, Discipline-based Literacies

Credits: 3
Designed to provide educators with knowledge of reading factors as they relate to various genres and disciplines. Includes new literacies, assessment and development of comprehension, writing and oral language as learning tools, techniques for the development of vocabulary, questioning and study strategies appropriate to various disciplines and genres.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3
Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discussion research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDCI5750 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part I

Credits: 3-6
Max Credit (Max. 6)

Examines contemporary research and practice in literacy instruction. Read about and discuss cutting-edge literacy methods related to 1) word recognition, 2) beginning and fluent text reading, 3) reading comprehension, and 4) vocabulary development. In addition, students will analyze their current literacy instruction and develop, implement, and evaluate lessons that involve new instructional approaches.

Prerequisite: EDEC 4320 or EDCI 4330, EDCI 5310 or EDCI 5320 or graduate standing in education.

EDCI5760 - Social Linguistics Literacies

Credits: 3
Introduces key concepts in linguistics, sociolinguistics, and social literacies necessary for understanding and working

with children from diverse linguistic and cultural backgrounds. Redirects focus from schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring from their own sociocultural contexts.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5755 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part II

Credits: 3

Second of two related courses that address research in literacy instruction in elementary classrooms. The two-course sequence is required for students seeking the Wyoming K-5 Literacy Endorsement. Can also serve as a literacy content course in the Literacy Education Ph. D. option or as an elective in other graduate degree programs.

Prerequisite: EDCI 5750.

EDCI5770 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part I (6-12)

Credits: 3

Critically examines reading-writing research for the express purpose of recognizing fundamentals of superior studies. Students are encouraged to select and pursue a topic in reading-writing research for intensive examination. Students may pursue areas of emphasis in elementary, secondary, or higher education.

Prerequisite: Graduate standing in education.

EDCI5775 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part II (6-12)

Credits: 3

Designed to be the second in a two-course sequence that focuses on research and practice in adolescent literacy learning, teaching, and assessment. Will focus on applying research to practice.

Prerequisite: Graduate standing in education.

Endorsement K-6: 18 Hours

EDCI5760 - Social Linguistics Literacies

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies necessary for understanding and working with children from diverse linguistic and cultural backgrounds. Redirects focus from schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring from their own sociocultural contexts.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5710 - Genre-based, Discipline-based Literacies

Credits: 3

Designed to provide educators with knowledge of reading factors as they relate to various genres and disciplines. Includes new literacies, assessment and development of comprehension, writing and oral language as learning tools, techniques for the development of vocabulary, questioning and study strategies appropriate to various disciplines and genres.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discussion research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDCI5750 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part I

Credits: 3-6

Max Credit (Max. 6)

Examines contemporary research and practice in literacy instruction. Read about and discuss cutting-edge literacy methods related to 1) word recognition, 2) beginning and fluent text reading, 3) reading comprehension, and 4) vocabulary development. In addition, students will analyze their current literacy instruction and develop, implement, and evaluate lessons that involve new instructional approaches.

Prerequisite: EDEC 4320 or EDCI 4330, EDCI 5310 or EDCI 5320 or graduate standing in education.

EDCI5755 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part II

Credits: 3

Second of two related courses that address research in literacy instruction in elementary classrooms. The two-course sequence is required for students seeking the Wyoming K-5 Literacy Endorsement. Can also serve as a literacy content course in the Literacy Education Ph. D. option or as an elective in other graduate degree programs.

Prerequisite: EDCI 5750.

- plus one elective

Endorsement 6-12: 18 Hours

EDCI5760 - Social Linguistics Literacies

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies necessary for understanding and working with children from diverse linguistic and cultural backgrounds. Redirects focus from schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring from their own sociocultural contexts.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5710 - Genre-based, Discipline-based Literacies

Credits: 3

Designed to provide educators with knowledge of reading factors as they relate to various genres and disciplines. Includes new literacies, assessment and development of comprehension, writing and oral language as learning tools, techniques for the development of vocabulary, questioning and study strategies appropriate to various disciplines and genres.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discuss research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDCI5770 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part I (6-12)

Credits: 3

Critically examines reading-writing research for the express purpose of recognizing fundamentals of superior studies. Students are encouraged to select and pursue a topic in reading-writing research for intensive examination. Students may pursue areas of emphasis in elementary, secondary, or higher education.

Prerequisite: Graduate standing in education.

EDCI5775 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part II (6-12)

Credits: 3

Designed to be the second in a two-course sequence that focuses on research and practice in adolescent literacy learning, teaching, and assessment. Will focus on applying research to practice.

Prerequisite: Graduate standing in education.

- plus one elective

Endorsement K-12: 21 Hours

EDCI5580 - Internship1

Credits: 8

Max Credit (Max 12)

An internship experience may be required as part of the planned program in curriculum and instruction. A maximum of eight hours may be counted in meeting the minimum requirements of a graduate degree, but additional credit may be taken beyond this limit for the recording of appropriate supervised experience.

Prerequisite: 15 hours of education, consent of department head, and graduate standing.

EDCI5760 - Social Linguistics Literacies

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies necessary for understanding and working with children from diverse linguistic and cultural backgrounds. Redirects focus from schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring from their own sociocultural contexts.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5710 - Genre-based, Discipline-based Literacies

Credits: 3

Designed to provide educators with knowledge of reading factors as they relate to various genres and disciplines. Includes new literacies, assessment and development of comprehension, writing and oral language as learning tools, techniques for the development of vocabulary, questioning and study strategies appropriate to various disciplines and genres.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discussion research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDCI5750 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part I

Credits: 3-6
Max Credit (Max. 6)

Examines contemporary research and practice in literacy instruction. Read about and discuss cutting-edge literacy methods related to 1) word recognition, 2) beginning and fluent text reading, 3) reading comprehension, and 4) vocabulary development. In addition, students will analyze their current literacy instruction and develop, implement, and evaluate lessons that involve new instructional approaches.

Prerequisite: EDEC 4320 or EDCI 4330, EDCI 5310 or EDCI 5320 or graduate standing in education.

EDCI5755 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part II

Credits: 3
Second of two related courses that address research in literacy instruction in elementary classrooms. The two-course sequence is required for students seeking the Wyoming K-5 Literacy Endorsement. Can also serve as a literacy content course in the Literacy Education Ph. D. option or as an elective in other graduate degree programs.

Prerequisite: EDCI 5750.

EDCI5770 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part I (6-12)

Credits: 3
Critically examines reading-writing research for the express purpose of recognizing fundamentals of superior studies. Students are encouraged to select and pursue a topic in reading-writing research for intensive examination. Students may pursue areas of emphasis in elementary, secondary, or higher education.

Prerequisite: Graduate standing in education.

EDCI5775 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part II (6-12)

Credits: 3
Designed to be the second in a two-course sequence that focuses on research and practice in adolescent literacy learning, teaching, and assessment. Will focus on applying research to practice.

Prerequisite: Graduate standing in education.

Electives

EDCI5120 - Literature For Young Adults

Credits: 3

Designed for prospective and working library media specialists and teachers who wish to strengthen their backgrounds in the utilization of literature with young adults in classrooms and libraries. Involves reading and critiquing literature.

Dual Listed EDCI 4120.

Prerequisite: senior level or graduate standing.

EDCI5160 - Recent Trends in Children's and Young Adult Literature

Credits: 3

Important new developments in the subject matter, settings and style of children's and young adult books are identified and studied. Students in this course are expected to have a strong basic knowledge of children's and young adult literature.

Dual Listed EDCI 4160.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: EDCI 4120.

Additional Information:

This program is designed to serve graduate level K-12 teachers in Wyoming who wish to obtain the Wyoming Reading Endorsement, and those who choose to apply the course work toward a master's or doctoral degree in Curriculum & Instruction. Students enrolled in the literacy program will select one of three options for endorsement, K-6 level, 7-12 level and K-12 level. More information on the PTSB reading endorsement can be found at the following link: <https://wyomingptsb.com/licensure/endorsement-areas/>.

College of Engineering and Physical Sciences

2085 Engineering Building

Cameron Wright, Acting Dean

Phone: (307)766-4253 FAX: (307)766-4444

Web site: ceas.uwyo.edu

Engineering is a profession that truly makes a difference. Engineers constantly discover how to improve lives by creating new solutions to real world problems and needs. From small villages to large cities, engineers are involved in innovative improvements to all aspects of life from health care, to energy production, to protecting and rehabilitating the environment, to developing the newest technological device. The broad background of communication, mathematical, scientific, and problem solving skills provided at the University of Wyoming will prepare engineering graduates to pursue careers in engineering, construction, environmental policy, even medicine or law. The possibilities are endless! The creativity and innovative thinking developed in engineering enables students to lead rewarding lives, work with inspiring people, and give back to their communities. Computer science is a profession that is closely affiliated with engineering. At the University of Wyoming, degrees in computer science are awarded through the College of Engineering and Applied Science. The technology trends in this industry are also advancing at a tremendous rate. This requires that computer science education be at the forefront of new computing technologies, software languages, and networking.

Mission

The University of Wyoming's College of Engineering and Applied Science will provide excellent education, research, and service in chosen fields of engineering and applied science. The College emphasizes connectivity with society, life-long learning, and the essential problem-solving and collaborative skills needed to address the frontier challenges facing Wyoming, the nation and the world.

Design Experiences

In direct support of the goals of the individual departments within the College of Engineering and Applied Science, the design process is consistently developed and integrated throughout the curriculum from the freshman year through the senior year. Within the engineering science program, design elements such as basic analysis skills, communication skills, experimental skills, computational skills, problem solving skills, and design methodology are taught. At the departmental level, these skills are developed further and the concepts of design methodology are reinforced. The design process culminates in a comprehensive design experience within the student's major.

Accreditation

The following undergraduate programs are accredited by the Engineering Accreditation Commission of ABET: architectural engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, energy systems engineering, mechanical engineering, and petroleum engineering.

Various options within different engineering programs are accredited as part of the primary major. That is, the electrical engineering/ bioengineering option is accredited as an electrical engineering degree, and the chemical engineering/petroleum option is accredited as a chemical engineering degree.

The Bachelor of Science in Computer Science is accredited by the Computer Accreditation Commission of ABET.

Programs of Study

Undergraduate Degrees

- Bachelor of Science in Architectural Engineering
- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Computer Science (Computers and Business Option)
- Bachelor of Science in Computer Science (Big Data Option)
- Bachelor of Science in Construction Management
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Electrical Engineering (Francis M. Long bioengineering option)
- Bachelor of Science in Energy Systems Engineering
- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Petroleum Engineering

Graduate Degrees

Master of Science

Architectural engineering
Atmospheric science
Chemical engineering
Civil engineering
Civil engineering/water resources
Computer science
Computer science professional
Electrical engineering
Environmental engineering
Mechanical engineering
Petroleum engineering

Doctor of Philosophy

Atmospheric science
Chemical engineering
Civil engineering
Computer science
Electrical engineering
Mechanical engineering
Petroleum engineering

Candidates for the various master's degrees in engineering are required to do a full year's work in residence either under Plan A or Plan B.

Students should understand that a strong background in mathematics is necessary to actively pursue an engineering curriculum. Credit toward an engineering degree is not allowed for algebra and trigonometry.

Coursework in all four-year curricula stresses the mastery of subjects fundamental to all fields of engineering. The balance of the program is divided between cultural context and courses applying to the particular field selected. The aim is to provide the student with such groundwork that the general principles acquired may be used successfully in any one of the several specialized fields he or she may follow after graduation.

Depending on the major, a minimum of 120 to 132 semester hours of credit is required for the bachelor's degree from the College of Engineering and Applied Science. All course work must be selected with prior approval. Detailed outlines of curricula are presented later under headings of the various departments of the college. Since most engineering programs are similar during the first year, students may change an engineering major during this time with little or no loss in credit.

Degree candidates must meet the academic requirements of the university and must have a grade point average of 2.000 (C) or above in all engineering courses attempted at this university.

Students may not take a course for S/U credit to satisfy any requirement for a degree from the College of Engineering and Applied Science, unless the course is offered for S/U credit only.

The College of Engineering and Applied Science adheres to prerequisite coursework being completed before moving forward to advanced coursework. If a student is found to be enrolled in a course without meeting the prerequisites, the student will be administratively dropped from the course.

All undergraduate engineering programs within the College of Engineering and Applied Science use the Fundamentals of Engineering Exam as one of their methods of outcomes assessment. As a graduation requirement, students must complete the exam, with a good faith effort, within one year prior to their expected graduation.

Preparation for the profession of engineering requires diligent work in the various curricula. The required credit hours can be completed in a four-year program, but because of the rigorous nature of some of the courses involved, some students may require additional time to complete degree requirements.

All engineering curricula are subject to minor program changes. The published curricula are general guides. Prospective students should consult the individual departments for current information.

International Engineering Minor

Students in the College of Engineering and Applied Science may earn a Minor in International Engineering. The Minor requires:

- a) a study abroad experience;
- b) 9 credits of lower-division coursework; and
- c) 9 credits of upper-division coursework.

More detailed requirements are available at: <http://www.uwyo.edu/ceas/academics/intleng.html>

Graduate Study

The College of Engineering and Applied Science offers coursework and research opportunities leading to the following master's degrees: master of science in atmospheric science, chemical engineering, civil engineering, computer science, electrical engineering, environmental engineering, mechanical engineering, and petroleum engineering. Candidates for the various master's degrees in engineering are required to do a full year's study in residence either under Plan A or Plan B.

Only graduates with satisfactory GPAs in programs accredited by ABET are granted full admission to graduate study. In addition, graduates with satisfactory GPAs in undergraduate disciplines of meteorology, physics, mathematics, or related fields can be granted full admission to graduate studies in atmospheric science. Other engineering graduates can be admitted on a provisional basis.

The College of Engineering and Applied Science offers coursework and research opportunities leading to the following doctoral degrees: doctorate in atmospheric science, chemical engineering, civil engineering, computer science, electrical engineering, mechanical engineering, and petroleum engineering. Interdisciplinary programs of study and research leading to one of the above disciplinary degrees can be developed.

Engineering Science

Program Director: David Mukai, Ph.D.

2076 Engineering Building,

(307) 766-6181

FAX: (307) 766-4444

Engineering Science offerings present the fundamental engineering concepts upon which most engineering analysis and design work is based. Faculty are drawn from all of the academic departments in the college. These core courses represent the majority of engineering offerings at the freshman and sophomore level.

Courses in engineering science have their roots in mathematics and physical science, extending knowledge toward creative application. Thus, students must take their courses in calculus, chemistry, physics, and engineering science in a timely manner. Details are given in the published curriculum for each program. **A grade of C or better must be earned in all courses that are prerequisite to any required engineering science course.**

Major

Architectural Engineering, B.S.

Architectural Engineers create structural and mechanical-electrical-plumbing systems for buildings. The B.S. in Architectural Engineering is accredited by ABET and provides a path to P.E. licensure. Note: This is not an Architecture degree.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Core Courses: 73 Credit Hours

ARE1000 - Exploring CAECM

Credits: 1

Introduction to civil and architectural engineering professions through exploration of modern engineering challenges. Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globaliztion, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed CE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

ARE1600 - Architectural Design Studio I

Credits: 3

Freshman-level architectural design in a project-based learning environment. Introduction to Building Information Modeling (BIM); architectural presentation drawings; freehand sketching; essentials of architectural design and building code compliance.

Former Course Number [ARE 2100]

ARE2410 - Fundamentals of Building Performance

Credits: 3

Introduction to building performance measures that embrace a global notion of environmental stewardship. Emphasis on passive heating and cooling systems and daylighting strategies to manage the thermal and luminous environments over the facility life cycle.

Prerequisite: PHYS 1210.

ARE2600 - Architectural Design Studio II

Credits: 3

Sophomore-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 1600, with a new emphasis on building materials and construction methods.

Former Course Number [ARE 2200]

Prerequisite: ARE 1600.
ARE-3110 Professional Practice

ARE3200 - Structural Analysis I

Credits: 3

Introductory design and analysis topics in stress and displacement analysis of structures, including beams, trusses and frames, classical flexibility and stiffness methods.

Cross Listed CE 3200.

Prerequisite: ES 2410.

ARE3210 - Civil Engineering Materials

Credits: 4

Laboratory investigation and design of materials used in civil engineering: metals, masonry, concrete and timber. Non-destructive evaluation of materials. Analysis and presentation of data, including various types of written reports and oral presentations.

Cross Listed CE 3210.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: COM2 and ES 2410.

ARE3300 - Building Electrical and Plumbing Systems

Credits: 3

Introduction to National Electrical Code. The topics include basic circuits, AC and DC single phase, three phase power, transients, capacitance and inductance, branch circuits. Study of plumbing systems and fixtures including wastewater, water supply, storm water, and venting systems. Study of International Plumbing Code.

Prerequisite: ARE 1600 or CE 1010, and ES 2330 or concurrent enrollment.

ARE3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ME 3400.

Former Course Number [ARE 3800]

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ARE3600 - Architectural Design Studio III

Credits: 3

Junior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). This course builds upon skills learned in ARE 2600, with a new emphasis on the complexities that accompany mid-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 2410 and ARE 2600.

ARE4600 - Architectural Design Studio IV

Credits: 3

Senior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 3600, with a new emphasis on the complexities that accompany high-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 3600.

ART3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ARE 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical

models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Geology Course: 4 Credit Hours

Must take one of the following.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

Physics Course: 4 Credit Hours

Must take one of the following courses:

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

ARE Professional Development Courses: 18 Credit Hours Required

Must take six of the following:

ARE3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ESE 3360/ME 3360.

Former Course Number [ARE 3430, ARE 4420]

Prerequisite: MATH 2310, ES 2310 and ES 2330.

ARE4200 - Structural Analysis II

Credits: 3

Stress and displacement of indeterminate structures. Determination of loads on buildings. Matrix stiffness methods.

Cross Listed CE 4200

Prerequisite: ARE 3200/CE 3200.

ARE4250 - Structural Steel Design

Credits: 3

Design of structural components and applications utilizing steel.

Cross Listed CE 4250.

Prerequisite: ARE 3200/CE 3200.

ARE4260 - Structural Concrete Design

Credits: 3

Design of structural components and systems using reinforced concrete.

Cross Listed CE 4260.

Prerequisite: ARE 3200/CE 3200.

ARE4285 - Masonry Design

Credits: 3

Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed CE 4285.

Dual Listed ARE 5285 and CE 5285.

When Offered Offered on a three semester rotation.

Former Course Number [ARE 4280]

Prerequisite: ARE 4260/CE 4260 and ARE 3200/CE 3200.

ARE4295 - Structural Timber Design

Credits: 3

Design of structural components and systems utilizing timber.

Cross Listed CE 4295.

Dual Listed ARE 5295.

Former Course Number [ARE 4290]

Prerequisite: CE 3200 or equivalent.

ARE4330 - Building Electrical Systems

Credits: 3

Analysis and design of electrical systems in buildings using the National Electrical Code. The topics include panel boards, motors, system sizing, electrical distribution in buildings, methodology of reducing the available short circuit current, transformers, capacitors in buildings, and power systems harmonics. Students will perform an electrical building design project.

Prerequisite: ARE 3300.

ARE4390 - Building Safety and Fire Protection

Credits: 3

Fundamentals of building design for fire and life safety. Emphasis is on a systematic design approach. Basic considerations of building codes, fire loading, fire resistance, means of egress design, introduction to protective systems including fire protection systems, and fundamentals of fire and smoke control.

Prerequisite: ARE 3300.

ARE4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ME 4430.

When Offered (Normally offered alternate spring semesters)

Former Course Number [ARE 3420, ARE 4810]

Prerequisite: Completion of the ME Success Curriculum, ARE 3400 and ARE 3360/ME 3360 or concurrent.

ARE4490 - Modeling and Optimization of Energy Systems

Credits: 3

Application of principles of thermodynamics, fluids, and heat and mass transfer in the component and system-level design of energy/thermal systems, including modeling, simulation and optimization techniques. Examples are drawn from building environmental control, energy conversion and thermal industrial processes. Students work on projects for integration of these components in the design of energy/thermal systems. Requires enrollment in associated laboratory session.

Cross Listed ME 4490.

Prerequisite: ARE 3400.

CE3600 - Soil Mechanics I

Credits: 4

A study of soil and the properties which influence its usefulness as an engineering material. Principles governing movement of soil, water and propagation of stresses through soil masses are studied.

Former Course Number [4600]

Prerequisite: ES 2410.

CE4610 - Foundation Engineering

Credits: 3

Site characterization, laboratory shear tests and determination of soil properties. Analyses include bearing capacity, stress distribution and settlement. Design of shallow and control of deep foundations using static and dynamic methods.

Dual Listed CE 5610.

Prerequisite: CE 3600.

CE4620 - Soil and Rock Slope Engineering

Credits: 3

Advanced engineering and geologic classification of landslides; detailed field investigations; solid and rock strength properties for stability analysis; advanced analytical and numerical methods for analysis of slope stability; design of engineered stabilization systems.

Dual Listed CE 5660.

Prerequisite: CE 3600.

CE4630 - Ground Improvement, Reinforcement and Treatment

Credits: 3

This course is designed to help students understand a number of available geotechnical ground improvement, reinforcement and treatment techniques currently in use.

Dual Listed CE 5630.

Prerequisite: CE 3600.

CE5010 - Advanced Mechanics of Materials

Credits: 3

Elements of elasticity, unified approach to strength of structural members design and failure criteria; basic concepts of fracture mechanics; stress concentration factors; treatment of torsion, bending, axial and shear in structural members including plastic effects; bending of flat plates.

Prerequisite: ME 3010 or CE 3200, MATH 2310.

CE5200 - Advanced Structural Analysis

Credits: 3

Analysis of framed structures with stiffness-based matrix methods including plane trusses, frames, and grid systems and space trusses and frames. Column, beam, beam-column and frame stability. Geometric and material nonlinearities of framed structures. Plastic analysis and moment-curvature relationships. Computer applications are emphasized.

Prerequisite: CE 4200 or equivalent.

CE5220 - Structural Dynamics

Credits: 3

Introduction to general structural dynamics, general dynamic loading, generalized coordinated and nonlinear structural response, linear and nonlinear response spectra, multiple degree of freedom systems, continuous systems, and discretization of continuous systems. Introduction to seismic load specifications.

Prerequisite: CE 4200 or equivalent and MATH 2310.

CE5255 - Advanced Steel Design

Credits: 3

A comprehensive design course for steel building structures. Topics include preliminary design, selection of framing systems, braced and unbraced frames, stability effects and nonlinear behavior. Includes building design project for seismic regions.

Prerequisite: grade of C or better in CE 4250 or ARE 4250.

CE5270 - Highway Bridge Engineering

Credits: 3

A study of the analysis, design and rating of highway bridges, including consideration of dead and vehicular loads, analysis of typical systems, service, fatigue and ultimate strength behavior, rating of existing bridge design, and bridge operations. Composite and non-composite steel and concrete bridges are considered. Includes investigations that require field trips outside the schedule class times. Contemporary issues are routinely discussed.

Prerequisite: CE 4250 and CE 4260.

ME3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ESE 3040

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3170 - Machine Design

Credits: 3

Application of engineering mechanics and materials science to the analysis and design of mechanical components such as bolted connections, springs, gears, bearings and shafts. Design for dynamic loading conditions. Principles of hydrodynamic lubrication. Introduction to computer-aided design. Case studies with appropriate topics.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ARE Capstone: 3 Credit Hours

Must take 1 of the following courses

ARE4720 - Structural Systems Design Project

Credits: 3

Final course in the building structural systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's structural systems.

Prerequisite: ARE/CE 3110, ARE 4200, ARE 4250, and ARE 4260 or concurrent enrollment.

ARE4740 - Mechanical Systems Design Project

Credits: 3

Final course in the building mechanical systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's mechanical

systems.

Cross Listed ARE/ME 4740

Prerequisite: ARE/CE 3110 and ARE 3400

ARE Math/Sci/Tech/Prof Courses: 6 credit hours

Must take 6 additional credit hours in Math/Science/Technical/Professional courses.

Total Required Credit Hours: 123 Hours (Minimum)

A Minimum of 42 Credit Hours Must Be Upper Division (3000+) Level.

- **Advanced Standing/Gateway:** Prior to enrolling in upper division ARE/CE courses, students must earn 57 quality points in the following courses: CHEM 1020, PHYS 1210 or PHYS 1220, MATH 2200, MATH 2205, ES 2110, ES 2120, and ES 2410.
- Degree candidates must meet the academic requirements of the university, and must have a minimum GPA of 2.0 in all engineering courses, and all courses required for the major. *Grades of C or better are required for all prerequisite courses.
- Students choose an area of emphasis in either structural or mechanical systems, and select Optional Electives and the Capstone Design for their emphasis area. Care should be taken to ensure prerequisites are completed.
- Students may have a maximum of 6 credits in courses with a grade of D in upper division ARE courses that apply towards their degree.
- Students may not take a course for S/U credit to satisfy any requirement, unless the course is offered for S/U credit only.
- No more than two upper division courses may be transferred and applied to the ARE degree. ARE 4720 and ARE 4740 cannot be transferred to UW.

ARE Outcomes

The Architectural Engineering department regularly evaluates the following student skills. Specifically, every University of Wyoming Architectural Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Chemical Engineering, B.S.

Chemical Engineering draws upon fundamentals of chemistry, physics, biology, and math to analyze and design processes. Chemical Engineers work in a variety of fields including the energy, medicine, food, microelectronics, biotechnology, environmental, and manufacturing industries. The B.S. in Chemical Engineering is accredited by ABET and provides a path to P.E. licensure.

Curriculum

For students entering UW Fall 2022 or later.

CHE1005 - Introduction to Chemical Engineering

Credits: 1

Provides an overview of chemical engineering and its role in the current technological importance: energy, biotechnology, production of chemicals, and materials processing. Introduces strategies for solving engineering problems, including ethical considerations and teamwork, discusses process variables, units, mass balance, and data analysis, and incorporates active learning exercises using spreadsheet to solve chemical engineering problems.

Prerequisite: concurrent enrollment in MATH 2200.

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHE2060 - Chemical Engineering Computing

Credits: 3

Introduces fundamental concepts in linear algebra, numerical methods and applied statistics needed to solve engineering problems. In this context, this course also introduces and reinforces computational tools that will be useful for other CHE classes.

Prerequisite: C or better in CHE 1005 or ES 1060; C or better in CHE 2005; concurrent enrollment in MATH 2310.

CHE2070 - Chemical Thermodynamics

Credits: 3

Discusses first and second laws of thermodynamics applied to chemical processes, production of power from heat, refrigeration, and liquefaction processes, develops thermodynamic relations for calculating thermodynamic properties of fluids, including the use of equations of state, and introduces heat effects, Gibbs-energy change of reaction, and chemical-reaction equilibria.

Prerequisite: C- or better in CHE 2005, PHYS 1210; C or better in MATH 2210.

CHE2080 - Chemical Engineering Fluid Mechanics

Credits: 3

Introduces the fundamental aspects of macroscopic fluid mechanics, including physical properties, fluid statics, mass, energy, and momentum balances, momentum transport, and flow through pumps, pipes, and other chemical engineering equipment for both incompressible and compressible fluids, and of microscopic fluid mechanics, including differential mass and momentum balances.

Prerequisite: C- or better in CHE 2005, PHYS 1210, and C or better in MATH 2210.

CHE3015 - Chemical Thermodynamics II

Credits: 3

Introduces mixture properties, such as chemical potentials, excess properties, partial molar properties, heats of mixing, fugacities, and practical tools for estimating them from solution theories and equations of state. These tools and concepts are applied to phase and chemical equilibria.

When Offered (Normally offered fall semester)

Former Course Number [3010]

Prerequisite: C or better in CHE 2060, and CHE 2070 or ES 2310.

CHE3026 - Heat Transfer

Credits: 3

Introduces the theory and application of energy transport (e. g. conduction, convection, radiation), discusses in depth fundamentals of microscopic energy transport, and applies the knowledge to macroscopic chemical engineering processes and systems.

Prerequisite: C- or better in CHE 2060, and CHE 2080 or ES 2330.

CHE3028 - Mass Transfer

Credits: 3

Introduces mass transfer concepts, including molecular diffusion, convective mass transfer, and mass transfer between phases, and the development of mathematical models of these physical phenomena, applicable to the analysis and

design of chemical processes.

Prerequisite: C- or better in CHE 2005, CHE 2060, and CHE 2080 or ES 2330.

CHE3040 - Unit Operations Laboratory I

Credits: 3

Laboratory experiments examining settling, pump performance, heat transfer, adsorption, gas transfer, and distillation. Introduces topics in statistics including: probability distributions, mean, median, mode, variance and standard deviation, systematic and random error, confidence intervals, and t-tests, F-tests and ANOVA. Emphasizes the preparation of formal laboratory reports including experimental error analysis.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: C- or better in CHE 3026 and CHE 3028 and CHE 4060. (Normally offered fall semester)

CHE4050 - Unit Operations Laboratory II

Credits: 3

Laboratory experiments examining heat transfer and process control. Also requires students to design, conduct and analyze 'open-ended' experiments. Introduces LabView and covers factorial experimental design and linear and non-linear data regression approaches. Emphasizes the preparation of a formal report describing all aspects of the experiments.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

Prerequisite: C- or better in CHE 3040. (Normally offered spring semester)

CHE4060 - Reaction Engineering

Credits: 3

Introduces chemical process kinetics, catalysis and reactor design. Includes homogeneous and heterogeneous reaction kinetics; design of batch, stirred-tank and tubular reactors; and nonisothermal operation.

When Offered (Normally offered spring semester)

Prerequisite: C- or better in CHE 3015 and CHE 3026 and concurrent enrollment in CHE 3028.

CHE4070 - Process Simulation & Economics

Credits: 4

Max Credit 4

Introduces simulation software used to model chemical processing. Techniques used to determine economic feasibility of chemical plants are described.

When Offered (Normally offered fall semester)

Prerequisite: C or better in CHE 3028 and CHE 4060

CHE4080 - Senior Design

Credits: 4
Max Credit 4

Intended for the senior year. Applies all previous courses to the design of safe, economical and environmentally benign processes.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: COM-2, concurrent enrollment in CHE 4070

CHE4090 - Process Dynamics and Control

Credits: 3

Encompasses analysis and design control systems for the chemical process industry including steady-state approximation, types of controllers, simple unsteady-state analysis, use of mathematical models and process dynamics under control.

Prerequisite: C- or better in CHE 3028 and CHE 4060.

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students.

Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

University Studies Program Requirements

The University Studies Program 2015

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Approved Electives

See CEAS Advising Center for a current list of approved technical electives. There are a total of 18 credits required for technical electives.

Transfer Coursework: All Wyoming Community College equivalent courses will be evaluated for acceptance into the CHE program. For upper-division coursework, no more than two CHE 3000+ courses can be transferred and applied to the CHE degree, however, CHE4070 - Process Simulation & Economics and CHE4080 - Senior Design cannot be transferred to UW.

In addition, all CHE transfer courses must be completed with a grade of C- or better.

Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Chemical Engineering should:

- Successfully practice the profession of Chemical Engineering;
- Demonstrate successful career growth

Chemical Engineering Program Outcomes

During the course of study in Chemical Engineering, the student should demonstrate:

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;
- an ability to communicate effectively with a range of audiences;
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts;
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions;
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Civil Engineering, B.S.

Civil Engineers create infrastructure and development projects, including structures, transportation, water & wastewater, earthworks, and urban site plans. The B.S. in Civil Engineering is accredited by ABET and provides a path to P.E. licensure.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Core Courses: 75 Credits

CE1000 - Exploring CAECM

Credits: 1

Introduction to civil and architectural engineering professions through exploration of modern engineering challenges. Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globaliztion, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed ARE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE1010 - Civil Engineering Tools

Credits: 3

This course is an introduction to computing tools commonly used in civil engineering practice including 3-D Computer Aided Drafting, Spreadsheets and Presentation Software. Tools will be introduced through design work on typical civil engineering design projects.

Prerequisite/Corequisite: of MATH 2200.

CE2070 - Engineering Surveying

Credits: 3

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Traverse field techniques and office calculations. Basic principles of surveying and map making.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE-3110 Professional Practice

CE3200 - Structural Analysis I

Credits: 3

Introductory design and analysis topics in loads on building, stress and displacement analysis of structures, including beams, trusses and frames, classical flexibility and stiffness methods.

Cross Listed ARE 3200.

USP 2003-2014 Code [WB<>(none)]

Prerequisite: ES 2410.

CE3210 - Civil Engineering Materials

Credits: 4

Laboratory investigation and design of materials used in civil engineering: metals, masonry, concrete and timber. Nondestructive evaluation of materials. Analysis and presentation of data, including various types of written reports and oral presentations.

Cross Listed ARE 3210.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Former Course Number [2210]

Prerequisite: COM2 and ES 2410.

CE3300 - Hydraulic Engineering

Credits: 3

Develops analysis, design and modeling techniques for incompressible pipe flow, steady uniform and gradually varied open channel flow, and hydraulic structures.

Former Course Number [4320]

Prerequisite: ES 2330.

CE3400 - Introduction to Environmental Engineering

Credits: 3

An introduction to the major topics in environmental engineering. Focus areas include water supply, wastewater treatment, air pollution control and solid and hazardous waste management. Quantitative aspects and engineering solutions to problems are emphasized.

Prerequisite: MATH 2205 and CHEM 1020 or equivalent.

CE3500 - Transportation Engineering

Credits: 4

Introduction to the major topics in Transportation Engineering. The topics covered include human, vehicle and roadway characteristics and performance, traffic characteristics and flow theory, roadway capacity and Level of Service (LOS) concepts, intersection and traffic signal design, public transportation, transportation planning, geometric design of highways, traffic safety, highway materials, and pavement design

Former Course Number [4500]

Prerequisite: CE 1010.

CE3600 - Soil Mechanics I

Credits: 4

A study of soil and the properties which influence its usefulness as an engineering material. Principles governing movement of soil, water and propagation of stresses through soil masses are studied.

Former Course Number [4600]

Prerequisite: ES 2410.

CE4010 - Civil Engineering Design

Credits: 3

Students will prepare final civil engineering documents including construction plans, specifications, and engineering estimates for a civil engineering project. Concepts of standard specifications and sustainability measures will also be applied to the design.

Former Course Number [3010]

Prerequisite: STAT 2050.

CE4900 - Comprehensive Design Experience

Credits: 3

Team comprehensive project design experience considering the sub-disciplines of civil engineering.

Prerequisite: ARE/CE 3110 and 3 of CE 3200, CE 3300, CE 3400, CE 3500, CE 3600, and two of CE 4250, CE 4260, CE 4610, CE 4555, CE 4510, CE 4400, CE 4410, or CE 4800, or instructor consent.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Physics Course

Must take one of the following:

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Science Elective: 4 credit hours

Must take one of the following.

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ATSC2000 - Introduction to Meteorology

Credits: 4

First course in meteorology for students with minimal background in math and science. Provides general and practical understanding of weather phenomena. Emphasizes observational aspects of the science, meteorological view of the physical world and the impact the science has on life and society. Includes three hours of lecture and one laboratory per week. Includes atmospheric composition and structure, radiation, winds and horizontal forces, stability and vertical motions, general circulation, synoptic meteorology, clouds and precipitation, severe storms and atmospheric optics.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1110 - Physical Geology for Engineers

Credits: 4

Introduction to geologic principles for engineers with emphasis on near surface processes and material properties. The first half will teach planetary basics, mineral/ rock and geologic structure, surface processes, geologic material strength and deformation, and geohazards. The final half covers methods and analysis with the collection of geophysical data on-campus to assess near-surface properties with a full lab report.

USP 2003-2014 Code [(none)<>PN]

Prerequisite: MATH 1400 and MATH 1405 or MPE score of 5 or higher or SAT Math score of 600 or higher or ACT Math score of 27 or higher.

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might

guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

Structural Design Course: 3 credit hours

Must take one of the following.

CE4250 - Structural Steel Design

Credits: 3

Design of structural components and applications utilizing steel.

Cross Listed ARE 4250.

Prerequisite: ARE 3200/CE 3200.

CE4260 - Structural Concrete Design

Credits: 3

Design of structural components and applications utilizing reinforced concrete.

Cross Listed ARE 4260.

Prerequisite: ARE 3200/CE 3200.

CE Professional Development Courses: 12 credit hours

Must take four of the following.

Selection of Professional Development Courses must demonstrate breadth by covering more than one area among Environmental, Geotechnical, Transportation and Water Resources.

CE4200 - Structural Analysis II

Credits: 3

Stress and displacement of indeterminate structures. Determination of loads on buildings. Matrix stiffness methods.

Cross Listed ARE 4200

Prerequisite: ARE 3200/CE 3200.

CE4265 - Prestressed Concrete Design

Credits: 3

This is a classical course on designing prestressed and precast concrete systems. Principles and behavior of prestressed concrete build the foundation for topics that included flexure, shear, and axial load, construction and fabrication, and application. The course continues with fundamental concepts taught in RE/CE 4260.

Cross Listed ARE 4265.

Dual Listed CE 5265.

Prerequisite: ARE 4260/CE 4260.

CE4285 - Masonry Design

Credits: 3

Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed ARE 4285.

Dual Listed ARE 5285 and CE 5285.

When Offered Offered on a three semester rotation.

Former Course Number [4280]

Prerequisite: ARE 4260/CE 4260 and ARE 3200/CE 3200.

CE4295 - Structural Timber Design

Credits: 3

Design of structural components and applications utilizing timber.

Cross Listed ARE 4295.

Dual Listed CE 5295.

Former Course Number [4290]

Prerequisite: CE 3200 or equivalent.

CE4400 - Design of Water Treatment Facilities

Credits: 3

A theoretical and practical design course for municipal potable water treatment systems. Major emphasis includes health criteria, operational control procedures, primary and secondary drinking water regulations, as well as the latest treatment design standards for production of drinking water.

Prerequisite: CE 3400.

CE4410 - Design of Wastewater Treatment Facilities

Credits: 3

A theoretical and practical design course for treatment of municipal wastewaters. Major areas of emphasis include waste characterization and physical, chemical and biological unit processes.

Prerequisite: CE 3400.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

CE4441 - Solid Waste Engineering

Credits: 3

Municipal solid waste characteristics and quantities, collection, landfills, processing of municipal solid waste, materials separation, combustion and energy recovery, and biochemical processes with an emphasis on materials flow. Integrated solid waste management principles are also discussed.

Former Course Number [4440]

Prerequisite: CE 3400.

CE4510 - Pavement Design for Airports and Highways

Credits: 3

Designing flexible and rigid pavements for highways and airports. Topics include pavement materials and common uses, soil stabilization, quality control of materials, pavement design procedures.

Dual Listed CE 5510.

Former Course Number [5510]

Prerequisite: CE 3500 or CE 3600.

CE4530 - Traffic Engineering: Operations

Credits: 3

Basic characteristics of traffic, such as drivers, vehicles, volumes, speeds, delay, origins and destinations, intersection performance, capacity, termination and accidents; techniques for making traffic engineering investigations; traffic laws and ordinances, regulations, design and application of signal systems; curb parking control; enforcement and traffic administration; and public relations.

Dual Listed CE 5530.

Prerequisite: CE 3500.

CE4555 - Geometric Design of Highways

Credits: 3

Criteria controlling geometric design of highways including design speed, design volume, vehicle requirements and capacity design standards for different highway types; design of sight distance, alignment, grade; cross-section design; access control, frontage roads; intersection design elements, and design of intersections and interchanges.

Dual Listed CE 5555.

A&S College Core 2015 Students may not receive credit for both CE 4555 and CE 5555.

Former Course Number [4520]

Prerequisite: CE 3500.

CE4610 - Foundation Engineering

Credits: 3

Site characterization, laboratory shear tests and determination of soil properties. Analyses include bearing capacity, stress distribution and settlement. Design of shallow and control of deep foundations using static and dynamic methods.

Dual Listed CE 5610.

Prerequisite: CE 3600.

CE4620 - Soil and Rock Slope Engineering

Credits: 3

Advanced engineering and geologic classification of landslides; detailed field investigations; solid and rock strength properties for stability analysis; advanced analytical and numerical methods for analysis of slope stability; design of engineered stabilization systems.

Dual Listed CE 5660.

Prerequisite: CE 3600.

CE4630 - Ground Improvement, Reinforcement and Treatment

Credits: 3

This course is designed to help students understand a number of available geotechnical ground improvement, reinforcement and treatment techniques currently in use.

Dual Listed CE 5630.

Prerequisite: CE 3600.

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

CE4810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 5810.

Prerequisite: ES 2330.

CE4870 - Water Resource Engineering

Credits: 3

Study in water resource planning and design and problem solving applying engineering principles and procedures. Western United States water problems are emphasized, including user completion, reallocation, consumptive use, water development, conservation, conveyance losses, and return flows.

Dual Listed CE 5870.

Prerequisite: CE 3300.

CE Math/Sci/Tech/Prof Courses: 9 credit hours

Must take 9 additional credit hours in Math/Science/Technical/Professional courses.

Required Credits: 125 Hours (Minimum)

A Minimum of 42 Credit Hours Must Be Upper Division (3000+) Level.

- Advanced Standing/Gateway: Prior to enrolling in upper division ARE/CE courses, students must earn 57 quality points in the following courses: CHEM 1020, PHYS 1210 or PHYS 1220, MATH 2200, MATH 2205, ES 2110, ES 2120, and ES 2410.
- Degree candidates must meet the academic requirements of the university, and must have a minimum GPA of 2.0 in all engineering courses, and all courses required for the major. *Grades of C or better are required for all prerequisite courses.
- Students choose an area of emphasis in either structural or mechanical systems, and select Optional Electives and the Capstone Design for their emphasis area. Care should be taken to ensure prerequisites are completed.
- Students must take either CE 4250 or CE 4260 for the Structural Design requirement. Remaining Professional Development Electives must cover at least two of the following areas: Environmental, Geotechnical, Transportation, Water Resources.
- Students may have a maximum of 6 credits in courses with a grade of D in upper division ARE courses that apply towards their degree.
- Students may not take a course for S/U credit to satisfy any requirement, unless the course is offered for S/U credit only.
- No more than two upper division courses may be transferred and applied to the CE degree. CE 4010 and CE 4900 cannot be transferred to UW.

CE Outcomes

The Civil Engineering department regularly evaluates the following student skills. Specifically, every University of Wyoming Civil Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Civil Engineering/Water Resources

The purpose of this program is to broaden the students' master of science program in the water resource area in civil engineering.

Plan A Thesis Requirement

Only students with a M.S. Plan A thesis option are eligible. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee.

Coursework and Thesis

Each student must complete a minimum of 28 hours of graduate level coursework and a thesis under Plan A (4 credit hours) to qualify for the master of science in civil engineering/ water resources.

The student must obtain at least 18 credit hours of graduate level coursework in engineering, emphasizing a concentration of core courses in a particular area of emphasis in civil engineering. The core course areas of emphasis for this program are hydrologic and hydraulic engineering. The particular set of courses for a given area of emphasis will be designated by the faculty in the water resources area for these areas of emphasis with the approval of the Civil Engineering Graduate Committee.

Interdisciplinary Component

9 hours

Technical Hydrology (3 Hours)

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5550 - Numerical Methods in Ground Water Geology I

Credits: 3

Numerical solution of ground water flow equations with emphasis on steady state and elementary time dependent finite difference techniques.

Prerequisite: GEOL 4444 or GEOL 5444, competence in FORTRAN programming.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

- REWM 5280 - Stream Habitat Management Credits: 3

Law/Natural Resource Economics (3 Hours)

(please refer to the general degree requirements for a list of courses)

Water Quality (3 Hours)

GEOL5450 - Geochemical Modeling

Credits: 3

Modeling of geochemical processes in fluid-rock systems of the Earth's crust. Emphasizes development and application of conceptual models as well as quantitative numerical models. Reinforces and expands fundamental skills in aqueous and fluid-rock geochemistry to better understand geochemical processes and solve problems in fluid-rock systems.

Prerequisite: GEOL 4777/GEOL 5777 or GEOL 5610 or GEOL 4490.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

- MOLB 4410 Water Microbiology Credits: 3
- MOLB 4500 Microbial Ecology Credits: 3

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

Computer Engineering, B.S.

A B.S. in Computer Engineering provides the knowledge needed for careers in computer programming & design. It is a blend of Computer Science and Electrical Engineering and is often used to develop special purpose computers like those in your car.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Math & Science

MATH2200 - Calculus I

Credits: 4
Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and

organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

- 3 credits of an approved Math/Science Elective ²

Engineering Science

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

Electrical Engineering

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE2390 - Digital Systems Design

Credits: 4

Binary logic, digital logic gates, reduction of Boolean expressions, combinational logic design. MSI and LSI combinational logic ICs, flip-flops, synchronous and asynchronous sequential systems design, MSI and LSI sequential system ICs, and algorithmic state machines.

Prerequisite: COSC 1010 or COSC 1015 or COSC 1030 or ES 1060, and MATH 2205.

EE3150 - Electromagnetics

Credits: 3

A thorough study of static electric and magnetic fields using vector methods with an introduction to dynamic fields.

Prerequisite: ES 2210, or ES 2215 and ES 2216, MATH 2210, and PHYS 1220 or concurrent enrollment.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution;

difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

EE3311 - Electronics I

Credits: 3

Physical characteristics and models of semiconductor devices with application to electronic circuit design. Diode circuits, single transistor amplifiers, biasing, and load lines. Prerequisites: (PHYS 1220 or PHYS 1320 or EE 3150), and EE 2220 or concurrent enrollment.(Offered fall semester only)

Prerequisite: PHYS 1220 or PHYS 1320 or EE 3150, and EE 2220 or concurrent enrollment

EE3312 - Electronics I Laboratory

Credits: 1

Hands on interactive laboratory investigation of the physical characteristics of semiconductor devices and applications in electronic circuit design. Study of diode and transistor characteristics as well as diode circuits and single transistor amplifier circuit design, construction and testing. Prerequisites: EE3311 must be taken either concurrently or as a prerequisite. (Offered fall semester only)

When Offered (Offered fall semester only)

Prerequisite: EE3311 must be taken either concurrently or as a prerequisite.

EE3331 - Electronics II

Credits: 3

Current sources, differential and multistage amplifiers; circuits with ideal and non-ideal operational amplifiers; low and high band frequency response, feedback, stability, gain and phase margin of amplifiers; output stages, class A and push-pull; monolithic operational amplifier; oscillators; transistors as switches and introduction to digital electronic circuits. Laboratory. Prerequisites: (EE 3310 or EE 3311) and EE 2220. (Offered spring semester only)

When Offered (Offered spring semester only)

Prerequisite: (EE 3312 or EE 3311) and EE 2220

EE3332 - Electronics II Laboratory

Credits: 1

Hands on interactive laboratory investigation of transistor switching circuits, differential amplifiers, current sources, amplifier frequency response, feedback, output stages, and oscillators. Prerequisites: EE 3312 and EE 3331 concurrently (offered spring semester only).

Prerequisite: EE 3312 and EE 3331 concurrently

EE4220 - Probabilistic Signals and Systems

Credits: 3

Fundamentals of probability and statistics for engineers; reliability in engineering systems; random processes, statistical estimation, auto/ cross correlation and power spectral density functions and linear filtering of random signals.

Prerequisite: MATH 2210 and EE 3220. EE 3220 may be taken concurrently.

EE4390 - Microprocessors

Credits: 3

Design of microcomputers, controllers and instruments which use microprocessors. Semiconductor memory design, CPU architecture, bus structure and timing, input-output interfaces and devices, assembly language programming, assemblers, compilers, editors and simulators. Emphasizes design techniques. Laboratory.

When Offered (Normally offered once a year)

Prerequisite: EE 2390.

EE4490 - Hardware Descriptive Language (HDL) Digital Design

Credits: 3

Hardware Description Language design of digital systems. Industrial CAD tools are used to produce a functional description of hardware that is both simulated and then synthesized into hardware. Methods to describe both combinational logic and synchronous devices are given. Devices such as CPLDs and FPGAs are targeted in this design process. Emphasizes design techniques.

Prerequisite: EE 2390.

EE4820 - Senior Design I

Credits: 2

Students choose a senior design project and complete the preliminary design. This stage of senior design includes investigation of alternative solutions that meet the project's requirements, cost analysis, and building the prototype circuit. Periodic oral and written project progress reports are required.

When Offered (Offered fall semester only)

Prerequisite: EE 2220, EE 2390, and EE 3312 or concurrent enrollment, plus 6 hours of 4000 level EE/BE classes, or concurrent enrollment. COM2 must be passed with a C or better grade.

EE4830 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in EE 4820. The final result of the senior design project includes assembly of a PC board hardware that meets the project's requirements and final report describing the design procedure, designed hardware and software, and results of final testing. Periodic oral and written project progress reports are required.

When Offered (Offered spring semester only)

Prerequisite: EE 4820 and selected courses in the area of the design project.

EE4870 - Computer Network Hardware

Credits: 4

Basic LANs, Ethernet LAN architecture, and classical Ethernet CSMA/CD MAC protocol. 10Mbps, 100 Mbps, and gigabit Ethernet architecture. Introduction to switching, queuing theory, architecture, design and performance analysis of switch fabrics. Architecture, design, algorithms and performance analysis of Routing, Cellular Networks. TCP/IP Protocol.

Prerequisite: EE 2390.

OR

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

Computer Science

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

CPEN Electives

12 credits from the following list.

A maximum of two CPEN elective courses can be from the computer science department.

EE 4075 is not allowed as a CPEN Elective.

EE4245 - Digital Signal Processing

Credits: 3

Sampling and oversampling A/D's; FIR and IIR digital filter design, effects of quantization, practical realizations; applications of the discrete and fast Fourier Transform (DFT and FFT); correlation, periodograms, window effects, multi-rate techniques, multi-dimensional signal processing, and other topics in digital signal processing.

Prerequisite: EE 3220.

EE4340 - Semiconductor Materials and Devices

Credits: 3

Physical properties of semiconductor materials and devices, including crystal lattices and energy bands, carrier generation, transport, and recombination. PN, metal-semiconductor, and heterojunction operation. Field Effect Transistors, including Metal Oxide Semiconductor (MOSFET), Junction (JFET), MEtal Semiconductor (MESFET), and High Electron Mobility (HEMT) transistors. Bipolar Junction (BJT) and Heterojunction (HBT) Transistor operation.

Cross Listed PHYS 4340.

Prerequisite: PHYS 1220 or PHYS 1320.

EE4345 - Hardware Digital Signal Processing

Credits: 3

Hands-on introduction to real-time digital signal processing. Programming DSP algorithms using C on modern DSP hardware. Students gain deep understanding of fundamental DSP concepts by implementing selected applications including sampling, reconstruction, FIR and IIR filters, signal generation, and FFT. Hardware concepts include EDMA,

memory maps, interrupts, buffered serial ports.

Prerequisite: EE 3220.

EE4360 - VLSI Design

Credits: 3

Introduction to CMOS processing, MOS fundamentals including devices models; switching and timing; analog subcircuits and amplifiers; inverters and CMOS gates; concept of standard cells and fully custom design; use of SPICE, digital simulation, and chip layout and verification software.

Prerequisite: EE 2390, and EE 3331 or concurrent enrollment.

EE4440 - Communication Theory

Credits: 3

Amplitude and angle modulation and demodulation; digital baseband and carrier communication systems; performance of communication systems; and current topics in communication systems.

When Offered (Normally offered once a year)

Prerequisite: EE 3220 and EE 4220.

EE4590 - Real Time Embedded Systems

Credits: 3

Emphasizes a systems approach to real time embedded systems. Students are expected to apply methodical system design practices to designing and implementing a microprocessor-based real time embedded system. Students employ a robot-based educational platform to learn the intricacies of real time embedded systems, distributed processing, and fuzzy logic. Students learn processor input/output interfacing techniques. Students use state-of-the-art design and troubleshooting tools.

Dual Listed EE 5590.

Prerequisite: EE 4390.

EE4870 - Computer Network Hardware

Credits: 4

Basic LANs, Ethernet LAN architecture, and classical Ethernet CSMA/CD MAC protocol. 10Mbps, 100 Mbps, and gigabit Ethernet architecture. Introduction to switching, queuing theory, architecture, design and performance analysis of switch fabrics. Architecture, design, algorithms and performance analysis of Routing. Cellular Networks. TCP/IP Protocol.

Prerequisite: EE 2390.

EE4990 - Advanced Microprocessors

Credits: 3

Architecture and instruction set of Intel family of microprocessors; Intel System Development Kit and its monitor program; Microsoft Macro Assembler (MASM) and Visual C/C++ Express; modular programming; High level language compilers of object code; Interface design issues of peripheral devices to Personal Computer.

Prerequisite: EE 4390.

EE5390 - Computer Architecture

Credits: 3

Examines the various methodologies used in the design of high-performance computer systems. Topics include CISC and RISC architecture and instruction sets, pipelining, instruction-level parallelism, memory hierarchy (including cache) design and computer networks.

Prerequisite: EE 4390.

EE5410 - Neural and Fuzzy Systems

Credits: 3

Theory of feed forward and recurrent neural networks. Supervised and unsupervised learning theories. Fuzzy logic and systems. Associative memories. Matching and self-organizing networks. Application of neural and fuzzy systems.

Prerequisite: EE 3220.

EE5430 - 3-D Computer Vision

Credits: 3

This course is intended to provide a mathematical framework for describing three dimensional imaging and computer vision. Topics include 3-D coordinate transforms, image formation, camera calibration, reconstruction from two views, SIFT detection, hidden Markov models, Markov random fields, and "bag-of-words" visual description.

Prerequisite: EE 4220, MATH 2250.

EE5460 - Probabilistic Robotics

Credits: 3

Fundamental theory underlying the robust sensing and planning used in self-driving machines is developed. Topics covered are: Bayesian, Kalman, and Particle Filters; simple ground robot motion models; mobile robot localization; simultaneous localization and mapping; partially observable Markov decision processes.

Prerequisite: EE 4220.

EE5620 - Digital Image Processing

Credits: 3

Methodologies and algorithms for processing digital images by computer. Includes gray level transformations,

histogram analysis, spatial domain filtering, 2D Fourier transforms, frequency domain filtering, image restoration, and reconstruction of computer tomography (CT) medical images.

When Offered (Offered fall of even-numbered years)

Former Course Number [4530]

Prerequisite: EE 3220 or equivalent background.

EE5630 - Advanced Image Processing

Credits: 3

Introduces students to advanced aspects of image processing (IP), using specific applications to demonstrate these principles. Concepts such as medical imaging; color IP; wavelets and multiresolution IP; image compression; morphological IP; image segmentation, representation, description and understanding are covered.

Prerequisite: EE 5620.

EE5650 - Object and Pattern Recognition

Credits: 3

Introduces students to both fundamental and advanced aspects of object and pattern recognition, using specific applications to demonstrate these principles. Concepts such as Bayesian, maximum-likelihood, principal components, nonparametric, linear discriminant, multi-layer neural networks, etc., and the trade-offs and appropriateness of classification techniques are covered.

Prerequisite: EE 4220.

EE5670 - Digital Image Formation

Credits: 3

This course introduces fundamental aspects of practical digital image formation, using specific applications to demonstrate these principles. Standard CCD and CMOS cameras (both still and video) and standard camera lens systems are assumed.

Prerequisite: EE 3220 or equivalent background.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

COSC4210 - Web Application Development

Credits: 3

The course covers the basics of developing data driven web applications. Topics include using responsive design for user interfaces, architectural patterns and frameworks, object-relational mapping, language-integrated queries, authentication, authorization, unit testing, using source control for code management, publishing web applications and cloud computing.

Prerequisite: COSC 3011.

COSC4220 - Design and Implementation in Emerging Environments

Credits: 3

Students who have completed the analysis and design course extend their knowledge by implementing an information system in an emerging systems environment. Teams use project management principles to implement the system.

Prerequisite: COSC 4210.

COSC4450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the World Wide Web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 5450.

Prerequisite: COSC 3020 and MATH 2250.

COSC4550 - Introduction to Artificial Intelligence

Credits: 3

A computational study of intelligent behavior. Focus is on intelligent agents, which could be software agents or robots. Covers how agents sense, reason, and act within their environment. Includes problem-solving, search, knowledge representation, planning, game playing, learning, and neural and belief networks.

Dual Listed COSC 5550.

Prerequisite: COSC 3020.

COSC4555 - Machine Learning

Credits: 3

Goal is to program machines to learn and improve their performance on their own, based on experience and/or data. First half covers machine learning techniques; second half covers applications.

Dual Listed COSC 5555.

Prerequisite: COSC 3020.

COSC4560 - Modern Robots and Softbots

Credits: 3

Popular agent designs: logic-based, biomimetic, and physicomimetic. Foundational issues on internal robot and softbot knowledge representations. Planning and control, followed by issues of how agents can reason and plan under real-world conditions of environmental uncertainty. Concludes with discussions about papers on modern robot and softbot applications, as well as invited lectures by graduate students and faculty.

Dual Listed COSC 5560.

COSC4730 - Mobile Application Programming

Credits: 3

Introduces development of applications on mobile devices. Presents the principles, techniques, and tools for developing mobile applications. Differences between desktop applications and mobile applications are discussed.

Dual Listed COSC 5730.

Prerequisite: six hours of upper division COSC coursework.

COSC4735 - Advanced Mobile Programming

Credits: 3

Continues the development of applications on mobile devices. The focus is device sensors, such as camera, AR, VR, Bluetooth, embedded and connected devices.

Dual Listed COSC 5735.

Prerequisite: COSC 4730.

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

BE5410 - Rehabilitation Engineering

Credits: 3

This course covers the engineering principles of multiple rehabilitation technologies, including rehabilitation robots, exoskeletons, wearable sensors, electrical stimulators, implants, and virtual reality. Students will learn the technical and biological principles of all of these technologies via lectures, projects, and literature reviews.

Prerequisite: graduate standing.

MATH4500 - Matrix Theory

Credits: 3

Continuation from MATH 2250 of the study of matrices, an important tool in statistics, physics, engineering and applied mathematics in general. Concentrates on the structure of matrices, including diagonalizability; symmetric, hermitian and unitary matrices; and canonical forms such as Jordan form.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250.

EE/BE Elective

3 credits of an approved EE/BE Elective.

General Elective

1 credit of a general elective (1000 level or higher)

Total Credits: 128 Hours

¹ PHYS 1210: no credit can be earned in PHYS 1210 if taken after ES 2120. PHYS 1220 should be taken before or concurrently with ES 2210.

² One course from the ECE Math/Science Elective List. ABET requires a minimum of 30 hours of Math/Science courses.

³Or any ES, EE, BE course (>2000 level), or COSC 3011 or COSC 3750

⁴To meet the COM3 requirement with EE 4820 and EE 4830 the COM2 course must be taken before EE 4820. Also, EE 4820 and EE 4830 must be taken in sequence. COM 2 grade of C or better is required.

⁵ Network Congestion Control can also be taken to fulfill the CPEN network course requirement.

Online courses taken outside of the Wyoming system will not be considered for preapproved transfer.

Students must have a minimum cumulative GPA 2.000 in all Engineering courses for graduation.

A grade of C or better is required for all prerequisite courses.

Students must also achieve a grade of C or better in all required mathematics courses.

Students must complete a minimum of 42 hours of upper division coursework, 30 of which must from the University of Wyoming.

EE 1101 is the recommended FYS course for EE and CPEN majors

Computer Engineering Program Educational Objectives

Graduates of the University of Wyoming Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

Computer Engineering - Student Learning Outcomes

All Computer Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Computer Science, B.S.

Computer scientists learn the theory and practice of computing, which is essential in the modern world. A B.S. in Computer Science prepares you for a career designing, implementing, and securing software-intensive systems.

Computer Science General Information

Computer Science majors must satisfactorily meet the requirements of the University Studies Program (USP), and they must complete a minimum of 120 credit hours, at least 42 of which must be upper division hours.

Note that some of the courses required for the Computer Science core or the concentrations will meet some of the USP requirements. Students do not have to take additional courses to meet those requirements.

All courses in Computer Science, Mathematics, and Statistics must be completed with a grade of C or better.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Mathematics and Science Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed MATH 2300.

Prerequisite: COSC 1030, MATH 2200 or MATH 2350.

OR

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

- Approved Science course - 4 credits
 - Approved Science course - 4 credits
 - Approved Math/Science Elective - 4 credits
- ABET requires a minimum of 30 Math/Science credit hours.

Math elective means any MATH course above Calculus II or STAT courses 3000 and up.

Exceptions: cannot count MATH 2350, MATH 2355, MATH 4000, STAT 4220 [Inactive] or any variable credit courses toward this requirement.

Courses meeting the Science requirement must have a lab component and be for science or engineering majors. See Department web pages for a current list of approved courses.

Computer Science Courses

Introductory Programming Course - Choose one of:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

COSC3011 - Introduction to Software Design

Credits: 3

Introduces the principles and practice of software design, including UML and design patterns. Uses case studies to illustrate design in action.

Prerequisite: COSC 2030.

COSC3015 - Functional Programming

Credits: 3

Studies programming in the context of a functional language that emphasizes algorithmic strategies over syntactic detail.

Prerequisite: COSC 2030 and COSC 2300.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

Theory Course - Choose one of:

COSC4100 - Foundations of Computing

Credits: 3

Introduces several theoretical areas which are the basis of computer science. Languages and automata, computability, complexity, analysis of algorithms, logic, and the specification and correctness of programs.

Prerequisite: COSC 3020.

OR

COSC4200 - Computability and Complexity

Credits: 3

Introduction to theoretical study of computability and efficient computation. Finite-state and pushdown automata; turing machines and the Church-Turing thesis; undecidability, computational complexity; NP-completeness.

Prerequisite: COSC 3020.

Operating Systems Course - Choose one of:

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

OR

COSC3750 - Linux Programming for System Applications

Credits: 3

Provide the necessary tools and skills to begin programming effectively on UNIX and Linux operating systems. Topics will include, shells and basic shell scripting, Linux utilities, editors, compilation, I/O and the file system, sockets and interprocess communication, and time permitting, threads.

Prerequisite: COSC 2150 and COSC 2030.

Programming Language Course - Choose one of:

COSC4780 - Principles of Programming Languages

Credits: 3

Introduces the methods of analysis and design of programming languages. Covers syntax, typing schemes and the semantics (denotational and operational) in the context of functional and imperative programming languages. Students build interpreters to explore the implications of the different constructs on computational behavior.

Prerequisite: COSC 3015.

OR

COSC4785 - Compiler Construction

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 5785.

Prerequisite: COSC 2150 and COSC 3020.

Systems Course - Choose one of:

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

OR

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with

the problems and issues of database management.

Prerequisite: COSC 2030.

COSC4950 - Senior Design I

Credits: 1

Students choose a senior design project, investigate alternate solutions and submit a preliminary project design. Periodic oral and written project progress reports are required.

Prerequisite: COSC 3011 and COSC 3020.

COSC4955 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in COSC 4950. Successful communication of the details of the solution through written documents and oral presentations will be required.

Prerequisite: COSC 4950.

Electives

- 9 credits of COSC Electives (3000-level or above, not used to complete any other requirement)
- General Electives to reach 120 credits.

A total of 3 credits of COSC 3970 can be used.

Approved EE courses may also be taken as COSC electives. See Department web pages for a current list of approved courses.

General electives include any course at or above the 1000 level, not used to complete any other requirement.

Electives should be selected to meet the 42 hour requirement for Upper Division credits.

Computer Science Program Educational Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Computer Science - Student Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Computer Science, Big Data Concentration, B.S.

The B.S. in Computer Science with a Concentration on Big Data combines a rigorous education in Computer Science with statistics, preparing you for a career in computer science, data analysis, or machine learning.

Computer Science General Information

Computer Science majors must satisfactorily meet the requirements of the University Studies Program (USP), and they must complete a minimum of 120 credit hours, at least 42 of which must be upper division hours.

Note that some of the courses required for the Computer Science core or the concentrations will meet some of the USP requirements. Students do not have to take additional courses to meet those requirements.

All courses in Computer Science, Mathematics, and Statistics must be completed with a grade of C or better.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Mathematics and Science Courses:

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed MATH 2300.

Prerequisite: COSC 1030, MATH 2200 or MATH 2350.

OR

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

- Approved Science Course - 4 credits
 - Approved Science Course - 4 credits
 - Approved Math/Science Elective - 4 credits
- ABET requires a minimum of 30 Math/Science credits hours.

Math electives means any MATH course above Calculus II or STAT courses 3000 and up.

Exceptions: cannot count MATH 2350, MATH 2355, MATH 4000, STAT 4220 or any variable credit courses toward this requirement.

Courses meeting the Science requirement must have a lab component and be for science or engineering majors. See Department web pages for a current list of approved courses.

Computer Science Courses

Introductory Programming Course - Choose one of:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

COSC3011 - Introduction to Software Design

Credits: 3

Introduces the principles and practice of software design, including UML and design patterns. Uses case studies to illustrate design in action.

Prerequisite: COSC 2030.

COSC3015 - Functional Programming

Credits: 3

Studies programming in the context of a functional language that emphasizes algorithmic strategies over syntactic detail.

Prerequisite: COSC 2030 and COSC 2300.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

Theory Course - Choose one of:

COSC4100 - Foundations of Computing

Credits: 3

Introduces several theoretical areas which are the basis of computer science. Languages and automata, computability, complexity, analysis of algorithms, logic, and the specification and correctness of programs.

Prerequisite: COSC 3020.

OR

COSC4200 - Computability and Complexity

Credits: 3

Introduction to theoretical study of computability and efficient computation. Finite-state and pushdown automata; turing machines and the Church-Turing thesis; undecidability, computational complexity; NP-completeness.

Prerequisite: COSC 3020.

Operating Systems - Choose one of:

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

OR

COSC3750 - Linux Programming for System Applications

Credits: 3

Provide the necessary tools and skills to begin programming effectively on UNIX and Linux operating systems. Topics will include, shells and basic shell scripting, Linux utilities, editors, compilation, I/O and the file system, sockets and interprocess communication, and time permitting, threads.

Prerequisite: COSC 2150 and COSC 2030.

Programming Language Course - Choose one of:

COSC4780 - Principles of Programming Languages

Credits: 3

Introduces the methods of analysis and design of programming languages. Covers syntax, typing schemes and the semantics (denotational and operational) in the context of functional and imperative programming languages. Students build interpreters to explore the implications of the different constructs on computational behavior.

Prerequisite: COSC 3015.

OR

COSC4785 - Compiler Construction

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 5785.

Prerequisite: COSC 2150 and COSC 3020.

Systems Course - Choose one of:

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

OR

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

COSC4950 - Senior Design I

Credits: 1

Students choose a senior design project, investigate alternate solutions and submit a preliminary project design. Periodic oral and written project progress reports are required.

Prerequisite: COSC 3011 and COSC 3020.

COSC4955 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in COSC 4950. Successful communication of the details of the solution through written documents and oral presentations will be required.

Prerequisite: COSC 4950.

Concentration Requirements

Big data is high volume, high velocity, and/or high variety assets that require new forms of processing to enable enhanced decision making, insight discovery and process optimization. The Big Data Concentration directs the students

toward data handling (AI, visualization, data mining, and machine learning) courses and data analysis (statistics) courses.

Students should take the following courses to fulfill the Big Data Concentration.

In addition, students who wish to pursue a Big Data concentration are required to complete a minor in Statistics.

COSC4450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the World Wide Web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 5450.

Prerequisite: COSC 3020 and MATH 2250.

COSC4550 - Introduction to Artificial Intelligence

Credits: 3

A computational study of intelligent behavior. Focus is on intelligent agents, which could be software agents or robots. Covers how agents sense, reason, and act within their environment. Includes problem-solving, search, knowledge representation, planning, game playing, learning, and neural and belief networks.

Dual Listed COSC 5550.

Prerequisite: COSC 3020.

COSC4555 - Machine Learning

Credits: 3

Goal is to program machines to learn and improve their performance on their own, based on experience and/or data. First half covers machine learning techniques; second half covers applications.

Dual Listed COSC 5555.

Prerequisite: COSC 3020.

COSC4570 - Data Mining

Credits: 3

Examine methods that have emerged from artificial intelligence and statistics and proven to be of value in recognizing patterns and making predictions with large data sets. Will include both theory and practice while developing several projects.

Prerequisite: COSC 4550.

- Courses for Statistics Minor
 - General Electives to reach 120 credits.
- A total of 3 credits of COSC 3970 can be used.

General Electives include any course at or above the 1000 level, not used to complete any other requirement. Electives should be selected to meet the 42 hour requirement for Upper Division credits.

Computer Science Program Educational Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Computer Science - Student Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Computer Science, Computers and Business Concentration, B.S.

The B.S. in Computer Science with a Concentration on Computers and Business combines a rigorous education in Computer Science with an understanding of business processes, preparing you for a career applying computer science in the business world.

Computer Science General Information

Computer Science majors must satisfactorily meet the requirements of the University Studies Program (USP), and they must complete a minimum of 120 credit hours, at least 42 of which must be upper division hours.

Note that some of the courses required for the Computer Science core or the concentrations will meet some of the USP requirements. Students do not have to take additional courses to meet those requirements.

All courses in Computer Science, Mathematics, and Statistics must be completed with a grade of C or better.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Mathematics and Science Courses:

MATH2200 - Calculus I

Credits: 4
Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4
Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2250 - Elementary Linear Algebra

Credits: 3
Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed MATH 2300.

Prerequisite: COSC 1030, MATH 2200 or MATH 2350.

OR

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

- Approved Science Course - 4 credits
- Approved Science Course - 4 credits
- Approved Math/Science Elective - 4 credits

ABET requires a minimum of 30 Math/Science credit hours.

Math elective means any MATH course above Calculus II or STAT courses 3000 and up.

Exceptions: cannot count MATH 2350, MATH 2355, MATH 4000, STAT 4220 or any variable credit courses toward this requirement.

Courses meeting the Science requirement must have a lab component and be for science or engineering majors. See Department web pages for a current list of approved courses.

Computer Science Courses

Introductory Programming Course - Choose one of:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von

Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

COSC3011 - Introduction to Software Design

Credits: 3

Introduces the principles and practice of software design, including UML and design patterns. Uses case studies to illustrate design in action.

Prerequisite: COSC 2030.

COSC3015 - Functional Programming

Credits: 3

Studies programming in the context of a functional language that emphasizes algorithmic strategies over syntactic detail.

Prerequisite: COSC 2030 and COSC 2300.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

Theory Course - Choose one of:

COSC4100 - Foundations of Computing

Credits: 3

Introduces several theoretical areas which are the basis of computer science. Languages and automata, computability, complexity, analysis of algorithms, logic, and the specification and correctness of programs.

Prerequisite: COSC 3020.

OR

COSC4200 - Computability and Complexity

Credits: 3

Introduction to theoretical study of computability and efficient computation. Finite-state and pushdown automata; turing machines and the Church-Turing thesis; undecidability, computational complexity; NP-completeness.

Prerequisite: COSC 3020.

Operating Systems - Choose one of:

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

OR

COSC3750 - Linux Programming for System Applications

Credits: 3

Provide the necessary tools and skills to begin programming effectively on UNIX and Linux operating systems. Topics will include, shells and basic shell scripting, Linux utilities, editors, compilation, I/O and the file system, sockets and interprocess communication, and time permitting, threads.

Prerequisite: COSC 2150 and COSC 2030.

Programming Language Course - Choose one of:

COSC4780 - Principles of Programming Languages

Credits: 3

Introduces the methods of analysis and design of programming languages. Covers syntax, typing schemes and the semantics (denotational and operational) in the context of functional and imperative programming languages. Students build interpreters to explore the implications of the different constructs on computational behavior.

Prerequisite: COSC 3015.

OR

COSC4785 - Compiler Construction

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 5785.

Prerequisite: COSC 2150 and COSC 3020.

Systems Course

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

COSC4950 - Senior Design I

Credits: 1

Students choose a senior design project, investigate alternate solutions and submit a preliminary project design. Periodic oral and written project progress reports are required.

Prerequisite: COSC 3011 and COSC 3020.

COSC4955 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in COSC 4950. Successful communication of the details of the solution through written documents and oral presentations will be required.

Prerequisite: COSC 4950.

Concentration Requirements

An understanding of business fundamentals is essential for students planning a career in applied computer science in a business environment.

Students should take COSC 4820 to satisfy the System Course requirement, and should take the following courses as part of the Computer and Business Concentration.

In addition, students who wish to pursue a Computers and Business concentration are required to complete one of the minors offered by the College of Business.

COSC4210 - Web Application Development

Credits: 3

The course covers the basics of developing data driven web applications. Topics include using responsive design for user interfaces, architectural patterns and frameworks, object-relational mapping, language-integrated queries, authentication, authorization, unit testing, using source control for code management, publishing web applications and cloud computing.

Prerequisite: COSC 3011.

COSC4220 - Design and Implementation in Emerging Environments

Credits: 3

Students who have completed the analysis and design course extend their knowledge by implementing an information system in an emerging systems environment. Teams use project management principles to implement the system.

Prerequisite: COSC 4210.

- 3 credits of COSC Electives (3000-level or above, not used to complete any other requirement)
 - Courses for Business Minor
 - General Electives to reach 120 credits
- A total of 3 credits of COSC 3970 can be used.
Approved EE courses may also be taken as COSC electives. See Department web pages for a current list of approved courses.
General electives include any course at or above the 1000 level, not used to complete any other requirement.
Electives should be selected to meet the 42 hour requirement for Upper Division credits.

Computer Science Program Educational Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Computer Science - Student Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Construction Management, B.S.

Construction Managers are responsible for overseeing construction projects, including schedules, budgets, and quality control. The B.S. in Construction Management is a candidate for accreditation by ACCE and provides numerous career paths.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Core Courses: 50 credit hours

CE1000 - Exploring CAECM

Credits: 1

Introduction to civil and architectural engineering professions through exploration of modern engineering challenges. Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globalizability, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed ARE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE2070 - Engineering Surveying

Credits: 3

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Traverse field techniques and office calculations. Basic principles of surveying and map making.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CM2000 - Introduction to Construction Management

Credits: 3

Introduction to the practice and principles of construction management as it relates to both vertical and horizontal construction projects.

CM2120 - Construction Materials and Methods

Credits: 3

Introduction to building materials and construction practices used in the construction industry to construct both vertical and horizontal construction projects.

Prerequisite: COM1.

CM2300 - Construction Safety

Credits: 3

Introduce students to the various causes of construction accidents and adopted strategies to prevent worksite injuries and illnesses with an emphasis on OSHA standards.

Prerequisite: CM 2000.

CM2400 - MEP Systems

Credits: 3

Introduction to mechanical, electrical and plumbing systems in site infrastructure and vertical construction projects.

Prerequisite: C in PHYS 1110.

CM2600 - Construction Documents

Credits: 3

Introduction to the creation and interpretation of construction documents used in the construction industry to build today's vertical and horizontal construction projects.

Prerequisite: CM 2000.

CM3100 - Construction Scheduling

Credits: 3

Principles of construction scheduling including analytical and quantitative scheduling and management techniques as they apply to both vertical and horizontal construction projects.

Prerequisite: CM 3210

CM3160 - Construction Law & Contracts

Credits: 3

The course covers different contract methods, or arrangements, used by the Construction industry to contract and procure construction work. The course also introduces students to construction law in support of planning and the execution of construction work.

Prerequisite: CM 2600.

CM3180 - Evolving Technologies in CM

Credits: 3

The course introduces students to Leadership in Energy and Environmental Design (LEED), Building Information Modeling (BIM) and evolving technologies in construction.

Prerequisite/Corequisite: Grade of C in CM 2000

CM3200 - Statics & Structural Systems

Credits: 4

The course introduces students to the basic principles of statics and structural analysis and design. It provides students with a concise presentation of structural technology, from the determination of structural loads, sizing and design as it relates to timber, steel and concrete structures.

Prerequisite: PHYS 1110 and MATH 2200 with grades of C or better.

CM3210 - Construction Estimating

Credits: 3

The course introduces students to concepts in estimating including but not limited to labor and equipment calculations,

the use of price databases, direct and indirect cost, bid preparation and computer applications.

Prerequisite: C in CM 2600.

CM3220 - Soils and Concrete

Credits: 3

This course will introduce students with the construction process that includes, site clearing, soil mechanics, testing, concrete foundations, concrete mix design, concrete construction practice, and concrete testing.

Prerequisite: GEOL 1110 with a grade of C or better and concurrent enrollment in CM 3200.

CM4100 - Project Management

Credits: 3

This course guides students through fundamental Project Management concepts and behavioral skills needed to success-fully launch and lead construction projects in the construction sector.

Prerequisite: CM 3100.

CM4140 - Heavy CM Methods

Credits: 3

The course provides student an overall understanding of construction equipment and selected construction methods used on large scale construction projects. With specific reference to selection, economy, and productivity of common construction equipment and construction procedures for site development and industrial, heavy and civil construction.

Prerequisite: CM 2120 and CM 3200.

CM4600 - Building Info. Modeling

Credits: 3

This course focuses on the skills and information needed to effectively use an existing Building Information Model (BIM) in plan execution for a building construction project. This is a projectbased course where students develop skills on the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction operations.

Prerequisite: CM 2600.

CM4900 - Capstone Project

Credits: 3

This course requires students to participate in a "real" construction situation involving all aspects of managing a project; from initial planning to completion, including budgets, estimating, scheduling, financing and creating contracts and other construction forms as necessary. Case studies will be utilized to develop critical thinking skills.

Prerequisite: CM 4100.

Business & Professional Courses: 18 credit hours

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

Math/Science Courses: 18 credit hours

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE
USP 2015 Code U5PN

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Math/Science Elective Credits: 3

CM Electives: 6 credit hours

Must take 6 additional credit hours in Construction Management elective courses.

General Electives: 12 credit hours

Must take 12 additional credit hours in general elective courses.

Required Credits: 120 Hours (Minimum)

A Minimum of 42 Credit Hours Must Be Upper Division (3000+) Level.

- Degree candidates must meet the academic requirements of the university, and must have a minimum GPA of 2.0 in all courses, and all courses required for the major. *Grades of C or better are required for all prerequisite courses.
- Math 2350 may replace Math 2200 but student must also have Math 1405.
- Math 1405 may be satisfied with Level 5 of the Math placement exam or Math ACT of 27 or SAT Math of 640. Students placing out of Math 1405 will need an additional general elective.
- Students may not take a course for S/U credit to satisfy any requirement, unless the course is offered for S/U credit only.

Electrical Engineering, B.S.

A B.S. in Electrical Engineering provides the knowledge needed for careers in power systems, control systems, electronics, signal processing, tele-communications, computer programming & design.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Math & Science

MATH2200 - Calculus I

Credits: 4
Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

- 3 credits of an approved Math/Science Elective ²

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

Electrical Engineering

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE2390 - Digital Systems Design

Credits: 4

Binary logic, digital logic gates, reduction of Boolean expressions, combinational logic design. MSI and LSI combinational logic ICs, flip-flops, synchronous and asynchronous sequential systems design, MSI and LSI sequential system ICs, and algorithmic state machines.

Prerequisite: COSC 1010 or COSC 1015 or COSC 1030 or ES 1060, and MATH 2205.

EE3150 - Electromagnetics

Credits: 3

A thorough study of static electric and magnetic fields using vector methods with an introduction to dynamic fields.

Prerequisite: ES 2210, or ES 2215 and ES 2216, MATH 2210, and PHYS 1220 or concurrent enrollment.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution; difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

EE3311 - Electronics I

Credits: 3

Physical characteristics and models of semiconductor devices with application to electronic circuit design. Diode circuits, single transistor amplifiers, biasing, and load lines. Prerequisites: (PHYS 1220 or PHYS 1320 or EE 3150), and EE 2220 or concurrent enrollment.(Offered fall semester only)

Prerequisite: PHYS 1220 or PHYS 1320 or EE 3150, and EE 2220 or concurrent enrollment

EE3312 - Electronics I Laboratory

Credits: 1

Hands on interactive laboratory investigation of the physical characteristics of semiconductor devices and applications in electronic circuit design. Study of diode and transistor characteristics as well as diode circuits and single transistor amplifier circuit design, construction and testing. Prerequisites: EE3311 must be taken either concurrently or as a prerequisite. (Offered fall semester only)

When Offered (Offered fall semester only)

Prerequisite: EE3311 must be taken either concurrently or as a prerequisite.

EE3331 - Electronics II

Credits: 3

Current sources, differential and multistage amplifiers; circuits with ideal and non-ideal operational amplifiers; low and high band frequency response, feedback, stability, gain and phase margin of amplifiers; output stages, class A and push-pull; monolithic operational amplifier; oscillators; transistors as switches and introduction to digital electronic circuits. Laboratory. Prerequisites: (EE 3310 or EE 3311) and EE 2220. (Offered spring semester only)

When Offered (Offered spring semester only)

Prerequisite: (EE 3312 or EE 3311) and EE 2220

EE3332 - Electronics II Laboratory

Credits: 1

Hands on interactive laboratory investigation of transistor switching circuits, differential amplifiers, current sources, amplifier frequency response, feedback, output stages, and oscillators. Prerequisites: EE 3312 and EE 3331

concurrently (offered spring semester only).

Prerequisite: EE 3312 and EE 3331 concurrently

EE3510 - Electric Machines and Power Systems

Credits: 4

Polyphase AC circuits; single phase and polyphase transformers; AC synchronous and induction machines; introduction to power systems and per unit system; transmission line parameters; steady-state operations of transmission lines; power flows; transient stability; synchronphasor system and its applications.

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE4075 - C++ with Numerical Methods for Engineers

Credits: 4

Introduction to the fundamentals of practical engineering programming, using specific applications of numerical methods to demonstrate these principles. The use of an object oriented approach using C++ in an efficient manner is emphasized. Other solution approaches, including C and Matlab will be discussed as appropriate.

A&S College Core 2015 Credit will not be allowed in both EE 4075 and ES 3070.

Prerequisite: MATH 2205 and (COSC 1010, COSC 1015, or ES 1060) and (MATH 2250 or MATH 2310) or consent of instructor.

EE4220 - Probabilistic Signals and Systems

Credits: 3

Fundamentals of probability and statistics for engineers; reliability in engineering systems; random processes, statistical estimation, auto/ cross correlation and power spectral density functions and linear filtering of random signals.

Prerequisite: MATH 2210 and EE 3220. EE 3220 may be taken concurrently.

EE4390 - Microprocessors

Credits: 3

Design of microcomputers, controllers and instruments which use microprocessors. Semiconductor memory design, CPU architecture, bus structure and timing, input-output interfaces and devices, assembly language programming, assemblers, compilers, editors and simulators. Emphasizes design techniques. Laboratory.

When Offered (Normally offered once a year)

Prerequisite: EE 2390.

EE4440 - Communication Theory

Credits: 3

Amplitude and angle modulation and demodulation; digital baseband and carrier communication systems; performance

of communication systems; and current topics in communication systems.

When Offered (Normally offered once a year)

Prerequisite: EE 3220 and EE 4220.

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

EE4820 - Senior Design I

Credits: 2

Students choose a senior design project and complete the preliminary design. This stage of senior design includes investigation of alternative solutions that meet the project's requirements, cost analysis, and building the prototype circuit. Periodic oral and written project progress reports are required.

When Offered (Offered fall semester only)

Prerequisite: EE 2220, EE 2390, and EE 3312 or concurrent enrollment, plus 6 hours of 4000 level EE/BE classes, or concurrent enrollment. COM2 must be passed with a C or better grade.

EE4830 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in EE 4820. The final result of the senior design project includes assembly of a PC board hardware that meets the project's requirements and final report describing the design procedure, designed hardware and software, and results of final testing. Periodic oral and written project progress reports are required.

When Offered (Offered spring semester only)

Prerequisite: EE 4820 and selected courses in the area of the design project.

Advisor Approved Electives

- 15 credits of EE or BE Electives (4000-Level or Above)
- 4 credits Approved Technical Electives.⁵

Total Credits: 128 Hours

¹PHYS 1210: no credit can be earned in PHYS 1210 if taken after ES 2120. PHYS 1220 should be taken before or concurrently with ES 2210.

²One course from the ECE Math/Science Elective List. ABET requires a minimum of 30 hours of Math/ Science Electives.

³Or any ES, EE, BE course (>2000 level), or COSC 3011 or COSC 3750

⁴To meet the COM3 requirement with EE 4820 and EE 4830, the COM2 course must be taken before EE 4820. Also, EE 4820 and EE 4830 must be taken in sequence. COM 2 grade of C or better is required.

⁵Any course from the approved ECE technical elective list. Credit can be earned for professional internships or CO-OPs. Internships for Credit must go through EE 4800

Online courses taken outside of the Wyoming system will not be considered for preapproved Transfer.

Students must have a minimum cumulative GPA 2.000 in all Engineering courses for graduation.

A grade of C or better is required for all prerequisite courses.

Students must also achieve a grade of C or better in all required mathematics courses.

Students must complete a minimum of 42 hours of upper division coursework, 30 of which must from the University of Wyoming.

EE 1101 is the recommended FYS course for Electrical Engineering majors.

Electrical Engineering Program Educational Objectives

Graduates of the University of Wyoming Electrical and Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

Electrical Engineering - Student Learning Outcomes

All Electrical (Computer) Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Electrical Engineering, F.M. Long Bioengineering, B.S.

The Bioengineering B.S. is a degree in Electrical Engineering in which the electives are carefully taken to understand and design medical equipment. With a few more courses, it can serve as a pre-med or pre-dental program.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Math & Science

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

Electrical Engineering

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE2390 - Digital Systems Design

Credits: 4

Binary logic, digital logic gates, reduction of Boolean expressions, combinational logic design. MSI and LSI combinational logic ICs, flip-flops, synchronous and asynchronous sequential systems design, MSI and LSI sequential system ICs, and algorithmic state machines.

Prerequisite: COSC 1010 or COSC 1015 or COSC 1030 or ES 1060, and MATH 2205.

EE3150 - Electromagnetics

Credits: 3

A thorough study of static electric and magnetic fields using vector methods with an introduction to dynamic fields.

Prerequisite: ES 2210, or ES 2215 and ES 2216, MATH 2210, and PHYS 1220 or concurrent enrollment.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution; difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

EE3311 - Electronics I

Credits: 3

Physical characteristics and models of semiconductor devices with application to electronic circuit design. Diode circuits, single transistor amplifiers, biasing, and load lines. Prerequisites: (PHYS 1220 or PHYS 1320 or EE 3150), and EE 2220 or concurrent enrollment.(Offered fall semester only)

Prerequisite: PHYS 1220 or PHYS 1320 or EE 3150, and EE 2220 or concurrent enrollment

EE3312 - Electronics I Laboratory

Credits: 1

Hands on interactive laboratory investigation of the physical characteristics of semiconductor devices and applications in electronic circuit design. Study of diode and transistor characteristics as well as diode circuits and single transistor amplifier circuit design, construction and testing. Prerequisites: EE3311 must be taken either concurrently or as a prerequisite. (Offered fall semester only)

When Offered (Offered fall semester only)

Prerequisite: EE3311 must be taken either concurrently or as a prerequisite.

EE3331 - Electronics II

Credits: 3

Current sources, differential and multistage amplifiers; circuits with ideal and non-ideal operational amplifiers; low and high band frequency response, feedback, stability, gain and phase margin of amplifiers; output stages, class A and push-pull; monolithic operational amplifier; oscillators; transistors as switches and introduction to digital electronic circuits. Laboratory. Prerequisites: (EE 3310 or EE 3311) and EE 2220. (Offered spring semester only)

When Offered (Offered spring semester only)

Prerequisite: (EE 3312 or EE 3311) and EE 2220

EE3332 - Electronics II Laboratory

Credits: 1

Hands on interactive laboratory investigation of transistor switching circuits, differential amplifiers, current sources, amplifier frequency response, feedback, output stages, and oscillators. Prerequisites: EE 3312 and EE 3331 concurrently (offered spring semester only).

Prerequisite: EE 3312 and EE 3331 concurrently

EE3510 - Electric Machines and Power Systems

Credits: 4

Polyphase AC circuits; single phase and polyphase transformers; AC synchronous and induction machines;

introduction to power systems and per unit system; transmission line parameters; steady-state operations of transmission lines; power flows; transient stability; synchrophasor system and its applications.

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE4075 - C++ with Numerical Methods for Engineers

Credits: 4

Introduction to the fundamentals of practical engineering programming, using specific applications of numerical methods to demonstrate these principles. The use of an object oriented approach using C++ in an efficient manner is emphasized. Other solution approaches, including C and Matlab will be discussed as appropriate.

A&S College Core 2015 Credit will not be allowed in both EE 4075 and ES 3070.

Prerequisite: MATH 2205 and (COSC 1010, COSC 1015, or ES 1060) and (MATH 2250 or MATH 2310) or consent of instructor.

EE4220 - Probabilistic Signals and Systems

Credits: 3

Fundamentals of probability and statistics for engineers; reliability in engineering systems; random processes, statistical estimation, auto/ cross correlation and power spectral density functions and linear filtering of random signals.

Prerequisite: MATH 2210 and EE 3220. EE 3220 may be taken concurrently.

EE4390 - Microprocessors

Credits: 3

Design of microcomputers, controllers and instruments which use microprocessors. Semiconductor memory design, CPU architecture, bus structure and timing, input-output interfaces and devices, assembly language programming, assemblers, compilers, editors and simulators. Emphasizes design techniques. Laboratory.

When Offered (Normally offered once a year)

Prerequisite: EE 2390.

EE4820 - Senior Design I

Credits: 2

Students choose a senior design project and complete the preliminary design. This stage of senior design includes investigation of alternative solutions that meet the project's requirements, cost analysis, and building the prototype circuit. Periodic oral and written project progress reports are required.

When Offered (Offered fall semester only)

Prerequisite: EE 2220, EE 2390, and EE 3312 or concurrent enrollment, plus 6 hours of 4000 level EE/BE classes, or concurrent enrollment. COM2 must be passed with a C or better grade.

EE4830 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in EE 4820. The final result of the senior design project includes assembly of a PC board hardware that meets the project's requirements and final report describing the design procedure, designed hardware and software, and results of final testing. Periodic oral and written project progress reports are required.

When Offered (Offered spring semester only)

Prerequisite: EE 4820 and selected courses in the area of the design project.

Bio-Engineering and Electives

BE4810 - Bioinstrumentation

Credits: 3

Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 5810.

Prerequisite: EE 2210 or similar electric circuit course.

BE4820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from experimental data.

Dual Listed BE 5810.

Prerequisite: EE 3220, basic course, or equivalent.

OR

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

- 3 credits of EE or BE Electives (4000-level or above)
- 3 credits Approved Technical Electives.⁴

Total Credits: 128 Hours

¹ PHYS 1210: no credit can be earned in PHYS 1210 if taken after ES 2120. PHYS 1220 should be taken before or concurrently with ES 2210.

² Or any ES, EE, BE course (>2000 level), or COSC 3011 or COSC 3750

³ To meet the COM3 requirement with EE 4820 and EE 4830 the COM2 course must be taken before EE 4820. Also, EE 4820 and EE 4830 must be taken in sequence. COM 2 grade of C or better is required.

⁴ Any course from the approved ECE technical elective list. Credit can be earned for professional internships or CO-OPs. Internships for Credit must go through EE 4800.

Online courses taken outside of the Wyoming system will not be considered for preapproved Transfer.

Students must have a minimum cumulative GPA 2.000 in all Engineering courses for graduation.

A grade of C or better is required for all prerequisite courses.

Students must also achieve a grade of C or better in all mathematics courses.

Students must complete a minimum of 42 hours of upper division coursework, 30 of which must from the University of Wyoming.

EE 1101 is the recommended FYS course for Electrical Engineering majors.

Electrical Engineering -F.M. Long Bioengineering Program Educational Objectives

Graduates of the University of Wyoming Electrical and Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

Electrical Engineering, F.M. Long Bioengineering Student Learning Outcomes

All Electrical (Computer) Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Energy Systems Engineering, B.S.

Energy Systems Engineers design, develop, and test energy systems and devices with emphasis on renewables, conversion, and more, and in the context of environmental and legal considerations. The UW BS in Energy Systems Engineering is ABET accredited.

Energy Systems Engineering Success Curriculum

All undergraduate students in the B.S. Mechanical Engineering and B.S. Energy Systems Engineering programs must successfully complete the Mechanical Engineering Success Curriculum prior to enrolling in any upper-division (3000-level or above) courses taught by the Mechanical Engineering Department. The Mechanical Engineering Success Curriculum promotes successful completion of upper-division coursework by assuring a student that their foundational knowledge and skills are strong in mathematics and engineering fundamentals. AP/iB courses are excluded from the GPA calculation, but grades transferred from other institutions will be used in evaluating the ME Success Curriculum GPA.

Successful Completion

To successfully complete the Mechanical Engineering Success Curriculum, a student must earn a minimum 3.000 GPA in the following 10 courses:

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

Policy for Transfer Credit Towards Energy Systems Engineering (ESE) Core Coursework

In general, transfer of coursework toward an Energy Systems Engineering degree will follow University of Wyoming policy. A course must be shown to be equivalent to its University of Wyoming course (latitude may be given for Energy Systems Engineering electives without a direct University of Wyoming equivalent). However, three courses are considered to be the core of the Energy Systems Engineering program, and therefore credit cannot be transferred from another institution. These courses are ESE 3020, ESE 3040, and ESE 3360. Exceptions may be made for courses from approved study abroad programs or in extreme circumstances. Please note that failing a prerequisite course resulting in a delay of graduation does not constitute an extreme circumstance. Any transfer of ESE courses requires explicit written approval from the Department.

Energy Systems Engineering Curriculum

Atmospheric Science

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

Chemistry

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

Environment and Natural Resources

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making. Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

Math

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Energy System Engineering

ESE3005 - Engineering Experimentation

Credits: 3

A combined lecture/laboratory course introducing students to experimental methods in the context of dynamics. Written technical communication, intermediate structured programming, experimental design, fundamental statistics, and uncertainty methods (numerical and analytical) are emphasized. Collaborative writing and teamwork is introduced.

Cross Listed ME 3005.

Former Course Number [2010; 2020]

Prerequisite: Completion of the ME Success Curriculum, ES 1060; ES 2120.

ESE3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ME 3020.

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ESE3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ME 3040.

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ESE3060 - Numerical Methods for Engineers

Credits: 3

Numerical solutions of problems commonly encountered in mechanical engineering including differentiation, integration, differential equations, system of linear and nonlinear equations, and optimization. The structured programming approach will be emphasized and applications from solid mechanics, thermal fluid sciences, materials science, and dynamic systems will be covered.

Cross Listed ME 3060.

Prerequisite: Completion of the ME Success Curriculum, ES 1060 and corequisite of MATH 2310.

ESE3160 - Thermal/Fluid Science Lab

Credits: 3

A laboratory course to introduce students to experimental methods for temperature measure and pressure/flow characteristics of fluids. Continuation of experience with communication (written, oral, and digital), intermediate programming, experimental design, data analysis, and teamwork skills is emphasized.

Cross Listed ME 3160.

Former Course Number [2140; 2160]

Prerequisite: Completion of the ME Success Curriculum, ES 2330; ME 3005/ESE 3005.

ESE3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ME 3360/ARE 3360.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310 and ES 2330.

ESE4060 - Energy Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience on an energy-related project. Multidisciplinary teams prepare a project proposal or Statement of Qualifications, generate a morphological study of their project, develop mathematical models of their design, and prepare project plans and specifications. Project management and methods are also presented.

USP 2015 Code U5C3

Prerequisite: Completion of the ME Success Curriculum, ESE 3040 and ESE 3360.

ESE4070 - Energy Systems Design II

Credits: 3

Continuation of a two-course design sequence. The design teams refine their designs, fabricate the project, test the project for compliance with the design specifications, write a comprehensive engineering design report including socioeconomic factors, and prepare and deliver a presentation of the project in a public forum.

USP 2003-2014 Code U3WC

Prerequisite: Completion of the ME Success Curriculum, ME 4060/ESE 4060 and WB.

Life Sciences

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Physics

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Electives

- One Math/Science Elective (min 3 CH total, select from department-approved list)
- One Business Elective (min 3 CH, select from department-approved list)

(See here for Math, Science and Business Elective options: [me_math_science_business_electives_2022_02_04.pdf](#) (uwyo.edu))

ESE Electives

Two ESE Electives (min 6 CH total) choose 2 from:

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H
A&S College Core 2015 ASG

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.
Dual Listed POLS 5051.
USP 2003-2014 Code U3WC
Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 5350.
Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

PETE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Studies social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed CHE 4000.

Prerequisite: junior standing and completion of two lab sciences.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

Technical Electives

Five Technical Electives (min 15 CH). Choose 5 from:

ARE4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ME 4430.

When Offered (Normally offered alternate spring semesters)

Former Course Number [ARE 3420, ARE 4810]

Prerequisite: Completion of the ME Success Curriculum, ARE 3400 and ARE 3360/ME 3360 or concurrent.

ARE4740 - Mechanical Systems Design Project

Credits: 3

Final course in the building mechanical systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's mechanical systems.

Cross Listed ARE/ME 4740

Prerequisite: ARE/CE 3110 and ARE 3400

CE3400 - Introduction to Environmental Engineering

Credits: 3

An introduction to the major topics in environmental engineering. Focus areas include water supply, wastewater treatment, air pollution control and solid and hazardous waste management. Quantitative aspects and engineering solutions to problems are emphasized.

Prerequisite: MATH 2205 and CHEM 1020 or equivalent.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

ES2800 - Physical Computing

Credits: 3

Emphasizes implementing python programs on the Raspberry Pi and then interfacing with power stages, mobile platforms, sensors and input/output devices. The goal is designing systems that sense the world, make decisions based on those sensations

Prerequisite: EE 1101 or ES 2210 or concurrent enrollment in ES2210 or Consent of the Instructor

ESE4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems. Cross-listed with ME 4455 and dual-listed with ME 5455.

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ESE4461 - Computational Fluid Dynamics I

Credits: 3

Max Credit 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed ME 4461

Dual Listed ME 5461

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

ME3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/ equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ARE 3400

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ME3450 - Properties of Materials

Credits: 3

Mechanical, electrical, thermal and chemical properties of materials. Theoretical treatment of structure of solids and design for specified properties.

When Offered (Normally offered spring semester)

Former Course Number [ES 3450]

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4340 - Gas Turbine Engines

Credits: 3

Thermodynamic analysis and design of ground-based and aero-propulsion gas turbine engines.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

Universities Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Notes:

- i. Before enrolling in any upper division ESE or ME course, students must complete the ME Success Curriculum (minimum 3.000 GPA in MATH 2200, MATH 2250, MATH 2210, and the seven ES courses).
- ii. Graduates must meet all college requirements and earn a minimum GPA of 2.000 in ME and ESE courses taken at UW. A minimum of 48 hours of upper division coursework are required, so ESE, business, and technical electives should be chosen appropriately.

Program Educational Objectives

- Successfully practice the profession of engineering
- Demonstrate career growth (e.g., increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees)
- Apply energy systems engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts
- Successfully serve in a range of leadership and collaborative roles in the profession and in the community
- Exhibit high professional standards and commitment to ethical action

Energy Systems Student Outcomes

The Department's Student Outcomes are:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Mathematics, B.A.

A comprehensive math degree with training in the fundamentals of proofs, analysis, algebra, computation and math modeling. Provides a strong background for teaching, work in industry and graduate programs in math.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Lower Division Core Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

Upper Division

These courses, known as the transition courses, introduce students to the three main areas of mathematics research currently represented in the department.

At the upper division, all mathematics majors must take:

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general. Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

Depth Course

Every mathematics major must select one course that builds on the corresponding transition course. This sequence provides the student with an opportunity to study one of these areas in greater depth.

MATH4200 - Analysis 2: Advanced Analysis

Credits: 3

A second course in analysis. Includes metric space topology, sequences and series of functions, and analysis in \mathbb{R}^n .

When Offered (Offered fall semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 2210, MATH 2250 and MATH 3205.

OR

MATH4205 - Analysis 3: Undergraduate Topics in Analysis

Credits: 3

Special topics in analysis. Content varies. May be repeated for credit.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 4200.

OR

MATH4510 - Algebra II: Introduction to Group Theory

Credits: 3

An introduction to the fundamental properties of groups including: binary operations, groups, permutation groups, subgroups, homomorphisms, and quotient groups.

When Offered (Offered spring semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 3500.

OR

MATH4520 - Algebra III: Topics in Abstract Algebra

Credits: 3

Further examples and structure of rings and fields. Finite fields and number fields. Special topics.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 4510.

OR

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

OR

MATH4440 - Introduction to Partial Differential Equations I

Credits: 3

Survey of analytic methods for solving partial differential equations. Topics include: method of characteristics for solving first-order linear and quasi-linear equations; classification of second-order equations and canonical forms; background to separation of variables with applications; transform methods and Green functions; elliptic equations; heat and wave equations in one dimension.

Prerequisite: grade of C or better in MATH 2210 and MATH 2310.

Upper Division Math Courses

Finally, an additional 15 credits of upper division math courses (3000 and above) are required. It is recommended that these courses be selected to provide a broad view of mathematics.

Two of the math electives may be chosen from a list of approved courses that have significant math content, upon approval by the student's advisor. More details about such courses are available on the math department's web site, www.uwyo.edu/mathstats/.

Only grades of C or better will be accepted for the major.

Mathematics, B.S.

A comprehensive math degree with training in the fundamentals of proofs, analysis, algebra, computation and math modeling. Provides a strong background for teaching, work in industry and graduate programs in math.

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The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
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PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Lower Division Core Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

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These courses, known as the transition courses, introduce students to the three main areas of mathematics research currently represented in the department.

At the upper division, all mathematics majors must take

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general. Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

Depth Course

Every mathematics major must select one course that builds on the corresponding transition course. This sequence provides the student with an opportunity to study one of these areas in greater depth.

MATH4200 - Analysis 2: Advanced Analysis

Credits: 3

A second course in analysis. Includes metric space topology, sequences and series of functions, and analysis in \mathbb{R}^n .

When Offered (Offered fall semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 2210, MATH 2250 and MATH 3205.

OR

MATH4205 - Analysis 3: Undergraduate Topics in Analysis

Credits: 3

Special topics in analysis. Content varies. May be repeated for credit.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 4200.

OR

MATH4510 - Algebra II: Introduction to Group Theory

Credits: 3

An introduction to the fundamental properties of groups including: binary operations, groups, permutation groups, subgroups, homomorphisms, and quotient groups.

When Offered (Offered spring semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 3500.

OR

MATH4520 - Algebra III: Topics in Abstract Algebra

Credits: 3

Further examples and structure of rings and fields. Finite fields and number fields. Special topics.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 4510.

OR

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

OR

MATH4440 - Introduction to Partial Differential Equations I

Credits: 3

Survey of analytic methods for solving partial differential equations. Topics include: method of characteristics for solving first-order linear and quasi-linear equations; classification of second-order equations and canonical forms; background to separation of variables with applications; transform methods and Green functions; elliptic equations; heat and wave equations in one dimension.

Prerequisite: grade of C or better in MATH 2210 and MATH 2310.

Upper Division Math Courses

Finally, an additional 15 credits of upper division math courses (3000 and above) are required. It is recommended that these courses be selected to provide a broad view of mathematics.

Two of the math electives may be chosen from a list of approved courses that have significant math content, upon approval by the student's advisor. More details about such courses are available on the math department's web site, www.uwyo.edu/mathstats/.

Only grades of C or better will be accepted for the major.

Mechanical Engineering, B.S.

Mechanical Engineers design, develop, build, and test mechanical and thermal systems and devices in a wide range of fields including energy, manufacturing, materials, machines, and more. The UW BS in Mechanical Engineering is ABET accredited.

Mechanical Engineering Success Curriculum

All undergraduate students in the B.S. Mechanical Engineering and B.S. Energy Systems Engineering programs must successfully complete the Mechanical Engineering Success Curriculum prior to enrolling in any upper-division (3000-level or above) courses taught by the Mechanical Engineering Department. The Mechanical Engineering Success Curriculum promotes successful completion of upper-division coursework by assuring a student that their foundational knowledge and skills are strong in mathematics and engineering fundamentals. AP/iB courses are excluded from the GPA calculation, but grades transferred from other institutions will be used in evaluating the ME Success Curriculum GPA.

Successful Completion

To successfully complete the Mechanical Engineering Success Curriculum, a student must earn a minimum 3.000 GPA in the following 10 courses:

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

Policy for Transfer Credit Towards Mechanical Engineering (ME) Core Coursework

In general, transfer of coursework towards a Mechanical Engineering degree will follow University of Wyoming policy. A course must be shown to be equivalent to its University of Wyoming course (latitude may be given for Mechanical Engineering electives without a direct University of Wyoming equivalent). However, six courses are considered to be the core of the Mechanical Engineering program, and therefore credit cannot be transferred from another institution. These courses are ME 3010, ME 3020, ME 3040, ME 3170, ME 3360, and ME 3450. Exceptions may be made for courses from approved study abroad programs or in extreme circumstances. Please note that failing a prerequisite course resulting in a delay of graduation does not constitute an extreme circumstance. Any transfer of ME courses requires explicit written approval from the Department.

Mechanical Engineering Curriculum

Chemistry

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

ES2800 - Physical Computing

Credits: 3

Emphasizes implementing python programs on the Raspberry Pi and then interfacing with power stages, mobile platforms, sensors and input/output devices. The goal is designing systems that sense the world, make decisions based on those sensations

Prerequisite: EE 1101 or ES 2210 or concurrent enrollment in ES2210 or Consent of the Instructor

Math

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Mechanical Engineering

ME3005 - Engineering Experimentation

Credits: 3

A combined lecture/laboratory course introducing students to experimental methods in the context of dynamics. Written technical communication, intermediate structured programming, experimental design, fundamental statistics, and uncertainty methods (numerical and analytical) are emphasized. Collaborative writing and teamwork is introduced.

Cross Listed ESE 3005

Former Course Number [2010; 2020]

Prerequisite: Completion of the ME Success Curriculum, ES 1060, ES 2120.

ME3010 - Intermediate Mechanics of Materials

Credits: 3

Expansion of the principles of solid mechanics: stress, strain, principal stresses, elastic and plastic behavior, failure theories and the use of energy methods. Analysis and design of thick-walled pressure vessels, noncircular cross sections under torsion, nonsymmetric beams under bending and curved beams.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ESE 3020

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ME3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ESE 3040

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3060 - Numerical Methods for Engineers

Credits: 3

Numerical solutions of problems commonly encountered in mechanical engineering including differentiation, integration, differential equations, system of linear and nonlinear equations, and optimization. The structured

programming approach will be emphasized and applications from solid mechanics, thermal fluid sciences, materials science, and dynamic systems will be covered.

Cross Listed ESE 3060

Prerequisite: Completion of the ME Success Curriculum, ES 1060, and MATH 2310 or concurrent enrollment.

ME3160 - Thermal/Fluid Science Lab

Credits: 3

A laboratory course to introduce students to experimental methods for temperature measure and pressure/flow characteristics of fluids. Continuation of experience with communication (written, oral, and digital), intermediate programming, experimental design, data analysis, and teamwork skills is emphasized.

Cross Listed ESE 3160

Former Course Number [2140; 2160]

Prerequisite: Completion of the ME Success Curriculum, ES 2330; ME 3005/ESE 3005.

ME3170 - Machine Design

Credits: 3

Application of engineering mechanics and materials science to the analysis and design of mechanical components such as bolted connections, springs, gears, bearings and shafts. Design for dynamic loading conditions. Principles of hydrodynamic lubrication. Introduction to computer-aided design. Case studies with appropriate topics.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ARE 3360/ESE 3360

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310, and ES 2330.

ME3450 - Properties of Materials

Credits: 3

Mechanical, electrical, thermal and chemical properties of materials. Theoretical treatment of structure of solids and design for specified properties.

When Offered (Normally offered spring semester)

Former Course Number [ES 3450]

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME4060 - Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience. Student multidisciplinary teams prepare a project proposal or SOQ, generate a morphological study of their project and prepare project plans and specifications. Project management methods are also presented.

USP 2015 Code U5C3

Former Course Number [3070]

Prerequisite: Completion of the ME Success Curriculum, ME 3010 (or concurrent enrollment), ME 3170, and ME 3360/ESE 3360/ARE 3360.

ME4070 - Systems Design II

Credits: 3

Continuation of a two-course design sequence. The design teams refine their designs, fabricate the project, test the project for compliance with the design specifications, write a comprehensive engineering design report including socioeconomic factors, and prepare and deliver a presentation of the project in a public forum.

USP 2003-2014 Code U3WC

Prerequisite: Completion of the ME Success Curriculum, ME 4060/ESE 4060 and WB.

ME4150 - Mechanical Behavior of Materials

Credits: 3

Commonly encountered phenomenological and mechanistic behaviors that lead to mechanical failure are examined. Understanding the origin of mechanical failure of components allows for robust design of mechanical systems. Metallic, polymeric, and ceramic materials are covered.

Prerequisite: Completion of the ME Success Curriculum, ME 3450.

Physics

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

OR

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

OR

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

Electives

- Four ME Electives (min 12 CH total, any upper division ME course or EE 4620)
- Two Math/Science Electives (min 6 CH total, select from department-approved list)
- One Business Elective (min 3 CH, select from department-approved list)
- One Technical Elective (min 3 CH, any engineering, math/science or business course approved by the ME Dept)

(See here for Math, Science and Business Elective options: [me_math_science_business_electives_2022_02_04.pdf](#) (uwo.edu))

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

ME4010 - Mechanical Vibrations

Credits: 3

The theory of single and multi-degree-of-freedom systems with an introduction to continuous systems. Determination of equations of motion, including natural frequency for free vibration and amplitude of forced vibration. Design of discrete and continuous systems for transient and harmonic excitations.

When Offered (Normally offered fall semester)

Prerequisite: Completion of the ME Success Curriculum, ES 2120, ES 2410, and MATH 2310.

ME4020 - Design of Mechanical/Electronic Systems

Credits: 3

Theoretical and experimental study of sensors and actuators, interfacing sensors and actuators to a microcomputer, discrete and continuous controller design, analog and digital electronics, and real-time programming for control.

Prerequisite: Completion of the ME Success Curriculum, ME 3020.

ME4040 - Introduction to Finite Elements

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. The course includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 5040.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310 and (CE 4200/ARE 4200 or MATH 2250 or ME 3010 or ME 3060).

ME4100 - Manufacturing Processes

Credits: 3

Details of manufacturing processes used in production of metal, plastic and ceramic components with an emphasis on science and mechanics of processes.

Prerequisite: Completion of the ME Success Curriculum, ME 3010 and ME 3450.

ME4200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 5200.

Prerequisite: ME 3450

ME4210 - Introduction to Composite Materials

Credits: 3

Applications, mechanical properties and fabrication of fiber reinforced composite materials; stress analysis of laminated, anisotropic composite structures; study of special problems unique to composites.

Prerequisite: Completion of the ME Success Curriculum, ME 3010.

ME4215 - Composite Materials Design and Manufacturing

Credits: 3

Introduction to composite material manufacturing processes. Aspects of constituent material production, as well as design, fabrication, and testing of composite materials. Laboratory exercises, such as laminating, filament winding, pultrusion and compression molding.

Prerequisite: Completion of the ME Success Curriculum, ME 4210.

ME4240 - Gas Dynamics I

Credits: 3

Thermodynamics of a compressible fluid; one-dimensional isentropic flow, normal and oblique shocks, expansion wave, flows with friction and heat transfer.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ME4340 - Gas Turbine Engines

Credits: 3

Thermodynamic analysis and design of ground-based and aero-propulsion gas turbine engines.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ME4350 - Airplane Aerodynamics and Flight

Credits: 3

Introduces students to the fundamentals of airfoil and wing design, airplane aerodynamics, and airplane stability. Links these fundamental ideas to the design and performance of real aircraft.

Prerequisite: Completion of the ME Success Curriculum, ES 2330.

ME4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ARE 4430

Prerequisite: ARE 3400/ME 3400 and ARE 3360/ME 3360 or concurrent.

ME4450 - Principles of Materials Selection

Credits: 3

A review of the economic and engineering aspects of materials selection. A detailed study of the properties, applications and limitations of engineering materials systems. Emphasis is on metal alloy systems, but non-metallics are included. Forming and joining processes are outlined.

Former Course Number [3110]

Prerequisite: Completion of the ME Success Curriculum, ME 3450

ME4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ESE 4455

Prerequisite/Corequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4461 - Computational Fluid Dynamics I

Credits: 3
Max Credit 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Cross-list with ME 4461

Dual Listed dual list with ME 5461

Prerequisite: ME Success Curriculum; ME/ESE 3060 - Numerical Methods; ME/ESE 3360 - Transport Phenomena

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

Universities Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Notes:

- i. Before enrolling in any upper division ESE or ME course, students must complete the ME Success Curriculum (minimum 3.000 GPA in MATH 2200, MATH 2250, MATH 2210, and the seven ES courses).
- ii. ES 2800 is NOT a part of the MESC
- iii. Graduates must meet all college requirements and earn a minimum GPA of 2.000 in ME and ESE courses taken at UW. A minimum of 48 hours of upper division coursework are required, so ME, business, and technical electives should be chosen appropriately.

Mechanical Engineering Program Educational Objectives

- Successfully practice the profession of engineering
- Demonstrate career growth (e.g. increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees).
- Apply Mechanical Engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts.
- Successfully serve in a range of leadership and collaborative roles in the profession in the community.
- Exhibit high professional standards and commitment to ethical action.

Mechanical Engineering Program Student Outcomes

The Department's Student Outcomes are:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Petroleum Engineering, B.S.

Petroleum engineers combine fundamentals of science & math with computer programming, materials science, fluid mechanics and thermodynamics to develop and apply new technology to recover hydrocarbons from conventional and unconventional reservoirs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Undergraduate Curriculum

*Course meets USP requirement.

Applies to all undergraduate PETE programs.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

- GEOL Technical Elective Credits: 3

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and

functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PETE1060 - Introduction to Petroleum Engineering Problem Solving

Credits: 1

Covers elements of Petroleum Engineering calculations associated with typical computations in Drilling, Production, and Reservoir Engineering, Rock and Fluids properties, to simultaneously train the student on basic computing skills as well as basic language of Petroleum Engineering. The preferred computing tool is Matlab, which will be introduced through simple calculations on the computer. Notions of the petroleum engineering curriculum will also be provided through examples of the different subjects.

Prerequisite: Math placement 5 or concurrent enrollment in MATH 2200.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

PETE2060 - Introduction to Petroleum Engineering Computing

Credits: 3

Introduces Petroleum Engineering problems and principles, develops computational skills needed to solve them, and reinforces a computational tool that will be useful for other Petroleum Engineering classes.

Prerequisite: C or better in PETE 1060, and either a D or better in MATH 2310 or concurrent enrollment in MATH 2310.

PETE3015 - Multicomponent Thermodynamics

Credits: 3

Introduces mixture properties, such as chemical potentials, excess properties, partial molar properties, heats of mixing, fugacities, and practical tools for estimating them from solution theories and equations of state. These tools and concepts are applied to phase and chemical equilibria.

Prerequisite: C or better in ES 2310 and concurrent enrollment in PETE 2060. Student must be a Petroleum Engineering major.

PETE3025 - Heat and Mass Transfer

Credits: 3

Introduces energy and mass transfer concepts and the development of mathematical models of physical phenomena, including convection, conduction, radiation, and mass diffusion and convection.

Prerequisite: C or better in ES 2330 and MATH 2310. Student must be a Petroleum Engineering major.

PETE3100 - Rock and Fluids Lab

Credits: 2

Provides understanding of principles of rock and fluid properties and their measurement as part of conventional and special core analysis, as well as PVT characteristics of reservoir fluids. Students are expected to understand how to measure important rock and fluid properties using laboratory equipment, as part of reservoir characterization routines, formation damage evaluations and well log calibration protocols. Students are also expected to learn how to write succinct and organized reports.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3200 - Reservoir Engineering

Credits: 3

Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: PETE 3025, C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3255 - Basic Drilling Engineering

Credits: 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hold deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3265 - Drilling Fluids Laboratory

Credits: 3

Measurement of physical and chemical properties of drilling fluids, including experiments on mud density control, viscosity control, rheological properties, mud hydraulics, filtration properties, mud contaminants and their treatments. Includes design of experiments, data processing, interpretation and writing technical reports.

Prerequisite: PETE 3255, C or better in both ES 2310 and ES 2330. Student must be a Petroleum Engineering major.

PETE3715 - Production Engineering

Credits: 3

Provides elements for calculating the production rate of oil or gas wells, including reservoir inflow performance, which is determined by the reservoir rock and fluids properties and calculated based on Darcy's law, and tubing performance, which is determined by tubing parameters and calculated based on Newtonian dynamics. Basic design of artificial lift systems, reservoir stimulations and optimization of production systems are also included.

Prerequisite: C or better in ES 2310, ES 2330 and PETE 2050. Student must be a Petroleum Engineering major.

PETE3725 - Well Completions

Credits: 3

Covers many facets of completion and intervention in oil and gas wells, including design and procedures to meet deliverability, safety, and integrity, starting with completion, stimulation, workover, and intervention, ending with plug and abandonment requirements.

Prerequisite: C or better in both PETE 2050 and ES 2410. Student must be a Petroleum Engineering major.

PETE4225 - Well Test Analysis

Credits: 3

Covers knowledge of well test interpretation techniques. Theory for well testing include drawdown and buildup tests, single-rate and multi-rate testing, derivative analysis, wellbore storage, type curve matching, fall off and injectivity, fractured wells, fractured reservoirs, interference and pulse testing, and horizontal well analysis.

Prerequisite: PETE 3200. Student must be a Petroleum Engineering major.

PETE4320 - Well Log Interpretation

Credits: 3

Studies use of various types of open hole logs for quantitative evaluation of formations.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE4340 - Petroleum Economics

Credits: 3

Applies principles of economics to petroleum properties. Studies taxation, present worth, rate of return, payout and decisions under uncertainty.

Prerequisite: PETE 3200. Student must be a Petroleum Engineering major.

PETE4736 - Petroleum Engineering Design

Credits: 4

Design and development of petroleum reservoirs using principles and skills learned in the Petroleum Engineering program. Application of software for design and analysis of the drilling, reservoir and production of petroleum.

USP 2015 Code U5C3

Prerequisite: PETE 3200, PETE 3255, PETE 3715, PETE 3725, and C or better in COM2. Student must be a Petroleum Engineering major.

- PETE Technical Electives Credits: 15

Technical Electives Policy

The technical electives in the PETE curriculum can be used to complete a curriculum emphasis option or a minor. The number of credits of upper division courses must be satisfied, therefore, 13 elective credits must be 3000-level courses or higher.

Notes: Technical Electives must be selected with your advisor's documented approval.

Minimum Grade Requirements

A grade of C or better is required for the following courses:

- USP designated courses: FYS, COM1, COM2, COM3
- All Engineering Science (ES) courses
- MATH courses that are prerequisites to ES & PETE courses

PETE1060 - Introduction to Petroleum Engineering Problem Solving

Credits: 1

Covers elements of Petroleum Engineering calculations associated with typical computations in Drilling, Production, and Reservoir Engineering, Rock and Fluids properties, to simultaneously train the student on basic computing skills as well as basic language of Petroleum Engineering. The preferred computing tool is Matlab, which will be introduced

through simple calculations on the computer. Notions of the petroleum engineering curriculum will also be provided through examples of the different subjects.

Prerequisite: Math placement 5 or concurrent enrollment in MATH 2200.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

PETE4736 - Petroleum Engineering Design

Credits: 4

Design and development of petroleum reservoirs using principles and skills learned in the Petroleum Engineering program. Application of software for design and analysis of the drilling, reservoir and production of petroleum.

USP 2015 Code U5C3

Prerequisite: PETE 3200, PETE 3255, PETE 3715, PETE 3725, and C or better in COM2. Student must be a Petroleum Engineering major.

Total Upper Division Credits Required

48

Total Hours Required for B.S. Degree

129

Petroleum Engineering Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Petroleum engineering should:

- (PETE-OB1) Successfully practice the profession/field of petroleum engineering or related discipline.
- (PETE-OB2) Demonstrate successful career accomplishment and civic engagement.

Petroleum Engineering Program Outcomes

During the course of study in Petroleum Engineering, the student should develop:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Statistics, B.A.

Statisticians (data scientists) provide analytic solutions to scientific problems. Statistics is the process of using data to answer a research question.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

30 hours of Statistics - Required Courses:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed MATH 4255.

Dual Listed STAT 5255.

When Offered (Offered fall semester)

Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

STAT4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 4265.

Dual Listed STAT 5265.

Former Course Number [4260, 4010]

Prerequisite: STAT 4255/MATH 4255.

STAT4870 - Senior Thesis

Credits: 3

Encompasses senior thesis research project under faculty member guidance and supervision. Faculty sponsorship must be obtained prior to registration.

Prerequisite: 18 hours in statistics and senior standing.

Optional from (12 Hours)

STAT4045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variables are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 5045.

Former Course Number [4040]

Prerequisite: STAT 2050 or equivalent

STAT4070 - Causal Models

Credits: 3

Applications of least-squares and iterative maximum-likelihood methods for drawing cause and effect conclusions from nonexperimental data. Topics include regression-based path analysis, reciprocal causation, confirmatory factor analysis, measurement error, and structural equation models with unmeasured (latent) variables.

Cross Listed SOC 4070.

Prerequisite: one of STAT 3050, STAT 4015, STAT 5050, 5060, STAT 5070, STAT 5080 or equivalent (regression methods).

STAT4115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analyses using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 5115

Dual Listed STAT 5115.

Former Course Number [4110]

Prerequisite: STAT 4015 /5015

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.

Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

STAT4300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminate analysis, factor analysis and multidimensional scaling. A wide range of computer assistance is incorporated.

Dual Listed STAT 5300.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment (sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 5350.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 5360.

Prerequisite: STAT 4015.

STAT4370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 5370.

Prerequisite: STAT 4015 and STAT 4025.

STAT4460 - Statistical Software

Credits: 1

Max Credit 1

An introduction to the various statistical software programs currently in use at the University of Wyoming. Topics will include the structure of each language, I/O, programming the basic statistical applications, and a comparison of the other languages.

Former Course Number [5480]

Prerequisite: STAT 2050

STAT4880 - Problems in Statistics

Credits: 1-4

Encourages individual initiative on part of students who work on extending their knowledge through library research.

Former Course Number [4790]

Prerequisite: senior standing, 8 hours in statistics and consent of instructor.

Mathematics (15 Hours)

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

Computer Science (6 Hours)

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

Electives

Chosen so that at least 42 hours are at the 3000/4000/5000 level

Total Hours: at Least 120

Only grades of C or better will be accepted for the major.

Statistics, B.S.

Statisticians (data scientists) provide analytic solutions to scientific problems. Statistics is the process of using data to answer a research question. The B.S. in Statistics is applied with some theory.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

30 Hours of Statistics - Required Courses:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed MATH 4255.

Dual Listed STAT 5255.
When Offered (Offered fall semester)
Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

STAT4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 4265.
Dual Listed STAT 5265.
Former Course Number [4260, 4010]

Prerequisite: STAT 4255/MATH 4255.

STAT4270 - Applied Bayesian Statistics

Credits: 3

This course introduces Bayesian data analysis in an applied context. We will learn about Bayesian statistics primarily in a regression model context, taken broadly. A conceptual understanding of popular Markov Chain Monte Carlo algorithms will be provided.

Dual Listed STAT 5270.
Prerequisite: STAT 4015 /5015

STAT4870 - Senior Thesis

Credits: 3

Encompasses senior thesis research project under faculty member guidance and supervision. Faculty sponsorship must be obtained prior to registration.

Prerequisite: 18 hours in statistics and senior standing.

Optional from (12 Hours)

STAT4045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variables are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 5045.
Former Course Number [4040]

Prerequisite: STAT 2050 or equivalent

STAT4070 - Causal Models

Credits: 3

Applications of least-squares and iterative maximum-likelihood methods for drawing cause and effect conclusions from nonexperimental data. Topics include regression-based path analysis, reciprocal causation, confirmatory factor analysis, measurement error, and structural equation models with unmeasured (latent) variables.

Cross Listed SOC 4070.

Prerequisite: one of STAT 3050, STAT 4015, STAT 5050, 5060, STAT 5070, STAT 5080 or equivalent (regression methods).

STAT4115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analyses using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 5115

Dual Listed STAT 5115.

Former Course Number [4110]

Prerequisite: STAT 4015 /5015

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.

Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

STAT4300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminant analysis, factor analysis and multidimensional scaling. A wide range of

computer assistance is incorporated.

Dual Listed STAT 5300.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment (sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 5350.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 5360.

Prerequisite: STAT 4015.

STAT4370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 5370.

Prerequisite: STAT 4015 and STAT 4025.

STAT4460 - Statistical Software

Credits: 1

Max Credit 1

An introduction to the various statistical software programs currently in use at the University of Wyoming. Topics will include the structure of each language, I/O, programming the basic statistical applications, and a comparison of the other languages.

Former Course Number [5480]

Prerequisite: STAT 2050

STAT4880 - Problems in Statistics

Credits: 1-4

Encourages individual initiative on part of students who work on extending their knowledge through library research.

Former Course Number [4790]

Prerequisite: senior standing, 8 hours in statistics and consent of instructor.

Mathematics (15 Hours)

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

Computer Science (6 Hours)

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

Electives

- Chosen so that at least 42 hours are at the 3000/4000/5000 level

Total Hours: at Least 120

Only grades of C or better will be accepted for the major.

Minor

Biomedical Engineering Minor

Biomedical Engineering is an interdisciplinary field that combines principles of biology and medicine with engineering design to produce healthcare innovations. Biomedical engineers contribute to medical technologies in a variety of areas including diagnostics, therapeutics, imaging, bioinformatics, and rehabilitation.

Learning Outcomes:

A student who has completed the Biomedical Engineering Minor will have:

1. Experience and proficiency in applying principles of engineering, biology, human physiology, chemistry, calculus-based physics, differential equations, and statistics;
2. Experience and proficiency in solving biomedical engineering problems, including those associated with the interaction between living and nonliving systems;

3. Experience and proficiency in analyzing, modeling, designing, and realizing medical (biomedical engineering) devices, systems, components, or processes;
4. Experience and proficiency in making measurements on and interpreting data from living systems;
5. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
6. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
7. An ability to communicate effectively with a range of audiences.
8. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
9. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
10. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
11. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Biomedical Engineering is an interdisciplinary field that combines principles of biology and medicine with engineering design to produce healthcare innovations. Biomedical engineers contribute to medical technologies in a variety of areas including diagnostics, therapeutics, imaging, bioinformatics, and rehabilitation. Accordingly, biomedical engineers typically possess a broad biology background and strong engineering design and problem-solving principles. The purpose of this minor in Biomedical Engineering is to prepare students studying engineering or the life sciences for careers in industries that develop technologies to advance medicine.

The following curriculum is accessible to students from any major degree program in the College of Engineering and Applied Science (CEAS). Major-specific tracks anticipating the most appropriate groupings of electives are provided to the CEAS advising center. Specialized, more comprehensive programs of study are proposed for students with a particular interest in medical school preparation.

Coursework:

The minimum required coursework consists of 18 credits of electives. The course of study can be self-directed or tailored to a student's major degree program. Example coursework tracks are provided below for students pursuing specific engineering majors.

Chemical Engineering

Chemical Engineering draws upon the fundamentals of chemistry, physics, and biology to analyze and design processes. Chemical Engineers work in a variety of biomedical disciplines including pharmaceutical production, biomedical devices, tissue engineering, and medical sensing. The following coursework covers biological fundamentals and materials with a focus on process and device design.

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 5100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.
+ 6 Credits fo approved coursework

Electrical Engineering

BE4810 - Bioinstrumentation

Credits: 3

Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 5810.

Prerequisite: EE 2210 or similar electric circuit course.

BE4820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from

experimental data.

Dual Listed BE 5810.

Prerequisite: EE 3220, basic course, or equivalent.

EE5410 - Neural and Fuzzy Systems

Credits: 3

Theory of feed forward and recurrent neural networks. Supervised and unsupervised learning theories. Fuzzy logic and systems. Associative memories. Matching and self-organizing networks. Application of neural and fuzzy systems.

Prerequisite: EE 3220.

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

Mechanical Engineering

With a focus upon biomaterials and biomechanics, this minor combines biology and physiology with mechanical engineering. This coursework helps students apply mechanical engineering principles to biological challenges including prosthetics, robotic surgery instruments, and medical device design.

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 5100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

Medical School Preparation

With a focus upon biomaterials and biomechanics, this minor combines biology and physiology with mechanical engineering. This coursework helps students apply mechanical engineering principles to biological challenges including prosthetics, robotic surgery instruments, and medical device design.

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

Plus the following suggested coursework:

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

or

PHCY6120 - Advanced Pathophysiology

Credits: 3

Advanced course covering the molecular, cellular, genetic and clinical principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for Doctor of Pharmacy students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 3450 for interprofessional education revolving around student-led case study presentations.

Former Course Number [6220]

Prerequisite: LIFE 1010, LIFE 1020, CHEM 1020, CHEM 1030, CHEM 2420, CHEM 2440, MOLB 2240, MOLB 3610, ZOO 3115, ZOO 4125.

Additional Approved Courses:

In addition to the suggested tracks above, individual programs may be customized or augmented by selecting from any of the following approved credits, which may be counted in fulfillment of technical elective requirements within the major degree program.

Select 18 credit hours from the following:

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 5100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

CHE3900 - Undergraduate Research

Credits: 1-6

Students carry out research appropriate to undergraduates, under faculty supervision. May be taken more than once.

When Offered (Normally offered each semester)

Prerequisite: junior standing in chemical engineering.

CHE4220 - Metabolic and Protein Engineering

Credits: 3

An introduction to the design of biological systems for conversion of a feedstock to product, with emphasis on synthetic biology and directed evolution design principles, evolutionary mechanisms and tradeoffs. Metabolic pathways and molecules of industrial importance will be discussed, as well as ethics as applied to synthetic biology and bioengineering.

Dual Listed CHE 5220.

Prerequisite: MOLB 2021 or concurrent enrollment in CHE 3100.

BE4810 - Bioinstrumentation

Credits: 3

Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 5810.

Prerequisite: EE 2210 or similar electric circuit course.

BE4820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from experimental data.

Dual Listed BE 5810.

Prerequisite: EE 3220, basic course, or equivalent.

EE4800 - Problems in _____

Credits: 1-6

Max Credit (Max. 6)

Section 1 is individual study. Other sections are group study by seminar or class format. Features topics not included in regularly offered courses.

Prerequisite: consent of instructor.

EE5410 - Neural and Fuzzy Systems

Credits: 3

Theory of feed forward and recurrent neural networks. Supervised and unsupervised learning theories. Fuzzy logic and systems. Associative memories. Matching and self-organizing networks. Application of neural and fuzzy systems.

Prerequisite: EE 3220.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

MOLB4610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 5610

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY6120 - Advanced Pathophysiology

Credits: 3

Advanced course covering the molecular, cellular, genetic and clinical principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for Doctor of Pharmacy students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 3450 for interprofessional education revolving around student-led case study presentations.

Former Course Number [6220]

Prerequisite: LIFE 1010, LIFE 1020, CHEM 1020, CHEM 1030, CHEM 2420, CHEM 2440, MOLB 2240, MOLB 3610, ZOO 3115, ZOO 4125.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

NOTE

CHE 3100 fulfills the LIFE 2021 & 3050 pre-requisite requirements for CHE 4100, 4160, and 4165.

Alternatively, students may take the following in lieu of CHE 3100: MICR 2021 Microbiology (4) or MOLB 3610 Principles of Biochemistry (4)

Computer Engineering Minor

Minor Requirements:

You must have a minimum of 12 credits of courses that are not counted toward your major.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

EE4490 - Hardware Descriptive Language (HDL) Digital Design

Credits: 3

Hardware Description Language design of digital systems. Industrial CAD tools are used to produce a functional description of hardware that is both simulated and then synthesized into hardware. Methods to describe both combinational logic and synchronous devices are given. Devices such as CPLDs and FPGAs are targeted in this design process. Emphasizes design techniques.

Prerequisite: EE 2390.

- 17 credits of electrical engineering (EE) or CPEN Elective courses.

COSC Courses

The following COSC courses can also be used:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

Computer Science Graduate Minor

A graduate minor in Computer Science gives you the skills and knowledge to understand how software-intensive systems are designed and implemented. With these skills, you can use computers to extend the state of the art in your major discipline.

Requirements:

12 credits are required, and must be completed with a grade of B or better.

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- 9 additional credits of 5000-level computer science courses

Computer Science Minor

A minor in Computer Science gives you the skills and knowledge to understand how software-intensive systems are designed and implemented. With these skills, you can use computers to tackle problems specific to your major field.

Requirements

18 credits of Computer Science courses are required and must be completed with a grade of C or better.

COSC 1101 and COSC 1200 cannot be used for the Computer Science Minor.

Construction Management Minor

For UW undergraduate students in other majors, a Minor in Construction Management may be earned by:

Completing any 15 credits with a CM prefix, with the exceptions listed below.

Architectural Engineering majors will not be permitted to use the following courses to satisfy the Minor requirement (or as ARE Major Electives), because they duplicate content in required courses in their major:

CM 2120: Construction Materials and Methods

CM 2200: Structures

CM 2400: MEP Systems

CM 2600: Construction Documents

CM 3220: Soils and Concrete

CM 4600: Building Info. Modeling

Civil Engineering majors will not be permitted to use the following courses to satisfy the Minor requirements (or as CE MSTP Electives), because they duplicate content in required courses in their major:

CM 2200: Structures

CM 3220: Soils and Concrete

Minors in Construction Management are not accredited

Electrical Engineering Minor

Electrical Engineering Minor Requirements:

You must have a minimum of 12 credits of EE/BE courses that are not counted toward your major.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

- plus a total of 20 credits of electrical engineering (EE) or bioengineering (BE) courses

Interdisciplinary Computational Science Graduate Minor

In recognition of the importance of modeling and simulation in an increasing number of applications, the Graduate Interdisciplinary Computational Science Minor is intended to help prepare science, math, and engineering students for leading roles in their professions.

Requirements

- The student must earn 15 credit hours in specified courses.
- Within the 15 credits, the student must earn at least 12 credits in graduate level classes (5000).
- Within the 15 credits, the student must earn 6 credits outside of her/his department.
- Only grades of B or better will be accepted for a course counting towards the minor.
- For all students, the 15 hours of coursework will be divided into 9 credit hours of core courses and 6 credit hours of electives.

Core Courses

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

OR

COSC5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability.

Cross Listed MATH 5310.

Prerequisite: MATH 3310, COSC 1010.

COSC5010 - Graduate Topics in Computer Science

Credits: 1-6

Max Credit (Max. 12)

Individual or small group pursuit of computer science research areas.

Prerequisite: graduate standing and consent of instructor.

MATH5340 - Computational Methods II

Credits: 3

Second semester of a three-semester computational methods series with emphasis on numerical solution of differential equations. Topics include explicit and implicit methods, methods for stiff ODE problems, finite difference, finite volume, and finite element methods for time-independence PDEs semi/fully discrete methods for time-dependent PDEs.

Prerequisite: MATH 5310.

OR

- COSC 5340 - Computational Methods II Credits: 3

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

OR

BOT5550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

GEOL4030 - Groundwater Flow and Solute Transport Modeling

Credits: 3

Movement of groundwater and the dissolved solute is responsible for a variety of environmental, engineering, and geological processes of interest. Presents an overview of the analyses of groundwater flow and solute transport using numerical modeling. The principles of the Finite Difference Method are introduced.

Dual Listed GEOL 5030.

Prerequisite: MATH 2205 and GEOL 4444/GEOL 5444.

OR

GEOL5030 - Groundwater Flow and Solute Transport Modeling

Credits: 3

Movement of groundwater and the dissolved solute is responsible for a variety of environmental, engineering, and geological processes of interest. Presents an overview of the analyses of groundwater flow and solute transport using numerical modeling. The principles of the Finite Difference Method are introduced.

Dual Listed GEOL 4030.

Prerequisite: MATH 2205, GEOL 5444.

ME5461 - Computational Fluid Dynamics I

Credits: 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Dual list with ME 4461 and ESE 4461

Prerequisite: graduate standing

ME5462 - Computational Fluid Dynamics II

Credits: 3

A study of advanced techniques in modern-day scientific computing as applied to Computational Fluid Dynamics. These include unstructured mesh generation using Delaunay triangulation, searching and sorting techniques, and efficient data structures. Other topics cover efficient hardware implementation including cache-effects and parallel computing and sensitivity analysis for design optimization.

Prerequisite: ME 5461

STAT5660 - Computationally Intensive Methods in Statistics

Credits: 3

Advanced statistical inference often relies on methods which are computationally intensive. The basic methods include Newton-Raphson; the EM algorithm; bootstrap and other resampling procedures; kernel density estimators; Laplace's method, importance sampling and MCMC, and saddlepoint and Edgeworth approximations.

Prerequisite: STAT 5520.

Electives

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

STAT5680 - Advanced Bayesian Statistics

Credits: 3

Philosophical principles underlying Bayesian and non-Bayesian statistics. Decision theoretic foundations of Bayesian statistics including loss functions, minimaxity, and admissibility. Construction of conjugate prior distributions and non-informative prior distributions. Bayesian point estimation, hypothesis tests and credible sets. Computational tools for Bayesian problems including Markov chain Monte Carlo (MCMC) and other methods for approximating posterior distributions with some emphasis on implementation via a programming language or statistical computing software. As time and interest permit: the normal linear model, non-normal models, hierarchical models, Bayesian model averaging, other topics.

Prerequisite: STAT 5380; 5420 and STAT 5520.

STAT5380 - Bayesian Data Analysis

Credits: 3

Bayesian statistical methods for analyzing various kinds of data. Topics include basic Bayesian ideas and model formulation (priors, posteriors, likelihoods), single- and multiple-parameter models, hierarchical models, generalized linear models, multivariate models, survival models and an introduction to computation methods.

Prerequisite: STAT 5255

- High-Performance Computing in Geosciences, 2 hrs
- MATH 5320 - Mathematics Modeling of Processes Credits: 3

CHEM4560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical, density functional, semi-empirical and molecular mechanics methods.

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 5560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

OR

CHEM5560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical,

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 4560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

MATH4300 - Introduction to Mathematical Modeling

Credits: 3

A model of a real world problem captures the essential features of the problem, while scaling it down to a manageable size. In this course, symbolic tools and mathematical techniques are used to construct, analyze and interpret various mathematical models which arise from problems in the physical, biological and social sciences.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250 or MATH 2310.

Interdisciplinary Computational Science Minor

In recognition of the importance of modeling and simulation in an increasing number of applications, the Undergraduate Interdisciplinary Computational Science Minor is intended to help prepare science, math, and engineering students for leading roles in their professions.

The Undergraduate Minor in Computational Science is based on the following requirements:

1. The student must earn 15 credit hours in specified courses.
2. Within the 15 credits, the student must earn 9 credits at the upper-division level (3000 or above).
3. Within the 15 credits, the student must earn 6 credits outside of her/his major.
4. Within the 15 credits, the student must earn at least 6 credits in core courses.
5. Only grades of C or better will be accepted for the minor.

The 15 hours of coursework are divided between core and elective courses as listed below.

Core Courses

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

OR

COSC4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed MATH 4340.

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

- High-Performance Computing (Offered as a topics course).

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

OR

COSC3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed MATH 3340.

Prerequisite: grade of C or better in MATH 2210.

STAT4460 - Statistical Software

Credits: 1

Max Credit 1

An introduction to the various statistical software programs currently in use at the University of Wyoming. Topics will include the structure of each language, I/O, programming the basic statistical applications, and a comparison of the other languages.

Former Course Number [5480]

Prerequisite: STAT 2050

Elective Courses

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

OR

BOT5550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

CHEM4560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical, density functional, semi-empirical and molecular mechanics methods.

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 5560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

OR

CHEM5560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical,

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 4560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

- ES 3070 - C with Numerical Methods for Engineers

MATH4300 - Introduction to Mathematical Modeling

Credits: 3

A model of a real world problem captures the essential features of the problem, while scaling it down to a manageable size. In this course, symbolic tools and mathematical techniques are used to construct, analyze and interpret various mathematical models which arise from problems in the physical, biological and social sciences.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250 or MATH 2310.

ME4040 - Introduction to Finite Elements

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. The course includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 5040.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310 and (CE 4200/ARE 4200 or MATH 2250 or ME 3010 or ME 3060).

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

International Engineering Minor

The International Engineering minor is an 18 credit hour program open to all engineering students. Cornerstones are a study abroad experience and coursework to help students gain understanding of perspectives and viewpoints from around the world.

Study Abroad Requirement

All students earning the International Engineering Minor must complete an educational experience outside of the United States. Examples are:

- Semester or year abroad at a college or university
- UW faculty-led study abroad program
- International service-learning experience (such as Engineers Without Borders, or Alternative Spring Break)
- Internship with a company outside the United States
- Research experience outside the United States

Coursework

The coursework is 18 total credits - these credits may also count toward major degree program. The coursework is intended to help students gain understanding of perspectives and viewpoints from around the world.

Lower Division Coursework

Select 9 credits from the following courses:

- Foreign language courses (except American Sign Language)
- 1000 or 2000 level Engineering courses completed during a Study Abroad program
- 1000 or 2000 level courses in International Studies (INST)
- Any of the courses listed below

ANTH2200 - World Culture

Credits: 3

Provides an understanding of cultural behavior of people in various geographical areas of the world. Students read ethnographies, cultural descriptions of societies, written by cultural anthropologists.

When Offered (Normally offered at least once a year)

USP 2003-2014 Code U3G, U3CS

A&S College Core 2015 ASG

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

ERS1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ECON 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H
A&S College Core 2015 ASG

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

RELI1000 - Introduction to Religion

Credits: 3

Introduces world religions and shared characteristics. Draws on various academic approaches to religion study, emphasizing similarities and differences among wide variety of religions.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI2315 - History of Non-Western Religions

Credits: 3

Max Credit 9

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed HIST 2315.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

INBU1040 - Introduction to International Business

Credits: 3

A broad survey of the field of international business which introduces basic concepts of international business activity and theory and reviews major foreign environmental forces--financial, economic and socioeconomic, physical, sociocultural, political, legal, labor, competitive and distributive.

Cross Listed INST 1040.

A&S College Core 2015 ASG

Former Course Number [BUSN 2000]

Upper Division Coursework

Select 9 credits from the following courses:

- 3000 or 4000 level Engineering courses completed during a Study Abroad program
- 3000 or 4000 level courses in International Studies (INST)
- Engineering design courses with an International focus
- Internship credits earned from an International internship
(Must be approved by International Engineering Minor Coordinator, in advance, with course syllabus or internship plan with detailed International content.)
- Undergraduate Research (for-credit) experience with an International focus
(Must be approved by International Engineering Minor Coordinator, in advance, with course syllabus or internship plan with detailed International content.)
- Any of the courses listed below

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

ART3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ARE 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

CHE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Examines social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed PETE 4000.

Prerequisite: junior standing and completion of two lab sciences.

PETE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Studies social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed CHE 4000.

Prerequisite: junior standing and completion of two lab sciences.

Land Surveying Minor

A minor in Land Surveying requires 31 hours of specific course work. This minor includes the Wyoming Board of Professional Engineers and Professional Land Surveyor's education requirements for a Land Surveyor in Training license. The Land Surveying minor may be paired with any major. All Land Surveying classes are offered as distance learning through Distance Education Programs.

Curriculum Requirements:

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2015 - Engineering Surveying Laboratory

Credits: 1

Field surveying activities consisting of traversing, differential leveling, construction staking and gathering topographic data.

Former Course Number [CE 2073]

Prerequisite: LS 2010 or concurrent.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2110 - Real Property Law

Credits: 3

Covers all major areas of real property law, including the nature of real property, types of ownership, real estate contracts, title and insurance, financing, landlord and tenant, land use, environmental law and regulation. An understanding of real property law is fundamental to understanding boundary law.

Former Course Number [CE 2050]

LS2400 - Basic Geodesy for Today's Land Surveyor

Credits: 2

The history of geodesy including measurement techniques, coordinate systems, ellipsoids, and datums is reviewed. The modern geodetic and Cartesian coordinates systems, as well as the differences between grid and ground coordinates systems, and the current geodetic and Cartesian coordinate systems available today are discussed.

Former Course Number [CE 2089]

Prerequisite: CE 2070 or LS 2010.

LS3100 - Real Property Descriptions

Credits: 2

Historical and current issues for land description writing and usage for the practicing surveyor. Relationship between written descriptions and field survey data, interpreting old descriptions and the structure principles of description.

Former Course Number [CE 2088]

Prerequisite: CE 2070 or LS 2010, and LS 2100 and LS 2110.

LS3110 - Boundary Evidence

Credits: 2

A practical and working guide to understanding survey evidence and the laws of boundary location for efficient, accurate boundary determination. This material aids in the elimination of errors in location of land boundaries. The surveyor's liability and statutes of limitations are explored in depth. Also included are discussions of the surveyor's role in court. Normally offered only through the Outreach School.

Former Course Number [CE 3750]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3120 - Boundary Principles

Credits: 2

This course in boundary law addresses the fundamental principles of real property as applied to land surveying and related professions. Discussion and applications center on practical situations and concepts commonly encountered while conducting boundary surveys and the determination of the extent of ownership rights. Students explore the scope of the surveyors' judiciary role in real property ownership. Primarily offered through the Outreach School.

Former Course Number [CE 3740]

Prerequisite: CE 2070 or LS 2010, and LS 3100 and LS 2110.

LS3130 - Public Land Surveys

Credits: 3

Basic fundamentals of the Public Land Survey System (PLSS), dependent and independent resurveys, survey plats, "bona fide rights", riparian boundaries, non-rectangular entities, corner evidence and the role of the modern day surveyor.

Former Course Number [CE 2085]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3200 - Route Surveying

Credits: 3

Laying out of super elevation and circular, parabolic, and spiral curves; the difference between highway and railway horizontal curve geometry; offsets to spiral curves as boundaries; area and volumes of earthwork.

Former Course Number [CE 3710, CE 4710]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

Total Credits: 31 Hours

¹ Computer Aided Drafting 1 offered through Sheridan College Outreach Programs.

The intent of this application based minor is to prepare the student for the pursuit of Professional Licensure. Those only seeking the remote learning Land Surveying courses should see the Cadastral Land Surveying Certificate found at <http://www.uwyo.edu/civil/landsurvey/>.

Mathematics Minor

The minor in mathematics focuses on fundamental aspects of mathematics that are essential for further study in mathematics and a variety of other disciplines. Students may customize the minor by choosing the appropriate transition course and upper-division electives.

Lower Division Core Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

Upper Division

Two of the math electives may be chosen from a list of approved courses that have significant math content, upon approval by the student's advisor. More details about such courses are available on the math department's web site, www.uwyo.edu/mathstats/.

Only grades of C or better will be accepted for the minor.

At the upper division, all mathematics minors must take ONE of

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

OR

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general.

Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

OR

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

- as well as 3 additional credits of upper division math courses (3000 and above)

Process Control Minor

Process control engineers optimize processes and implement quality control systems in the manufacturing industry.

They design, test, and oversee the implementation of new processes. Process control engineers are often employed at manufacturing plants that process chemicals, metals, and other materials.

Required Courses

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHE2090 - Practical Fundamentals of Process Control

Credits: 2

Introduces students to sensors, valves, actuators and the assembly of process control components. Provide hands-on practical experience with level control, flow control, temperature control and pressure control processes. This course consists of one (1) hour of lecture and two (2) hours of laboratory per week.

Prerequisite: C or better in MATH 2205.

CHE3090 - Applying Simulation to Dynamic Processes

Credits: 1

Introduces students to dynamic simulation software for controlling individual chemical engineering processes. This course consists of two (2) hours of laboratory per week.

Prerequisite: C or better in CHE 2005.

CHE4092 - Controlling Process Systems

Credits: 3

Capstone process control course. Students will design process control for systems of linked processes including sensing and transmission, final control elements, and controller. This course consists of two (2) hours of lecture and three (3) hours of laboratory per week.

Prerequisite: C or better in CHE 3090 and concurrent enrollment in either CHE 4090, EE 4620, or EE 4621.

CHE4090 - Process Dynamics and Control

Credits: 3

Encompasses analysis and design control systems for the chemical process industry including steady-state approximation, types of controllers, simple unsteady-state analysis, use of mathematical models and process dynamics under control.

Prerequisite: C- or better in CHE 3028 and CHE 4060.

or

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

or

EE4621 - Honors Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers. Honors students will at the end of the semester design a high-performance control system for a sophisticated plant with realistic feedback limitations.

Prerequisite: EE 2220 or ME 3020.

Approved Elective Courses

At least 6 hours of approved elective courses are required for this minor.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution; difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

ME4020 - Design of Mechanical/Electronic Systems

Credits: 3

Theoretical and experimental study of sensors and actuators, interfacing sensors and actuators to a microcomputer, discrete and continuous controller design, analog and digital electronics, and real-time programming for control.

Prerequisite: Completion of the ME Success Curriculum, ME 3020.

COSC4450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the World Wide Web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 5450.

Prerequisite: COSC 3020 and MATH 2250.

COSC4765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

CHE4972 - Internship in Process Control Engineering

Credits: 1-6

Max Credit (Max. 6)

Enables credit for students serving as interns with an approved organization that provides process control and instrumentation experience.

Prerequisite: Be enrolled in the Process Control and Instrumentation minor.

Learning Outcomes

An engineer who has completed the Process Control and Instrumentation Minor will be able to examine an engineering process that requires automated control and provide a practical control design by:

- Identifying key performance and technical features of the process
- Specifying process variables to control to achieve desired process outcomes
- Identifying the appropriate manipulated variables to achieve control
- Selecting appropriate measurement instrumentation for process variables
- Specifying needed final control elements to effect change of manipulated variables
- Selecting an appropriate controller and control algorithm that achieves stable control
- Testing and tuning the control design in simulation

- Evaluating the control design against performance and economic objectives
- Understand key nomenclature and terms in process control
- Understand the difference between analog and digital components

Statistics Minor

Statisticians (data scientists) provide analytic solutions to scientific problems. Statistics is the process of using data to answer a research question. The B.S. in Statistics is applied with some theory. The minor of Statistics is all application.

Requirements

The following courses are required for a statistics minor:

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

12 Additional Hours from the Following:

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variables are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 5045.

Former Course Number [4040]

Prerequisite: STAT 2050 or equivalent

STAT4070 - Causal Models

Credits: 3

Applications of least-squares and iterative maximum-likelihood methods for drawing cause and effect conclusions from nonexperimental data. Topics include regression-based path analysis, reciprocal causation, confirmatory factor analysis, measurement error, and structural equation models with unmeasured (latent) variables.

Cross Listed SOC 4070.

Prerequisite: one of STAT 3050, STAT 4015, STAT 5050, 5060, STAT 5070, STAT 5080 or equivalent (regression methods).

STAT4115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analyses using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 5115
Dual Listed STAT 5115.
Former Course Number [4110]

Prerequisite: STAT 4015 /5015

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.
Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

STAT4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed MATH 4255.
Dual Listed STAT 5255.
When Offered (Offered fall semester)
Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

STAT4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 4265.
Dual Listed STAT 5265.
Former Course Number [4260, 4010]

Prerequisite: STAT 4255/MATH 4255.

STAT4350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment (sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 5350.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 5360.

Prerequisite: STAT 4015.

STAT4370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 5370.

Prerequisite: STAT 4015 and STAT 4025.

STAT4300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminant analysis, factor analysis and multidimensional scaling. A wide range of computer assistance is incorporated.

Dual Listed STAT 5300.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4270 - Applied Bayesian Statistics

Credits: 3

This course introduces Bayesian data analysis in an applied context. We will learn about Bayesian statistics primarily in a regression model context, taken broadly. A conceptual understanding of popular Markov Chain Monte Carlo algorithms will be provided.

Dual Listed STAT 5270.

Prerequisite: STAT 4015 /5015

Total: 18-19 Hours

Only grades of C or better will be accepted for the minor.

Graduate

Architectural Engineering, M.S.

The MSCE Quick Start (Plan A) program in Civil and Architectural Engineering (CAE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor of science (BS) degree in Civil Engineering or Architectural Engineering. These students must apply for admission to the Quick Start (Plan A) program no later than the second semester of their junior year. Areas of study in the master of science program include: building mechanical systems, building energy modeling, structural engineering. The master of science degree in each of these areas requires completion of 12 to 18 hours of engineering courses related to the particular program area.

Plan A (Thesis)

The degree of master of science, Plan A, requires a minimum of 26 hours of coursework and a minimum of 4 hours thesis research in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework for approval by the departmental graduate studies committee (AREGS), and the department head.

Plan A is required of all state or contract supported graduate assistants.

Plan B (Non-thesis)

Requires a minimum of 30 hours of coursework and a Plan B paper, in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework and the course number that the Plan B paper covers for approval by the AREGS and the department head.

Atmospheric Science, M.S.

The Master of Science degree in Atmospheric Science prepares the recipient to work in fields related to meteorology, weather and forecasting, air quality, climate change and environmental regulation.

Program Specific Degree Requirements

Approval of research plan by the graduate committee

Colloquium and oral defense of M.S. thesis

Approval of M.S. thesis by the graduate committee

A minimum of 30 hours of acceptable graduate credit hours that includes at least:

- 26 hours of acceptable graduate coursework and
- 4 hours of thesis research

21 graduate credits must be earned in the Department of Atmospheric Science

Required Courses

These courses are required for the master's program.

ATSC5010 - Physical Meteorology I

Credits: 4

First and second law of thermodynamics applied to energy transformations in the atmosphere, including dry, moist, and saturated processes and atmospheric stability. Fundamentals of radiation including blackbody, planetary budget, and propagation and how these drive the thermodynamics of the earth's atmosphere.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5011 - Physical Meteorology II

Credits: 4

Quantitative description of cloud particle nucleation, growth by condensation, and growth by deposition and collection. Ties to other atmospheric processes, e. g. , radiation budgets and cloud dynamics, are also emphasized. Course material is presented in lecture and computer-based laboratory settings. A numerical cloud model is developed and analyzed in the laboratory.

Prerequisite: ATSC 5010.

ATSC5014 - Dynamic Meteorology

Credits: 4

Development and interpretation of the atmospheric equations of motion, scales of motion, horizontal atmospheric winds, thermal wind equation, circulation and vorticity, mesoscale motions. Introduction to planetary boundary layer flows. Data visualization software is also introduced and used to develop understanding of dynamical processes.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5016 - Synoptic Meteorology

Credits: 4

Large-scale vertical motion as viewed from quasigeostrophic and isentropic potential vorticity perspectives. Baroclinic instability, and the structure and evolution of extratropical cyclones. Identification and development of fronts, jet streams and associated weather features. Role of topography on large-scale circulations.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5018 - Ethics and Research Methods

Credits: 1

Ethics and ethical dilemmas in research and academia and how to address them are discussed. This course also covers general research methodology and describes processes for research funding and disseminating research findings and the peer-review process.

Prerequisite: graduate standing.

Atmospheric Science, Ph.D.

The Doctorate of Philosophy degree in Atmospheric Science prepares the recipient for a career in research studying the atmosphere. Graduates may work in academia, governmental laboratories and agencies, and private industry.

Program Specific Degree Requirements

Approval of research plan by the graduate committee

Successful completion of the Preliminary Examination

Approval of Ph.D. dissertation by the graduate committee

A minimum of 72 hours of acceptable graduate credit hours that includes at least:

- 42 hours of acceptable graduate coursework, and
- 10 hours of thesis or dissertation research

24 graduate coursework hours must be earned in the Department of Atmospheric Science

Chemical Engineering, M.S.

Graduate Study Guidelines

All incoming M.S. Plan A and M.S. Plan B students must have an adviser. The student is responsible for contacting faculty members in order to find an adviser.

All Chemical Engineering graduate students must take the following Chemical Engineering Core courses:

CHE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed PETE 5020.

Prerequisite: graduate standing.

CHE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed PETE 5010.

Prerequisite: ES 2330, MATH 2310, and graduate standing in Chemical or Petroleum Engineering.

CHE5030 - Reaction Kinetics

Credits: 3

An analysis of reactions involving phase boundaries, heterogeneous catalysis, gas-solid systems, and gas-liquid systems.

Prerequisite: CHE 4060.

CHE5355 - Mathematical Methods in Chemical Engineering

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Dual Listed PETE 5355

Prerequisite: MATH 2210, CHE/PETE 3025 or equivalent.

Credit Hours

- Total (from above) Credits: 12
- CHE 5960 - Thesis Research Credits: 4
- Electives Credits: 14
- Total Credits: 30

Plan B (Non-Thesis)

The coursework requirements are the same as the M.S. Plan A requirements except that Thesis Research (CHE 5960) is not required. Plan B students take an additional 4 hours of elective course credits (a total of 30 hours required).

M.S. Plan B students must write a paper on a topic assigned by the adviser and present their work to their graduate committee. This paper must be submitted to the student's graduate committee for approval at least one week prior to the oral presentation.

M.S. Seminar Requirements

All chemical engineering graduate students must enroll in CHE 5890, Chemical Engineering Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Registered off-campus graduate students can be exempt from having to enroll in CHE 5890.

M.S. Thesis

All M.S. Plan A students must orally defend their thesis at a public final examination. At least two weeks before the examination, the student must provide each member of the graduate committee with a copy of the written M.S. thesis and provide the department an announcement of their defense for advertisement by bulletin board, e-mail, or other means. The results of the examination are reported on the Report of Final Examination form. Graduate committee members may request changes in the thesis, and they may postpone signing the form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Graduate Student Resources web site. This copy will be rejected if the format standards specified by the Thesis and Dissertation Format Guide are not met. This guide allows for a publication-ready format. If required by the department and/or committee, additional printed copies should be delivered to the University Store for binding. Students should consult with the adviser to determine if the adviser wants a copy of the thesis, dissertation, or other research documentation.

Chemical Engineering, Ph.D.

The Department of Chemical Engineering offers graduate programs leading to the M.S. and Ph.D. degrees in chemical engineering. The M.S. degree is offered under Plan A and Plan B. In addition, an environmental engineering program, run jointly by the Department of Chemical Engineering and the Department of Civil and Architectural Engineering, offers graduate programs leading to an M.S. in environmental engineering under either Plan A or Plan B.

The mission of the graduate program in Chemical Engineering is to prepare students to be leaders in industry, government, or academia.

A master's degree is not required to enter a Ph.D. program.

Graduate Core Classes

All incoming Ph.D students must have an adviser. The student is responsible for contacting faculty members in order to find an adviser.

All Chemical Engineering graduate students must take the following Chemical Engineering Core courses:

CHE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed PETE 5020.

Prerequisite: graduate standing.

CHE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed PETE 5010.

Prerequisite: ES 2330, MATH 2310, and graduate standing in Chemical or Petroleum Engineering.

CHE5030 - Reaction Kinetics

Credits: 3

An analysis of reactions involving phase boundaries, heterogeneous catalysis, gas-solid systems, and gas-liquid systems.

Prerequisite: CHE 4060.

- CHE 5355 - Mathematical Methods in Chemical Engineering Credits: 3

Doctoral Program

Credit Hours

- CHE 5980 - Dissertation Research Credits: 30
- Electives - Credits: 30 (CHE 5980 will count toward your electives)
- Total Credits: 72

Ph.D. Seminar Requirements

All chemical engineering graduate students must enroll in CHE 5890, Chemical Engineering Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Registered off-campus graduate students can be exempt from having to enroll in CHE 5890.

Ph.D. Preliminary Examination

All Ph.D. students must pass a preliminary examination no later than the end of the student's fifth full semester in the graduate program and a least 15 weeks prior to the dissertation defense. Prior to attempting the Ph.D. preliminary examination, students must have completed all required core classes no later than the end of their fourth semester in the graduate program. Students must file a program of study prior to attempting the preliminary examination.

The goal of the preliminary exam is for the student to demonstrate his or her research progress to-date and present the research proposition that will be investigated and lead to his or her final dissertation. The preliminary exam consists of three components: a written document provided to each member of the student's graduate committee at least one week prior to the oral presentation; a public oral presentation; and a private examination by the student's graduate committee immediately following the oral presentation.

The written document may be in any format but must concisely provide a survey of the relevant literature, a summary of the student's progress to-date, and a clear, detailed plan for the successful completion of the proposed work. The preliminary exam oral presentation should be consistent with the written document. It should provide an appropriate

literature background, demonstrate proficiency with proposed experimental/computational techniques, identify details of the experiments to be performed, and provide a timeline to final defense.

The student's committee will pass or fail the student on the strength of the preliminary examination, with an option to conditionally pass the student while requiring an interim committee meeting prior to the final Ph.D. examination. A form sent by the student's adviser to the Office of the Registrar reports the results of the examination.

Ph.D. Final Examination (Dissertation Defense)

All Ph.D. students must orally defend their thesis or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public thesis defense in oral presentation format. At least two weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis of Ph.D. dissertation and provide the department an announcement of their defense for advertisement by bulletin board, e-mail, or other means. The results of the examination are reported on the Report of Final Examination form. Graduate committee members may request changes in the thesis or dissertation, and they may postpone signing the form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Graduate Student Resources web site. This copy will be rejected if the format standards specified by the Thesis and Dissertation Format Guide are not met. This guide allows for a publication-ready format. If required by the department and/or committee, additional printed copies should be delivered to the University Store for binding. Students should consult with the adviser to determine if the adviser wants a copy of the thesis, dissertation, or other research documentation.

Civil Engineering, M.S.

Program Specific Degree Requirements

Master's Program

Areas of study in the master of science program include: building mechanical systems engineering, environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources engineering. The master of science degree in each of these areas requires completion of 12 to 18 hours of engineering courses related to the particular program area.

Plan A (Thesis)

The degree of master of science, Plan A, requires a minimum of 26 hours of coursework and a minimum of 4 hours thesis research in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework for approval by the departmental graduate studies committee (CEGS), and the department head.

Plan A is required of all state or contract supported graduate assistants.

Plan B (Non-Thesis)

Requires a minimum of 30 hours of coursework and a Plan B paper, in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework and the course number that the Plan B paper covers for approval by the CEGS and the department head.

Civil Engineering, Ph.D.

Areas of study in the doctor of philosophy program include: building mechanical systems engineering, environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources engineering.

Minimum of 42 hours of coursework beyond the baccalaureate, 36 hours of which must be 5000-level (graduate-level) courses or the equivalent, and concentrated independent research leading to an acceptable dissertation.

In addition to expertise in the specific dissertation topic, the candidate must demonstrate competence in two or more research areas that will help to insure a high-quality dissertation acceptable to the student's graduate committee.

Subject to department and university requirements, the student's coursework is arranged by consultation between the student, his or her adviser, and his or her committee, and must also be approved by the CEGS and by the department head.

Coursework is defined in a program of study that should be filed by the end of the second semester of the Ph.D. program.

At a time near the completion of formal coursework, the student is required to take and pass a preliminary examination on the Ph.D. coursework and, as a part of the examination, is required to present a written and oral dissertation proposal to his or her committee for approval.

Finally, the student must demonstrate research competence in an oral defense of the dissertation and must submit an acceptable written version of the dissertation to his or her graduate committee in a timely manner to meet deadlines. In addition, the student is to meet the minimum requirements set forth in this bulletin.

Computer Science, M.S.

Computer scientists learn the theory and practice of computing, which is essential in the modern world. An M.S. in Computer Science extends your technical expertise in computer science to design, implement, and secure software-intensive systems.

Program Specific Degree Requirements

Plan A (Thesis)

A total of at least 31 credit hours must be completed. The student must complete a minimum of 27 hours of courses, including the CORE and BREADTH REQUIREMENTS. At least 19 credit hours must be COSC courses. All COSC

courses must be at the 5000 level. Courses from other departments, including no more than 6 hours of 4000-level courses, may be included with the approval of the supervising M.S. committee.

Plan A students are required to formally defend their theses before their supervising committees. All defenses must be open and announced at least two weeks in advance. The thesis must be distributed to the committee at least two weeks in advance of the defense. If the student does not pass the defense, the committee will instruct the student as to what needs to be accomplished (and by when) to pass.

Plan B (Non-Thesis)

The student must complete a minimum of 33 hours of courses, including the CORE and BREADTH REQUIREMENTS. At least 22 credit hours must be COSC courses. All COSC courses must be at the 5000 level. Courses from other departments, including no more than 6 hours of 4000-level courses, may be included with the approval of the supervising M.S. committee.

UW Coursework Requirements for M.S. Transfer Students:

M.S. transfer students must complete at least 21 credit hours at the University of Wyoming. At least 12 credits of the CORE & BREADTH REQUIREMENTS must be taken at the University of Wyoming. No more than one class per category of breadth may be counted towards this 12-credit total. The algorithms course credits may be counted toward this 12-credit total.

Summary of Credit Requirements

Plan A

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- Breadth: theory course, AI course, two systems courses Credits: 12
- Additional courses Credits: 12

COSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

OR

COSC5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 31 Hours

Plan B

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- Breadth: theory course, AI course, two systems courses Credits: 12
- Additional courses Credits: 18

Total Credits: 33 Hours

Computer Science, Ph.D.

Computer scientists learn the theory and practice of computing, which is essential in the modern world. A Ph.D. in Computer Science prepares you to advance the state of the art in computing principles and practice.

Program Information

Each doctoral student will have a supervising committee of at least five members appointed. The primary functions of this committee are to suggest coursework, to administer the qualifying, preliminary, and final examinations, and to oversee and evaluate the research of the candidate. The committee will consist of at least three members of the computer science department faculty and at least one non-COSC faculty member. The standards that this committee should consider when recommending programs of study are outlined in the following sections.

Coursework Requirements:

A total of at least 72 credit hours must be completed. A minimum of 42 of these credit hours must be taken as coursework, including the CORE and BREADTH REQUIREMENTS. A minimum of 12 hours of COSC5980 - Dissertation Research must be taken. All COSC courses must be at the 5000 level. Courses from other departments, including no more than 12 hours of 4000-level courses, may be included with the approval of the supervising Ph.D. committee. All course requirements MUST be completed or enrolled with satisfactory midterm progress prior to scheduling the Ph.D. Final Examination.

UW Coursework Requirements for Ph.D. Transfer Students:

Ph.D. transfer students must complete at least 24 credit hours at the University of Wyoming. At least 12 credits of the CORE and BREADTH REQUIREMENTS must be taken at the University of Wyoming. No more than one class per category of breadth may be counted towards this 12-credit total. The algorithms course credits may be counted toward this 12-credit total.

Program:

A program of original and innovative research will be undertaken by the candidate. At the end of this program, the candidate will document this research in a dissertation. The dissertation will present the details and results of the candidate's research in addition to providing a critical comparison with relevant previously-published works.

Each successful doctoral student must pass three examinations. These include a qualifying examination, a preliminary examination, and a final (dissertation) defense.

Qualifying Exam Criteria:

The student must complete the CORE REQUIREMENT and pass a closed oral examination on a research area administered by the supervising committee. Although closed to the public, faculty members of the Department of Computer Science are welcome to attend. The exam must be announced to the faculty at least two weeks in advance. The research area will be chosen in consultation with the committee. The student must demonstrate background knowledge of the state of the art in the area and preliminary work. This will involve, but is not limited to, presenting material and answering questions covering the relevant area knowledge. The format of the exam will be defined by the committee prior to the exam to allow for sufficient preparation. This examination is intended to motivate the candidate to review relevant literature extensively prior to pursuing the original and innovative portions of the research. Qualifying exam criteria must be completed within the first two years of enrollment in the Ph.D program. If the student does not pass the qualifying exam, the committee will instruct the student as to what needs to be accomplished (and by when) to pass. The closed oral examination requirement may be waived for a student who has completed an M.S. degree in COSC at UW if their M.S. presentation was at a research level that demonstrated background knowledge of the state of the art in the area, at the discretion of the supervising Ph.D. committee.

Preliminary Exam Criteria:

Prior to scheduling the Preliminary Examination, the student must be making satisfactory progress towards completion of their course requirements, including the BREADTH REQUIREMENTS. A Preliminary Examination will consist of a presentation and defense of the already-completed portion of the dissertation research and the research that is proposed to complete the dissertation. The Preliminary Examination must be open and announced at least two weeks in advance. The preliminary examination must be completed within two years of enrollment in the Ph.D program (within three years of enrollment for students who do not have an M.S. degree). This examination is intended to motivate the candidate to make significant progress on work towards their Ph.D. dissertation and propose milestones for completion. If the nature of the proposed continued research and methodology is deemed to be sufficiently original and innovative by the supervising committee, then the committee will approve the research direction after having administered this

examination. If the student does not pass the preliminary exam, the committee will instruct the student as to what needs to be accomplished (and by when) to pass.

Option for M.S. degree en route to Ph.D.:

After completing the Qualifying Exam and Preliminary Exam, a Ph.D. student may additionally earn an M.S. degree after completing the remaining M.S. course requirements, including the BREADTH REQUIREMENTS. COSC 5980 may be substituted for COSC 5960 in the M.S. requirements at the discretion of the supervising committee. The M.S. degree will be granted only after completion of the preliminary exam. For an M.S. degree to be granted prior to completion of the preliminary exam, the student should enroll in the M.S. degree program and complete the remaining M.S. requirements.

Final Exam Criteria:

Prior to scheduling the Ph.D. Final Examination (often referred to as a "defense"), all course requirements, including the BREADTH REQUIREMENTS, MUST be completed or enrolled with satisfactory midterm progress. The Final Examination (dissertation defense) will consist of an oral presentation by the candidate of his/her research and the results that were derived. At this examination, the candidate is expected to defend the research as being original and contributory to the discipline of computer science. The Final Examination must be open and announced at least two weeks in advance. The dissertation must be distributed to the supervising committee at least two weeks in advance of the Final Examination. If the student does not pass the final exam, the committee will instruct the student as to what needs to be accomplished (and by when) to pass.

Time to degree for part-time students:

Exceptions to the completion deadlines for the Qualifying Exam and Preliminary Exam may be made for part-time students at the discretion of the supervising committee.

Computer Science Core Requirements

COSC5110 - Analysis Of Algorithms must be completed with a grade of B or better. A grade of B- is not sufficient. Students are strongly encouraged to take COSC 5110 the first time it is offered after enrollment.

Computer Science Breadth Requirements

Students must earn a grade of B or better in one class from the Theory category, one class from the Artificial Intelligence category, and two classes from the Systems category. A grade of B- is not sufficient. Thus there must be 12 credits taken to satisfy the breadth requirement. A list of courses in each category is available from the Department. Although some courses may be listed under multiple categories, a course may only count once towards the breadth requirement.

Program Specific Degree Requirements

Summary of Credit Requirements

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- Breadth: theory course, AI course, two systems courses Credits:12
- Additional courses Credits: 27

COSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

OR

COSC5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

- Other credits (may include courses or COSC 5960/COSC 5980) Credits: 18

Total Credits: 72 Hours

Electrical Engineering, M.S.

Plan A (Thesis)

This is a minimum 30 credit hour program, 26 hours coursework and 4 hours of thesis

- Minimum 16 Course Hours in Electrical and Computer Engineering Course Work
- Minimum 3 Course Hours in Formal Course Work outside the Electrical and Computer Engineering Department approved by the student's committee
- 7 Additional Formal Course Hours in or out of the Electrical and Computer Engineering Department
- 4 credits of MS thesis research
- No more than 12 credit hours can be at the 4000 level
- No more than 3 credit hours of independent study

Of the above credit hours in formal coursework, no more than 12 credit hours can be 4000 level

The candidate must meet the minimum requirements for the Master of Science degree and also complete and defend a master's thesis.

Plan B (with Paper)

This is a 30 hour program:

- Minimum 18 Course Hrs in Electrical and Computer Engineering Course Work
- Minimum 3 Course Hrs in Formal Course Work outside the Electrical and Computer Engineering Department
- 9 Additional Formal Course Hrs in or out of the Electrical and Computer Engineering Department
- No more than 12 credit hours can be at the 4000 level
- No more than 3 credit hours of independent study

Plan B (Coursework Only)

This is a 30 hour program:

- Minimum 18 Course Hrs in Electrical and Computer Engineering Course Work
- Minimum 3 Course Hrs in Formal Course Work outside the Electrical and Computer Engineering Department
- 9 Additional Formal Course Hrs in or out of the Electrical and Computer Engineering Department
- No more than 12 credit hours can be at the 4000 level
- No more than 3 credit hours of independent study

Of the above credit hours in formal coursework, no more than 12 can be 4000 level.

Electrical Engineering, Ph.D.

Degree Requirements

Ph.D. Degree Requirements:

Ph.D. Credit Allocation (all at 4000 level minimum)

- 72 hours (minimum) of acceptable graduate coursework
- 42 hours (minimum) from ECE and closely related formal course work (EE5980 - Dissertation Research not counting toward this minimum)

Of those 42 hours, no more than 12 hours can be at the 4000 level

Courses required by the department bachelor of science degree may not be applied for graduate credit

- 6 hours (maximum) of EE4800 - Problems in _____ can be counted for program of study credit
- 6 hours (maximum) of EE 5880 - Problems in ... can be counted for program of study credit
- 9 hours (maximum) of EE5600 - Statistical Signal Processing in: can be counted for program of study credit.

In addition to the minimum requirements of the university, doctoral students must pass a written and oral comprehensive examination, part of which is a written proposal explaining their planned dissertation research. The student after completing successfully the oral comprehensive examination and before defending the completed

dissertation must present their research work at an ECE department seminar. The student must also present and defend a completed dissertation. Programs of study, including coursework and any research tools, are arranged by consultation between the students and their graduate committee.

Engineering and Applied Science, MBA/MS Dual Degree

Students who hold both an MBA and an MS in Engineering set themselves apart when entering the competitive marketplace. As leaders, not only do they speak the technical lingo, they also understand the overall strategy and operational goals.

MS/MBA Dual Degree Requirements

The MS/MBA is typically a non-thesis option. An additional 21 credits in engineering, science or mathematics must be earned beyond the BS degree. At least 15 credits of graduate course work must be at the 5000-level from the respective EAS graduate program.

MBA Courses

All students pursuing a dual degree program with the College of Engineering and Applied Science and the College of Business must meet the admission requirements for both programs in order to be considered for the dual degree program. If admitted to both programs, students will complete the following requirements:

Any 9 credit hours of the following required MBA core courses can be counted towards the MS/MBA degree.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

Program Specific Requirements

Please review the specific program requirements for each program within the dual degree agreement.

- Business Administration, M.B.A.
- Mechanical Engineering, M.S.
- Petroleum Engineering, M.S.

Thesis Option

For a thesis option, students will only count one MBAM course from the above list and are required to complete 4 credits of ME 5960 and 2 credits for ME 5478 similar to the Plan A option.

Environmental Engineering, M.S.

A master of science in environmental engineering is available in the College of Engineering through a joint effort of the Department of Civil and Architectural Engineering and the Department of Chemical Engineering.

Core Courses (9 Hours)

All Environmental Engineering M.S. students must take the following Core courses (9 hrs):

- ENVE 5425 - Environmental Engineering Microbiology

ENVE5430 - Environmental Engineering Chemistry

Credits: 3

Focus includes inorganic, organic, physical, equilibrium, biochemistry, colloidal and nuclear chemistry with an emphasis on the problems/solutions encountered by environmental and civil engineers.

Prerequisite: CHEM 1020.

CE5435 - Environmental Transport Processes

Credits: 3

Designed for graduate students and engineering seniors interested in the principles of mass transport and their application to environmental systems. Deals with the hydrodynamics of mixing and transport, as well as the interaction of mixing and various reaction rate processes. Applications include water and wastewater treatment, groundwater pollution, and transport and mixing in rivers, lakes and reservoirs.

Cross Listed ENVE 5435 and CHE 5435.

Prerequisite: MATH 2310 and ES 2330.

Recommended Courses (3 Hours)

Students should also take at least one of the following Recommended courses (3 hrs):

ENVE5410 - Advanced Biological Wastewater Treatment

Credits: 3

Theory and practice of advanced biological treatment processes for municipal and industrial wastewaters, sludges, groundwater bioremediation and solid waste. Emphasis is on fundamental principles applied to the design and control of existing processes and the development of innovative systems.

Cross Listed CE 5410/CHE 5410.

Prerequisite: consent of instructor.

ENVE5450 - Advanced Physical Chemical Treatment

Credits: 3

A study of physical and chemical processes for treatment of water, and waste water.

Cross Listed CE 5450.

Prerequisite: CE 4400.

Approved Elective Coursework

Plan A (Thesis) students complete another 14 hours of Approved Elective coursework, at least 4 hours of ENVE5960 - Thesis Research, and write and defend their thesis. Plan B (Project) students complete another 18 hours of Approved Elective coursework and write and present their project.

Total Required Credit Hours: 30 (Minimum)

Mathematics, M.A.

A comprehensive mathematics degree, with training in the fundamentals of analysis, abstract algebra, computation, and mathematical modeling. Provides a strong foundation for teaching, work in industry, and continued study in graduate-level programs.

Common Requirements

The following requirements are common to all four tracks:

- The student must maintain a 3.000 cumulative GPA.
- The student must complete 30 hours of formal mathematics coursework at the 5000 level.
- The student must pass the department's Foundation Exam. This exam covers material from advanced vector calculus and linear algebra at the upper-division undergraduate level and is offered before the beginning of each semester.
- Take one hour of the seminar MATH 4970: Professional Development in Mathematics and one hour of the seminar MATH 4970: Professional Development in Teaching.

5000-level Mathematics Courses

As part of the 30 hours of formal 5000-level mathematics courses, the student must complete the following courses with a grade of B or better:

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Tracks:

In addition to the common elements above, students must select and complete one of the capstone experiences described in the tracks below.

Track #1: Master's Thesis (Plan A)

Within the 30 hours of 5000-level courses, the Plan A student must complete 4 hours of MATH5960 - Thesis Research. At least 26 hours of 5000-level coursework must be mathcontent courses (not thesis research).

The student must prepare a master's thesis (Plan A) and give an oral defense of the thesis. In the mathematics program, a Plan A thesis reports on the result(s) of independent and original research completed by the student under the direction of a faculty member. The thesis should describe the research and its results and be written to the standards of the appropriate area of mathematics.

Track #2: Master's Paper (Plan B)

The student must prepare a master's paper (Plan B) and give an oral defense.

To write a Plan B paper, the student must present an expository paper on a designated mathematical subject. Students are guided by their advisor in the subject matter and in the preparation of the paper. A successful paper and defense

demonstrates that the student has mastered a substantial mathematical topic that is beyond those covered in formal foundational coursework.

Track #3: Coursework/Project (Plan B)

A second M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper, the student takes a sequence of three 5000-level courses that all address a common mathematical theme. The sequence must be approved by the student's advisor and the mathematics graduate committee. Two of the courses must be mathematics-department offerings, and the third may be either a mathematics course (including reading/topics courses) or a course from another department in a related field.

- The student must complete an additional 6 hours of courses at the 5000 level. Thus, Track #3 requires the completion of 36 hours of graduate-level coursework.
- Within the 36 hours, the student must propose and complete with a grade of B or better an appropriate 3-course sequence
- The student will write a short paper illustrating how the common mathematical theme of the sequence manifests itself in the content of each course and give a presentation/defense of the paper.

In approving the student's proposal for this option, the graduate committee and the advisor will consider how the writing and independent study spirit of the Plan B option are fulfilled within the recommended plan.

Track #4: Qualifying Exam (Plan B)

A third M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper or taking additional coursework, the student must take and pass the department's PhD Qualifying Examination in one of the three areas: Analysis, Algebra, or Applied Mathematics. These examinations focus on the material in the required courses.

These examinations are given twice a year at the beginning of the fall and spring semesters. This option is intended for students who will continue for a PhD at UW.

- The oral component of this Track will consist of a defense of the student's written answers to qualifying exam.
- Pass one of the department's qualifying exams in:

Analysis

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of

one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

Algebra

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Applied Mathematics

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

Mathematics, M.A.T.

Applicants are required to have:

- A. A valid teaching endorsement in any state or educational requirements satisfied for secondary teaching;
- B. courses equivalent to MATH 3205, MATH 3500, MATH 4000 and MATH 4600;
- C. a course in computer programming.

Students who enter the program with a deficiency in the courses listed in (b) must take them at UW, but these courses may not be counted toward the course requirements of the M.S.T./M.A.T. program.

Mathematics, M.S.

A comprehensive mathematics degree, with training in the fundamentals of analysis, abstract algebra, computation, and mathematical modeling. Provides a strong foundation for teaching, work in industry, and continued study in graduate-level programs.

Common Requirements

The following requirements are common to all four tracks:

- The student must maintain a 3.000 cumulative GPA.
- The student must complete 30 hours of formal mathematics coursework at the 5000 level.
- The student must pass the department's Foundation Exam. This exam covers material from advanced vector calculus and linear algebra at the upper-division undergraduate level and is offered before the beginning of each semester.
- Take one hour of the seminar MATH 4970: Professional Development in Mathematics and one hour of the seminar MATH 4970: Professional Development in Teaching.

5000-level Mathematics Courses

As part of the 30 hours of formal 5000-level mathematics courses, the student must complete the following courses with a grade of B or better:

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of

one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Tracks:

In addition to the common elements above, students must select and complete one of the capstone experiences described in the tracks below.

Track #1: Master's Thesis (Plan A)

Within the 30 hours of 5000-level courses, the Plan A student must complete 4 hours of MATH5960 - Thesis Research. At least 26 hours of 5000-level coursework must be mathcontent courses (not thesis research).

The student must prepare a master's thesis (Plan A) and give an oral defense of the thesis. In the mathematics program, a Plan A thesis reports on the result(s) of independent and original research completed by the student under the direction of a faculty member. The thesis should describe the research and its results and be written to the standards of the appropriate area of mathematics.

Track #2: Master's Paper (Plan B)

The student must prepare a master's paper (Plan B) and give an oral defense.

To write a Plan B paper, the student must present an expository paper on a designated mathematical subject. Students are guided by their advisor in the subject matter and in the preparation of the paper. A successful paper and defense demonstrates that the student has mastered a substantial mathematical topic that is beyond those covered in formal foundational coursework.

Track #3: Coursework/Project (Plan B)

A second M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper, the student takes a sequence of three 5000-level courses that all address a common mathematical theme. The sequence must be approved by the student's advisor and the mathematics graduate committee. Two of the courses must be mathematics-department offerings, and the third may be either a mathematics course (including reading/topics courses) or a course from another department in a related field.

- The student must complete an additional 6 hours of courses at the 5000 level. Thus, Track #3 requires the completion of 36 hours of graduate-level coursework.
- Within the 36 hours, the student must propose and complete with a grade of B or better an appropriate 3-course sequence
- The student will write a short paper illustrating how the common mathematical theme of the sequence manifests itself in the content of each course and give a presentation/defense of the paper.

In approving the student's proposal for this option, the graduate committee and the advisor will consider how the writing and independent study spirit of the Plan B option are fulfilled within the recommended plan.

Track #4: Qualifying Exam (Plan B)

A third M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper or taking additional coursework, the student must take and pass the department's PhD Qualifying Examination in one of the three areas: Analysis, Algebra, or Applied Mathematics. These examinations focus on the material in the required courses.

These examinations are given twice a year at the beginning of the fall and spring semesters. This option is intended for students who will continue for a PhD at UW.

- The oral component of this Track will consist of a defense of the student's written answers to qualifying exam.
- Pass one of the department's qualifying exams in:

Analysis

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

Algebra

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Applied Mathematics

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

Mathematics, M.S.T.

Applicants are required to have:

- A. A valid teaching endorsement in any state or educational requirements satisfied for secondary teaching;
- B. courses equivalent to MATH 3205, MATH 3500, MATH 4000 and MATH 4600;
- C. a course in computer programming.

Students who enter the program with a deficiency in the courses listed in (b) must take them at UW, but these courses may not be counted toward the course requirements of the M.S.T./M.A.T. program.

Mathematics, Ph.D.

A rigorous PhD program in mathematics, culminating in an original research project. Math PhDs have excellent career prospects in a variety of settings, including academia, industry, research, engineering, economics and government.

Mathematics PhD Information

The student must maintain a 3.0 cumulative GPA.

The student must teach two semesters of college mathematics.

The student must complete a combination of 72 hours of coursework and dissertation research. Within the 72 hours, a maximum of 12 hours can be at the 4000 level, and 42 hours must be formal courses at the 5000 level. The courses must be mathematics courses or courses with significant mathematical content, as approved by the department's graduate committee.

The Student Must Complete

Within the 42 hours of 5000-level courses, the student must:

- Complete the courses distributed in three areas: algebra, analysis, and applied mathematics. The student must take at least two courses in each of two categories and at least one course from the third category. The department maintains a list of course categories.

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Take Two Hours of

MATH5800 - Seminar in Mathematics

Credits: 1-3

Max Credit (Max. 8)

Prerequisite: consent of instructor.

In Addition

In addition, the student must:

- Pass the foundation exam, the qualifying exam in the student's research area, and the preliminary exam.
- Write a dissertation containing the student's original mathematical results and present an oral defense of the research.
- Take one hour of the seminar 4970: Professional Development in Mathematics and one hour of the seminar MATH4970 - Professional Development in Teaching.

Mechanical Engineering, M.S.

The UW Mechanical Engineering MS program offers two options: thesis (Plan A) or non-thesis (Plan B). Both tracks offer opportunities to take graduate coursework in topics of thermal fluids, materials, experimentation, computational tools, and more.

Program Specific Degree Requirements

Plan A (Thesis)

A thesis project is chosen in consultation with an ME faculty member, and constitutes 4 credit hours of ME 5960 in the 30-hour Plan A program. ME 5478 (Seminar) is to be taken during the final semester when the thesis is presented and defended, and constitutes 2 credit hours of the 30-hour Plan A program. Classes must meet the following constraints:

- ME courses (5000-level): minimum of 15 hours
- A maximum of 9 credits at the 4000 level outside of ME may be taken
- Thesis research (ME 5960): 4 credit hours
- Seminar (ME 5478): 2 credit hours
- Total: Minimum of 30 CH.

Courses outside of ME must be chosen with the approval of the academic adviser. They can be in mathematics, statistics, science, or other engineering disciplines. Up to two courses may be from the fields of business, ENR, or public policy. Special topic credits may be earned using ME 5475 (maximum of 6 credits).

Plan B (Non-Thesis)

The Plan B M.S. degree can be completed by earning a minimum of 31 credits beyond the baccalaureate degree. Classes must meet the following constraints:

- ME courses (5000-level): minimum of 15 hours
- A maximum of 9 credits at the 4000 level outside of ME may be taken
- Graduate Project (ME 5961): minimum of 1 hour
- Total: minimum of 31 hours

Courses outside of ME must be chosen with the approval of the academic adviser. They can be in mathematics, statistics, science, or other engineering disciplines. Special topic credits may be earned using ME 5475 (maximum of 6 credits). Research credits earned through ME 5960 as part of an unfinished M.S. Plan A program may not be counted. Although the Plan B M.S. degree is not research-oriented, the program must contain an "element of discovery," documented by completing ME 5961 (Graduate Project). This could be a special project performed as independent study or as part of a graduate course.

MS-ME/MBA Dual Program

The UW Mechanical Engineering MS/MBA program offers the opportunity to pursue MS and MBA degrees simultaneously and reduce course requirements by applying course credit towards both degrees. There are thesis and non-thesis options for the MS degree.

MS-ME/MBA Program Requirements

The MS-ME component is typically a non-thesis option. An additional 21 credits in engineering, science or mathematics must be earned beyond the BS degree. At least 15 credits of graduate course work must be at the 5000-level from ME. The following MBA courses will be counted towards the MS-ME degree and constitute 9 credit hours of the 30 hours MS-ME program

Choose two of the following courses:

MBAM5103 - Business Research Methods

Credits: 3

An overview of the scientific research process applied in the context of business. Topics include problem definition, selection of a methodological approach, design and implementation of field work (qualitative and survey methods), analysis techniques (thematic analysis for qualitative research and statistical analysis for survey research, and

communicating results.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5301 - MBA Summer Project

Credits: 3

Serves as an externship for individual MBA students or MBA teams to work with a client on a business issue under the supervision of a qualified faculty member in the College of Business.

Prerequisite: Completion of the first-year (Fall & Spring semester) on campus MBA courses.

MBAM5501 - Energy Economics and Policy

Credits: 3

Applies the tools of economic analysis to attain and understanding of energy markets and energy policy analysis. Sec. 1 Overviews the major energy and environmental policy issues facing the United States and the world. Sec 2 Determinants of energy demand. Sec. 3 Technologies and costs to produce and deliver energy. Sec. 4 Determinants of energy price.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5503 - Fundamentals of Accounting in the Energy Industry

Credits: 3

Introduces students to basic financial accounting and reporting issues related to energy producing activities. Specifically, the course will investigate current accounting practices of energy producing companies related to exploration, acquisition, development, and delivery of energy products. The course will also cover financial requirements of the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and the Securities and Exchange Commission (SEC).

Cross Listed ACCT 5503.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5506 - Energy Finance: Securities, Hedging, and Trading

Credits: 3

Overview of security analysis applied to energy firms, hedging strategies, and trading activities in energy markets. Trading activities covered include the use of forward and futures contracts, swaps, options, and related derivatives.

Prerequisite: Permission of MBA Program Director.

MBAM5508 - Marketing and Sustainable Consumption

Credits: 3

Focuses on understanding household and business energy consumption. Emphasizes the environmental, economic, social and psychological influences on consumer decision making and sustainable consumption. Course deals with developing customer value propositions, and for marketing strategy development in branding, product-line offerings, pricing, retailing and distribution, and public policy.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MGT5504 - Energy Industry Value Chain

Credits: 3

Examines the overall energy industry with detailed exploration of the major energy subsectors and supply chains. Students will develop knowledge of the energy industry value chain including coverage of market dynamics, prevalent strategies, finance, operations, externalities and network effects, environmental and ethical considerations, and associated policy issues.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director

Required course:

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MS-ME/MBA Thesis Option

For a thesis option, students will only count one MBAM course from the above list and are required to complete 4 credits of ME 5960 and 2 credits for ME 5478, similar to the Plan A option.

Mechanical Engineering Graduate Level Courses

ME5040 - Introduction to Finite Element Analysis

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. Includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 4040

Prerequisite: MATH 2310 and (CE 4200 or ARE 4200 or ME 3010)

ME5045 - Advanced Finite Element Analysis

Credits: 3

Advanced topics in finite element analysis with emphasis on mathematical foundations of the method, numerical algorithms for software implementation, and analysis of problems with material and geometric nonlinear behavior.

Cross Listed CE 5045

Prerequisite: ME 4040 or ME 5040 or CE 5040.

ME5200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 4200

Prerequisite: ME 3450

ME5432 - Advanced Materials Science

Credits: 3

An analysis of the relationships between the structures of materials and their mechanical and physical properties, leading to the application of these relationships to the design of materials for advanced engineering systems. Topics include crystallography, lattice defects, transport phenomena, phase transformations, fracture, environmental effects, and control of microstructure by processing.

Prerequisite: ME 3450

ME5434 - Computational Materials Science

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: graduate standing.

ME5435 - Failure of Engineering Materials

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: ME 3450 or equivalent.

ME5438 - Plasticity and Viscoelasticity

Credits: 3

Analysis of stress and deformation of idealized plastic and viscoelastic solids. Limit theorems in plasticity. Time-dependent behavior of viscoelastic materials.

Prerequisite: ME 5472 or equivalent.

ME5440 - Fluid Mechanics

Credits: 3

Lagrangian and Eulerian descriptions, conservation laws, stress and rate-of-stress tensors, Navier-Stokes equations, energy equations, vorticity and circulation inviscid and potential flows, laminar flows, turbulent flows, boundary-layer theory.

Cross Listed CHE 5440.

ME5442 - Advanced Fluid Mechanics

Credits: 3

Introduction to inviscid and viscous hydrodynamic stability; closure in turbulent flows; vorticity and vortex dynamics, theoretical aerodynamics, numerical simulations of viscous flows, experimental methods in fluid flows.

Prerequisite: ME 5440.

ME5446 - Turbulence

Credits: 3

Basic notions, properties and scales in turbulent flows. Transport equations; Reynold's stresses, mixing and phenomenological theories. Turbulence dynamics; mean and fluctuating kinetic energy balances, vorticity and temperature fluctuations. Statistical description of turbulence; correlations and spectra, transport, isotropy and homogeneity. Shear flows; plane jets, wakes and boundary layers (including planetary). Turbulent diffusion.

Cross Listed CHE 5446.

Prerequisite: ME 5440.

ME5448 - Experimental Fluid Dynamics.

Credits: 3

Provides an introduction to the design of fluid dynamics experiments. Specific instrumentation will be discussed and methods of analyzing and assessing data will be presented.

Prerequisite: graduate standing.

ME5452 - Convection Heat Transfer

Credits: 3

Convection, including heat and momentum transfer. Boundary layer theory. Laminar and turbulent flows, steady and unsteady formulations including differential and integral descriptions. High velocity, compressible systems.

Cross Listed CHE 5452.

Prerequisite: ES 3360 or consent of instructor.

ME5461 - Computational Fluid Dynamics I

Credits: 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Dual list with ME 4461 and ESE 4461

Prerequisite: graduate standing

ME5462 - Computational Fluid Dynamics II

Credits: 3

A study of advanced techniques in modern-day scientific computing as applied to Computational Fluid Dynamics. These include unstructured mesh generation using Delaunay triangulation, searching and sorting techniques, and efficient data structures. Other topics cover efficient hardware implementation including cache-effects and parallel computing and sensitivity analysis for design optimization.

Prerequisite: ME 5461

ME5472 - Continuum Mechanics

Credits: 3

The basic laws of the physical behavior of continuous media. Stress and deformation at a point; fundamental equations of balance of mass, momentum, and energy; second law of thermodynamics; curvilinear coordinate analysis. Applications to linear elasticity and fluid mechanics.

Prerequisite: graduate standing.

ME5478 - Seminar in Mechanical Engineer

Credits: 2

Prerequisite: graduate standing in engineering.

ME5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ME5961 - Graduate Projects

Credits: 1-4

Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project. Prerequisites: enrollment in Plan B program and have departmental approval.

ME5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Mechanical Engineering, Ph.D.

The UW Mechanical Engineering PhD program includes coursework and a substantial research component. Research is performed with an advisor, and a dissertation is produced. Program requirements include Qualifying, Preliminary, and Final Examinations.

Program Requirements

For students of outstanding academic ability and with demonstrated capacity for undertaking independent research on advanced engineering problems, the Ph.D. program in mechanical engineering is offered. The Ph.D. requires a minimum of 72 graduate hours, at least 42 of which must be earned in formal coursework. In addition to coursework requirements, graduate students pursuing a Ph.D. in Mechanical Engineering must complete three examinations: Qualifying, Preliminary, and Final.

Classes must meet the following constraints:

- A minimum of 24 in-resident coursework hours is required
- ME courses (5000-level): minimum of 15 hours
- A maximum of 9 credits at the 4000 level outside of ME may be taken

All graduate students in Mechanical Engineering are expected to follow the graduate education policies of the College of Engineering and Applied Sciences.

Qualifying Exam

In consultation with their advisor, students are allowed to take the Qualifying Exam after declaring pursuit of a Ph.D. degree. Graduate students do not require a M.S. to take the Qualifying Exam. The format is a knowledge-based examination consisting of three subject areas, each with both a written and an oral component. The candidate will be evaluated for each subject area, based on the cumulative performance in both (written and oral) components. Should the student fail a single subject area, at the discretion of the committee, they may repeat the failed portion at the next available opportunity. A third attempt is not permitted. The successful completion of the Qualifying Exam is required before the Preliminary Exam.

Preliminary & Final Exam

The purpose of the Preliminary Exam is to evaluate the aptitude of the Ph.D. candidate to perform research based on preliminary results, and to assess the student's plan for completing the research necessary for the Final Exam. The Preliminary Exam follows university regulations and, at a minimum, consists of a seminar attended by the student's committee members.

The purpose of the Final Exam is to ensure the Ph.D. candidate has sufficient accomplishments to be awarded a Ph.D. The Final Exam consists of an oral defense of the dissertation in accordance with university policy.

Mechanical Engineering Graduate Level Courses

ME5045 - Advanced Finite Element Analysis

Credits: 3

Advanced topics in finite element analysis with emphasis on mathematical foundations of the method, numerical algorithms for software implementation, and analysis of problems with material and geometric nonlinear behavior.

Cross Listed CE 5045

Prerequisite: ME 4040 or ME 5040 or CE 5040.

ME5040 - Introduction to Finite Element Analysis

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. Includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 4040

Prerequisite: MATH 2310 and (CE 4200 or ARE 4200 or ME 3010)

ME5200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 4200

Prerequisite: ME 3450

ME5432 - Advanced Materials Science

Credits: 3

An analysis of the relationships between the structures of materials and their mechanical and physical properties, leading to the application of these relationships to the design of materials for advanced engineering systems. Topics include crystallography, lattice defects, transport phenomena, phase transformations, fracture, environmental effects, and control of microstructure by processing.

Prerequisite: ME 3450

ME5434 - Computational Materials Science

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: graduate standing.

ME5435 - Failure of Engineering Materials

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: ME 3450 or equivalent.

ME5438 - Plasticity and Viscoelasticity

Credits: 3

Analysis of stress and deformation of idealized plastic and viscoelastic solids. Limit theorems in plasticity. Time-dependent behavior of viscoelastic materials.

Prerequisite: ME 5472 or equivalent.

ME5440 - Fluid Mechanics

Credits: 3

Lagrangian and Eulerian descriptions, conservation laws, stress and rate-of-stress tensors, Navier-Stokes equations, energy equations, vorticity and circulation inviscid and potential flows, laminar flows, turbulent flows, boundary-layer theory.

Cross Listed CHE 5440.

ME5442 - Advanced Fluid Mechanics

Credits: 3

Introduction to inviscid and viscous hydrodynamic stability; closure in turbulent flows; vorticity and vortex dynamics, theoretical aerodynamics, numerical simulations of viscous flows, experimental methods in fluid flows.

Prerequisite: ME 5440.

ME5446 - Turbulence

Credits: 3

Basic notions, properties and scales in turbulent flows. Transport equations; Reynold's stresses, mixing and phenomenological theories. Turbulence dynamics; mean and fluctuating kinetic energy balances, vorticity and temperature fluctuations. Statistical description of turbulence; correlations and spectra, transport, isotropy and homogeneity. Shear flows; plane jets, wakes and boundary layers (including planetary). Turbulent diffusion.

Cross Listed CHE 5446.

Prerequisite: ME 5440.

ME5448 - Experimental Fluid Dynamics.

Credits: 3

Provides an introduction to the design of fluid dynamics experiments. Specific instrumentation will be discussed and methods of analyzing and assessing data will be presented.

Prerequisite: graduate standing.

ME5452 - Convection Heat Transfer

Credits: 3

Convection, including heat and momentum transfer. Boundary layer theory. Laminar and turbulent flows, steady and unsteady formulations including differential and integral descriptions. High velocity, compressible systems.

Cross Listed CHE 5452.

Prerequisite: ES 3360 or consent of instructor.

ME5455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ME 4455 ESE 4455

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME5461 - Computational Fluid Dynamics I

Credits: 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Dual list with ME 4461 and ESE 4461

Prerequisite: graduate standing

ME5462 - Computational Fluid Dynamics II

Credits: 3

A study of advanced techniques in modern-day scientific computing as applied to Computational Fluid Dynamics. These include unstructured mesh generation using Delaunay triangulation, searching and sorting techniques, and efficient data structures. Other topics cover efficient hardware implementation including cache-effects and parallel computing and sensitivity analysis for design optimization.

Prerequisite: ME 5461

ME5472 - Continuum Mechanics

Credits: 3

The basic laws of the physical behavior of continuous media. Stress and deformation at a point; fundamental equations of balance of mass, momentum, and energy; second law of thermodynamics; curvilinear coordinate analysis. Applications to linear elasticity and fluid mechanics.

Prerequisite: graduate standing.

ME5474 - Energy Methods

Credits: 3

Introduction to variational calculus with applications in solid mechanics. The basic theorems of virtual work, minimum potential energy, and complementary energy are developed. Direct methods such as Castigliano's theorem as well as the approximate methods of Ritz and Galerkin are developed and used to obtain solutions for a variety of problems in solid mechanics.

Prerequisite: ME 3010

ME5478 - Seminar in Mechanical Engineer

Credits: 2

Prerequisite: graduate standing in engineering.

ME5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Petroleum Engineering, M.S.

Petroleum M.S. Students With a B.S. In Petroleum Engineering

All Petroleum M.S. students with a B.S. in Petroleum Engineering from an accredited program must take the following required courses:

Required Courses

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least three Core Courses from the following:

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

Total Credits: 14 Hours

Plan A Thesis Additional Course Requirements:

- 4000-level or above approved electives Credits: 12

PETE5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Total Credits: 30 Hours

Plan B Non-Thesis Additional Course Requirements:

4000-level or above approved electives

PETE5970 - MS Plan B Research Project

Credits: 1-2

Max Credit 2

Students complete a non-thesis capstone project on a topic of choice within the petroleum or energy field, under the guidance of their graduate committee. Students must produce at least one final paper and present their results in a public forum (Final Examination). Must complete a minimum of two credit hours for the M.S. degree.

Prerequisite: Graduate Standing.

Total Credits: 30 Hours

Petroleum M.S. Students With a B.S. In Chemical or Mechanical Engineering

All Petroleum M.S. students with a B.S. in Chemical or Mechanical Engineering from an accredited program must take the following required courses:

Required Courses:

PETE5055 - Drilling Engineering

Credits: 3
Max Credit 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hole deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: Graduate Standing

PETE5340 - Reservoir Engineering.

Credits: 3
Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: Graduate standing.

PETE5715 - Production Engineering

Credits: 3
Provides elements for calculating production rate of oil/ gas wells, including reservoir inflow performance, determined by reservoir rock and fluids properties using Darcy's law, and tubing performance, determined by tubing parameters and using Newtonian dynamics. Basic design of artificial life systems, reservoir stimulations and optimization of production systems are included.

Prerequisite: graduate standing.

Core Courses

At least five Core Courses from the following:

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

Total Credits: 26 Hours

Plan A Thesis Additional Course Requirements:

- 4000-level or above approved electives Credits: 7

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

PETE5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Total Credits: 40 Hours

Plan B Non-Thesis Additional Course Requirements:

- 4000-level or above approved electives Credits: 9

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

PETE5970 - MS Plan B Research Project

Credits: 1-2

Max Credit 2

Students complete a non-thesis capstone project on a topic of choice within the petroleum or energy field, under the guidance of their graduate committee. Students must produce at least one final paper and present their results in a public forum (Final Examination). Must complete a minimum of two credit hours for the M.S. degree.

Prerequisite: Graduate Standing.

Total Credits: 40 Hours

Graduate Seminar Requirements

All petroleum engineering PhD students must enroll in PETE5890 - Petroleum Engineering Graduate Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Graduate students enrolled in continuous registration are exempt from having to enroll in PETE 5890 in their final semester. MS students are required to take PETE 5890 for at least two semesters.

Graduate Teaching Requirement

All Petroleum Engineering graduate students must complete at least one semester as a teaching assistant within the Petroleum Engineering curriculum. Students receiving a state-funded graduate assistantship will be required to serve as a teaching assistant every semester of their award. Students funded by a faculty mentor will work with their mentor to determine an appropriate time to complete this requirement.

Program of Study Requirement

All Petroleum Engineering graduate students must complete their Program of Study worksheet at the beginning of their second academic year of study or 3rd semester of enrollment, and PhD students must submit it prior to their preliminary examination.

M.S. and Ph.D. Final Examination (Thesis or Dissertation Defense)

All M.S. and Ph.D. students must orally defend their final report, thesis, or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public defense in oral presentation format. At least three weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis or dissertation and provide the department an announcement of their defense for public advertisement. The results of the defense are reported by the committee on the Report of Final Examination form. Often, graduate committee members request changes in the final thesis or dissertation, and they may postpone signing this form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Registrar's web site. This copy will be rejected if the format standards specified by the Thesis or Dissertation Format Guide are not met. This guide allows for a publication-ready format. An electronic copy must also be submitted to the department for the departmental library. Most students will want copies for their own use. Students should consult with their chair to determine if they also want a copy of the final paper or other research documentation.

Petroleum Engineering, Ph.D.

Students with a B.S. in Petroleum Engineering

All Petroleum Ph.D. students with a B.S. in Petroleum Engineering must take the following required courses:

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least three Core Courses from the following:

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 21

Research

PETE5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 72

Students with an M.S. in Petroleum Engineering

All Petroleum Ph.D. students with an M.S. in Petroleum Engineering from UW must take the following required courses:

Plan A MS Courses Credits: 26

See Petroleum Engineering, M.S. program

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1
Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 9

Research

PETE5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 72

Students with an M.S. in Petroleum Engineering

All Petroleum Ph.D. students with an M.S. in Petroleum Engineering from another institution must take the following required courses:

Transferred MS Courses Approved by Student's Committee Credits: 14

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1
Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least four Core Courses from the following:*

PETE5010 - Transport Phenomena

Credits: 3
Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3
Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3
Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3
Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 9

Research

PETE5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 72 Hours

*Some or all of these credit hours can be transferred by petition, provided they are non-degree credits.

Students with an M.S. Degree in a Geoscience

All Petroleum Ph.D. students with an M.S. degree in a geoscience from another accredited institution must take the following required courses:

Transferred MS Courses Approved by Student's Committee Credits: 12

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least six Core Courses from the following:*

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

At Least Eight Additional Courses:

- Six (6) credits in advanced mathematics
- 18 credits in petroleum engineering

Petroleum Engineering Credits Include:

- PETE 5340
- PETE 5055

PETE5715 - Production Engineering

Credits: 3

Provides elements for calculating production rate of oil/ gas wells, including reservoir inflow performance, determined by reservoir rock and fluids properties using Darcy's law, and tubing performance, determined by tubing parameters and using Newtonian dynamics. Basic design of artificial life systems, reservoir stimulations and optimization of production systems are included.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 9

Research

PETE5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 100 Hours

*Some or all of these credit hours can be transferred by petition, provided they are non-degree credits.

Graduate Seminar Requirements

All petroleum engineering graduate students must enroll in PETE5890 - Petroleum Engineering Graduate Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Graduate students enrolled in continuous registration are exempt from having to enroll in PETE 5890 in their final semester.

Graduate Teaching Requirement

All Petroleum Engineering graduate students must complete at least one semester as a teaching assistant within the Petroleum Engineering curriculum. Students receiving a state-funded graduate assistantship will be required to serve as a teaching assistant every semester of their award. Students funded by a faculty mentor will work with their mentor to determine an appropriate time to complete this requirement.

Program of Study Requirement

All Petroleum Engineering graduate students must complete their Program of Study worksheet at the beginning of their second academic year of study or 3rd semester of enrollment, and PhD students must submit it prior to their preliminary examination.

Ph.D. Preliminary Examination

Candidacy in the doctorate occurs upon certification of successful completion of the preliminary examination. The preliminary examination will be held at least 15 weeks prior to the final examination. The preliminary examination may not be given before: (a) the research tool requirements, if any, have been met and certification approved; (b) at least 30 hours of coursework have been completed; and (c) the doctoral program of study has been approved.

The goal of the preliminary exam is for the student to present the research proposition that is being investigated and will lead to the final dissertation, and demonstrate progress to-date. The preliminary exam consists of three components:

- a written document provided to each member of the student's graduate committee at least three weeks prior to the oral presentation;
- a public oral presentation; and
- a private examination by the student's graduate committee immediately following the oral presentation.

The written document may be in any format but must concisely provide a survey of the relevant literature, a summary of the student's progress to-date, and a clear, detailed plan for the successful completion of the proposed work. The preliminary exam oral presentation should be consistent with the written document. It should provide an appropriate literature background, demonstrate proficiency with proposed experimental/computational techniques, identify details of the experiments to be performed, and provide a timeline to final defense.

The student's committee will pass or fail the student on the strength of the preliminary examination, with an option to conditionally pass the student while requiring an interim committee meeting prior to the final Ph.D. examination. The Report on Preliminary Examination for Admission to Candidacy form sent to the Office of the Registrar reports the results of the examination.

M.S. and Ph.D. Final Examination (Thesis or Dissertation Defense)

All M.S. and Ph.D. students must orally defend their final report, thesis, or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public defense in oral presentation format. At least three weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis or dissertation and provide the department an announcement of their defense for public advertisement. The results of the defense are reported by the committee on the Report of Final Examination form. Often, graduate committee members request changes in the final thesis or dissertation, and they may postpone signing this form until they are satisfied that those changes have been made.

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Statistics Graduate Minor

A graduate minor in statistics can be a great way to signal your interest and skill in data analysis as it relates to your field of study.

Requirements

Twelve hours of STAT courses at the 5XXX-level, with the exception of:

STAT 5000

STAT 5185

STAT4220 - Basic Engineering Statistics

Credits: 3

Introduces probability models, properties of distributions, statistical inference and development of statistical models for physical and engineering sciences. Credit cannot be earned in more than one of the following courses: STAT 2010, STAT 2050, STAT 2070, 4220 and 5000.

Former Course Number [4020]

Prerequisite: MATH 2205, MATH 2355 or equivalent.

- STAT 5000

Statistics, M.S.

Profile

The Master's Program in Applied Statistics will give the student an extensive and broad background in statistical methods, data analysis, and written and oral presentation skills. This degree is a terminal experience in graduate statistical education and should not be viewed as preparatory for entrance into a Ph.D. program in statistics. Graduates will have the necessary background to work as data management specialists, statistical analysts, and as project managers within a wide range of research organizations.

Plan B (Option 1)

Coursework

In addition to the general requirements of the university all candidates for the MS (Plan B - Option 1) degree must successfully take and complete:

Required: 15 Credit Hours

STAT5210 - Advanced Regression

Credits: 3

Advanced methodologies, with particular focus on concepts and methods related to regression. Topics include generalized linear models, nonlinear regression, elementary linear model theory, and Data Science topics such as resampling inference, ridge regression and the lasso, and k-fold cross-validation.

Prerequisite: MATH 4265/STAT 4265/STAT 5265 and STAT 4015/STAT 5015. STAT 4025/STAT 5025 and STAT 4045/STAT 5045 are recommended.

STAT5220 - Advanced Design

Credits: 3

Advanced study of experimental designs, observational designs, and mixed models. Topics include fixed and random effects, factorial, split-plot and repeated measures designs, and hierarchical models. Linear model methodology and Data Science concepts will also be emphasized.

Prerequisite: MATH 5265/STAT 4265/STAT 5265, and at least one of STAT 4015/STAT 5015, STAT 4025/STAT 5025, or STAT 5210.

STAT5470 - Data Analysis

Credits: 3

This course is designed to develop the skill of analyzing data sets using methods of classic statistical analysis, such as analysis of variance, regression, discrete models, descriptive analysis, non-parametrics, and multivariate methods. The focus will be on understanding the various models and methods, computer assisted data analysis, and communication of results (oral and written).

Prerequisite: 12 graduate level hours in statistics (excluding STAT 5000).

STAT5380 - Bayesian Data Analysis

Credits: 3

Bayesian statistical methods for analyzing various kinds of data. Topics include basic Bayesian ideas and model formulation (priors, posteriors, likelihoods), single- and multiple-parameter models, hierarchical models, generalized linear models, multivariate models, survival models and an introduction to computation methods.

Prerequisite: STAT 5255

STAT5660 - Computationally Intensive Methods in Statistics

Credits: 3

Advanced statistical inference often relies on methods which are computationally intensive. The basic methods include Newton-Raphson; the EM algorithm; bootstrap and other resampling procedures; kernel density estimators; Laplace's method, importance sampling and MCMC, and saddlepoint and Edgeworth approximations.

Prerequisite: STAT 5520.

Electives

a minimum of 15 credit hours in other acceptable graduate courses. Acceptable courses include statistics courses numbered 5000 or higher, excepting:

- STAT 5000
- STAT 5050 - Statistical Methods for the Biological Science
- STAT 5060
- STAT 5070 - Statistical Methods for the the Social Sciences
- STAT 5080 - Statistical Methods for the Agricultural and Natural Resource Sciences
- STAT 5185 - Analysis of Data

Total Credits: 30 Hours

Graduation Requirements: (1) successful completion of coursework and (2) a data analysis project (Plan B paper).

Certificate

Cadastral Surveying Certificate

Program Information

- Students must be properly admitted as Cadastral Surveying Certificate students through the University of Wyoming Admissions Office to be eligible for this Certificate.
- This certificate requires a minimum of 30 semester hours as listed below. 21 credit hours must be successfully completed at the University of Wyoming.
- All transfer credit is subject to review by the UW Land Surveying Director.
- A grade of C or better must be earned in each course.
- The Certificate meets the Wyoming Board of Professional Engineers and Land Surveying licensing requirements for the surveying specific course work required to apply to be a Land Surveyor in Training (LSIT).
- Students earning the Cadastral Surveying Certificate are NOT eligible for Federal Financial Aid. Students may utilize private student loan programs available through the Student Financial Aid Office.
- The UW Cadastral Surveying program is not ABET Accredited.
- Students should have a working knowledge of algebra and trigonometry, and some experience with spreadsheets prior to beginning in this program.
- AutoCAD Civil 3D is recommended.

Course Requirements

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey

System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2110 - Real Property Law

Credits: 3

Covers all major areas of real property law, including the nature of real property, types of ownership, real estate contracts, title and insurance, financing, landlord and tenant, land use, environmental law and regulation. An understanding of real property law is fundamental to understanding boundary law.

Former Course Number [CE 2050]

LS2400 - Basic Geodesy for Today's Land Surveyor

Credits: 2

The history of geodesy including measurement techniques, coordinate systems, ellipsoids, and datums is reviewed. The modern geodetic and Cartesian coordinates systems, as well as the differences between grid and ground coordinates systems, and the current geodetic and Cartesian coordinate systems available today are discussed.

Former Course Number [CE 2089]

Prerequisite: CE 2070 or LS 2010.

LS3100 - Real Property Descriptions

Credits: 2

Historical and current issues for land description writing and usage for the practicing surveyor. Relationship between written descriptions and field survey data, interpreting old descriptions and the structure principles of description.

Former Course Number [CE 2088]

Prerequisite: CE 2070 or LS 2010, and LS 2100 and LS 2110.

LS3110 - Boundary Evidence

Credits: 2

A practical and working guide to understanding survey evidence and the laws of boundary location for efficient, accurate boundary determination. This material aids in the elimination of errors in location of land boundaries. The surveyor's liability and statutes of limitations are explored in depth. Also included are discussions of the surveyor's role in court. Normally offered only through the Outreach School.

Former Course Number [CE 3750]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3120 - Boundary Principles

Credits: 2

This course in boundary law addresses the fundamental principles of real property as applied to land surveying and related professions. Discussion and applications center on practical situations and concepts commonly encountered while conducting boundary surveys and the determination of the extent of ownership rights. Students explore the scope of the surveyors' judiciary role in real property ownership. Primarily offered through the Outreach School.

Former Course Number [CE 3740]

Prerequisite: CE 2070 or LS 2010, and LS 3100 and LS 2110.

LS3130 - Public Land Surveys

Credits: 3

Basic fundamentals of the Public Land Survey System (PLSS), dependent and independent resurveys, survey plats, "bona fide rights", riparian boundaries, non-rectangular entities, corner evidence and the role of the modern day surveyor.

Former Course Number [CE 2085]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3200 - Route Surveying

Credits: 3

Laying out of super elevation and circular, parabolic, and spiral curves; the difference between highway and railway horizontal curve geometry; offsets to spiral curves as boundaries; area and volumes of earthwork.

Former Course Number [CE 3710, CE 4710]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

Required Credits: 30 Hours Minimum

Cybersecurity Certificate

Cybersecurity is the practice of ensuring the confidentiality, integrity, and availability of information within interconnected systems. The certificate in Cybersecurity prepares you for a career securing software-intensive systems.

Requirements

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC4010 - Special Topics in Computer Science

Credits: 1-3

Individual or small group pursuit of interdisciplinary problems in the use of computers or study of advanced topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: COSC 3020 concurrently and consent of instructor.

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

- STAT 2010 Credits: 4
- OR**

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT4220 - Basic Engineering Statistics

Credits: 3

Introduces probability models, properties of distributions, statistical inference and development of statistical models for physical and engineering sciences. Credit cannot be earned in more than one of the following courses: STAT 2010, STAT 2050, STAT 2070, 4220 and 5000.

Former Course Number [4020]

Prerequisite: MATH 2205, MATH 2355 or equivalent.

Minimum Required: 20 Credits

Note: COSC 4760 can also be replaced by the ECE version ECE 4870 or a second COSC4010 - Special Topics in Computer Science.

QuickStart Program

Chemical Engineering Quick Start, B.S./M.S.

The BS/MS Quick Start program in Chemical Engineering (CHE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their Bachelor of Science (B.S.) degree in Chemical Engineering. These students may apply for admission to the Quick Start program during the second semester of their junior year or during their senior year.

This program allows for early planning of the graduate portion of a student's education and provides more flexibility in the number of required courses and the order in which they are taken. The more efficient and better-planned use of time should result in reduction of the time required for obtaining the Master of Science in Chemical Engineering (M.S. CHE) degree. Students who enter the Quick Start program must accept the primary responsibility for actively planning their programs of study to assure timely completion of their coursework and research programs.

The Quick Start program contains two essential elements:

Qualified students may receive provisional admission to the Chemical Engineering graduate program prior to completing the normal application process. This provisional admission will permit students to make their long-term educational plans earlier in their studies, thus providing enhanced opportunities for course selection and involvement in research.

Students in the program may apply up to 6 credit hours of 5000-level courses toward both the B.S. and M.S. degree programs. By completing successfully up to 6 credit hours of graduate classes during their senior year, these students will have demonstrated their ability to do graduate-level coursework as undergraduates, easing their transition to the Chemical Engineering graduate program.

For additional information and an application form, please contact the CHE graduate program coordinator at che-info@uwyo.edu or stop by 4055 Engineering Building.

Civil and Architectural Engineering Quick Start, B.S./M.S.

The MSCE Quick Start (Plan A) program in Civil and Architectural Engineering (CAE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor of science (BS) degree in Civil Engineering or Architectural Engineering.

Electrical and Computer Engineering Quick Start, B.S./M.S.

The combined B.S./M.S. program in electrical and computer engineering enables especially well-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter towards both the B.S. and M.S. degrees. These students would earn the B.S. in either electrical engineering or computer engineering and the M.S. degree in electrical engineering following the current curricula.

This program allows for early planning of the M.S. portion of the student's education, taking graduate courses as part of the B.S. degree, more flexibility in the order in which courses are taken, and more efficient use of what would otherwise be a final semester with a light credit hour load.

Degree Requirements

Up to 6 credit hours from UW, at the 5000-level or above, may be counted toward both the B.S. and M.S. degree programs.

For further information please visit our Web site at <http://www.uwyo.edu/electrical/graduate/prospective/ms/quickstart.html>.

Mathematics Quick Start BS/MS

A five-year combined Master's and Bachelor's degree in mathematics, in which six credits of graduate coursework is counted toward both degrees. UW students must apply to be considered for this degree.

Mathematics Quick Start Information

Overview

The combined BS/MS program in Mathematics is designed to afford highly qualified students in their junior or senior year the opportunity to work towards both the BS and MS degrees in Mathematics. The program allows for advanced students to jump-start the graduate portion of their education by applying credits for graduate courses to both their BS and MS requirements. The MS degree earned under the combined BS/MS program is not a new or separate category of degree. However, through careful planning and coordination, this program can result in a reduction of the time required to complete both the Mathematics, B.S. and Mathematics, M.S. degrees.

Qualification/Admission

Application for admission may be submitted to the department at any time after the student has completed 75 undergraduate credits. Graduate credits may be applied toward the MS under this program upon the completion of 90 undergraduate credits. Additional minimum requirements for admission are:

1. Minimum GPA of 3.25
2. Minimum GPA in undergraduate math courses of 3.5
3. Completion of two transition courses or their equivalents
4. Three letters of recommendation from UW faculty (at least 2 from UW-Math)

Credits

The BS/MS-Math program allows for students under the guidance of their academic advisor to take graduate courses as part of their BS degree. During their senior year, up to six graduate credits (5000+ level) can be counted simultaneously towards both the BS and MS degrees in Mathematics. In principle, this "double dipping" allows students to earn a MS after completing only 144 credits (120 to earn the BS, 6 of which are applied toward the 30 credits required to earn the MS) instead of 150 credits. In addition, students may reserve a further six credits of 5000 level credits for their MS degrees prior to earning their BS; however, these credits will not be counted toward the BS degree.

Satisfactory progress

The department's Foundation Exam must be passed by the beginning of their second semester of their 4th year. Students in the BS/MS program must have a faculty advisor, with whom they consult to complete a program of study. The Program of Study (POS) must be submitted to the Mathematics Graduate Committee for approval by the end of the midterm of the first semester in which the student has been admitted into the program. The POS must include all courses to be taken during their senior year to the end of the students MS program. Any of the tracks (plan A or B) available to our Masters students will be available to students in this program. The advisor will aid the student in determining which track is the best for completion of the Masters.

Regulations

Students in this program will be governed by the regulations applicable to any undergraduate student in Mathematics until the student has completed 120 credit hours applicable to the BS degree in Mathematics. Once those 120 credit hours have been completed, the student will be enrolled as a graduate student and be governed by graduate student regulations in the Mathematics graduate program. To the extent possible, once the student transitions to being a graduate student, the student should complete the MS degree in 12 months.

University of Wyoming requirements:

Students must have a minimum cumulative GPA of 2.0 to graduate. • Students must complete 42 hours of upper division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. • Courses must be taken for a letter grade unless offered only for S/U. • University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

College of Arts and Sciences requirements:

Students must take two "core" courses in addition to UW's University Studies Program requirements: Diversity in the United States (ASD) and Global Awareness (ASG). • No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation. • At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).

Mechanical Engineering Quick Start, B.S./M.S.

The UW Mechanical Engineering BS/MS QuickStart program offers Mechanical Engineering and Energy Systems Engineering undergraduate students the opportunity to start on MS graduate coursework early and gain credit towards BS and MS degree requirements.

Requirements for Admission

Through judicious choice of undergraduate electives, this program allows double-counting up to two 5000-level courses from the B.S. program toward M.S. degree requirements, thus reducing the time requirement for completing an M.S. degree. Students can apply for admission to the B.S./M.S. program by achieving junior status and meeting the following requirements for admission:

- completion of the four core ME courses (listed below),
- a minimum overall GPA of 3.250,
- a minimum GPA of 3.250 in ME courses, and
- a minimum of three letters of recommendation (at least two must be from ME faculty at UW).

Core Mechanical Engineering Courses

Completion of the following four ME courses is required for admission.

ME3010 - Intermediate Mechanics of Materials

Credits: 3

Expansion of the principles of solid mechanics: stress, strain, principal stresses, elastic and plastic behavior, failure theories and the use of energy methods. Analysis and design of thick-walled pressure vessels, noncircular cross sections under torsion, nonsymmetric beams under bending and curved beams.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ESE 3020

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ME3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ESE 3040

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ARE 3360/ESE 3360

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310, and ES 2330.

Additional Information

Students must maintain a GPA of at least 3.250 in their undergraduate and at least 3.000 in their graduate coursework in order to remain in good standing in the program. Not meeting the GPA requirement places a student on probation for one semester. If the GPA requirement is not met after that semester, the student will be dismissed from the Quick Start program. Transfer students must have taken courses equivalent to the ME core courses. Transfer students must have also completed at least 15 credit hours of courses at UW in order to be eligible for admission.

Until a student in this program has completed a total of 131 credit hours of courses applicable to the B.S. degree in Mechanical Engineering, or a total of 129 credit hours of courses applicable to the B.S. degree in Energy Systems

Engineering, he/she will be governed by the regulations applicable to undergraduate students in the Department. After a student has accumulated a total of 131 or 129 applicable credit hours, he/she will be governed by the regulations applicable to any graduate student in the ME department. These regulations include the requirement that every student must take the GRE general examination. It is the intention of the department that, to the degree possible, a student in this program is treated on the same basis as any other student in the department at a comparable stage of his/her academic career.

As many as 6 credit hours of ME department courses at the 5000 level may be counted towards both the undergraduate degree requirements and the requirements for the MS degree. In principle, therefore, the minimum number of course credit hours required for the BS/MS degrees will be 151 for Plan A students (+ 4 additional hours of thesis research) or 156 for Plan B students (non-thesis option).

Petroleum Engineering Quick Start, B.S./M.S.

The BS/MS Quick Start program is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their BS degree in Petroleum Engineering. These students may apply for admission during their junior year.

Quick Start Program Requirements

The BS/MS Quick Start program in Petroleum Engineering (PETE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their Bachelor of Science (B.S.) degree in Petroleum Engineering. These students may apply for admission to the Quick Start program during their junior year or before starting their senior year.

This program allows for early planning of the graduate portion of a student's education and provides more flexibility in the number of required courses and the order in which they are taken. The more efficient and better planned use of time should result in reduction of the time required for obtaining the Master of Science in Petroleum Engineering degree. Students who enter the Quick Start program must accept primary responsibility for actively planning their Programs of Study to assure timely completion of their course work and research programs.

The Quick Start program contains two essential elements:

1. Qualified students may receive provisional admission to the Petroleum Engineering graduate program prior to completing the normal application process. This provisional admission will permit students to make their long-term educational plans earlier in their studies, thus providing enhanced opportunities for course selection and involvement in research.
2. Students in the program may apply up to 6 credit hours of 5000-level courses toward both the B.S. and M.S. degree programs. By completing successfully up to 6 credit hours of graduate classes during their senior year, these students will have demonstrated their ability to do graduate-level course work as undergraduates, easing their transition to the Petroleum Engineering graduate program.

For additional information, visit our website for admissions information <http://www.uwyo.edu/petroleum/undergraduate/current-students/quickstart.html> or contact our graduate admissions coordinator at pete-info@uwyo.edu.

Quick Start Prerequisites

Cumulative GPA of 3.25.

PETE GPA of 3.50

3 letters of recommendation, at least 2 from PETE faculty at UW.

PETE3200 - Reservoir Engineering

Credits: 3

Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: PETE 3025, C or better in PETE 2050. Student must be a Petroleum Engineering major.

Prerequisite courses: PETE 2050 and PETE 3025

PETE3255 - Basic Drilling Engineering

Credits: 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hold deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

Prerequisite courses: ES 2330 and PETE 2050

PETE3715 - Production Engineering

Credits: 3

Provides elements for calculating the production rate of oil or gas wells, including reservoir inflow performance, which is determined by the reservoir rock and fluids properties and calculated based on Darcy's law, and tubing performance, which is determined by tubing parameters and calculated based on Newtonian dynamics. Basic design of artificial lift systems, reservoir stimulations and optimization of production systems are also included.

Prerequisite: C or better in ES 2310, ES 2330 and PETE 2050. Student must be a Petroleum Engineering major.

Prerequisite courses: ES 2310, ES 2330 and PETE 2050

Transfer Students' Requirements

Must have taken at least two of the three required PETE courses listed above at UW.

Transfer course work must be from an accredited institution and deemed equivalent to current UW PETE core courses.

Must have completed at least 15 credit hours of PETE course work at UW prior to starting the Quick Start program.

Quick Start Program Retention

Prior to completion of the BS degree, students must:

- Complete all requirements for admission to UW graduate school and the PETE graduate program.
 - The Graduate Records Examination (GRE) requirement will be waived.

- Additional English proficiency testing for admission is also waived for international students.
- Maintain a cumulative GPA of at least 3.25 in their overall undergraduate program.
- Maintain a GPA of 3.5 in their PETE courses.
- Maintain a GPA of at least 3.0 in 5000-level (graduate) courses.
- Failure to complete graduate admission requirements prior to the start of the final year of undergraduate study will result in immediate suspension from the program.
- Failure to meet any GPA requirements places a student on academic probation for one semester.
- If the GPA requirement is still not met after academic probation, the student will be suspended from the program.

Statistics Quick Start BS/MS

An advanced degree in Statistics is powerful in its own right; statistical methods are part of the core of data science, so stands as a useful foundation for that as well. The Program in Statistics at the University of Wyoming now offers a QuickStart ("4+1") MS program, within which qualified students can obtain a **Statistics, B.S.** and a **Statistics, M.S.** degree in five years.

The program is intended for inspired, high-achieving students; the pace will be intense, as you will need to be taking courses at the graduate level in your undergraduate senior year.

The MS degree requires 30 credits; in order to make the 4+1 program work enrolled students can

1. Have two three-credit 4XXX/5XXX classes count towards both the BS and MS degrees. Enrollment must be for the 5XXX section of the course. Tuition is charged at the undergraduate rate.
2. Reserve two three-credit 4XXX/5XXX classes for graduate credit. Tuition is charged at the undergraduate rate, but these two classes *will only count towards the MS.*

With these four courses counting towards the MS, there remains 18 credits, which can be done in two semesters of three (three-credit) classes each.

Steps:

1. Apply (usually in the Spring of your Junior year) online to the QuickStart- Statistics BS/MS -College of Arts & Science program[1]. You will need (unofficial is fine) college transcripts, a statement of purpose, and three letters of recommendation[2].
2. Once you are enrolled in the program, the Admissions Office will work with you to put into play the double-dip and reserved courses mentioned above.

Acceptance into the MS is conditional until your undergraduate degree is awarded and results are in from your taking the GRE, which we recommend you take in your last undergraduate year.

[1] Instructions from the registrar: Apply at: <https://www.uwyo.edu/admissions/apply-online.html>

The log-in is different from WyoWeb. If you remember the log-in email/password form when you originally applied to UW, you can use the Returning Users option. Otherwise, use the First Time users option. When you get to the page where you select your program of study, select **QuickStart- Statistics BS/MS -College of Arts & Science**. All the Quickstart program are under Q to (hopefully) reduce confusion for non-quickstart applicants. Any questions during the application process can be directed to admissions@uwyo.edu or 766-5160.

[2] These documents are standard for applying to our graduate program; we anticipate we will have a mix of QuickStart students and regular (i.e. 2-year) MS students who are applying from elsewhere.

College of Health Sciences

235 Health Sciences Center

David Jones, Dean

Phone: (307)766-6556 FAX: (307)766-6608

Web site: www.uwyo.edu/hs

The College of Health Sciences is the place for students interested in improving and maintaining the physical, mental, and social health of others. We offer challenging degree programs in the "helping professions" and serve as the gateway to schools of medicine, dentistry, physical and occupational therapy, physician's assistant study, optometry, and more.

Health sciences students receive not only a superior education from knowledgeable and caring faculty but also precise and personal guidance from conscientious advising personnel. Students benefit, too, from practicums and internships that help them refine and test the skills acquired in lectures and labs as well as opportunities to participate in dynamic, interdisciplinary research projects.

The college is also the home of the Wyoming Institute for Disabilities (WIND); two Family Medicine Residency Centers; and the WWAMI Medical Education Program.

We serve as the state certifying office for the Wyoming, Washington, Alaska, Montana, and Idaho (WWAMI) medical education contract program with the University of Washington School of Medicine; WYDENT, the dental education contract program with the University of Nebraska and Creighton University; and two programs for the Western Interstate Commission of Higher Education (WICHE): the Professional Student Exchange Program (PSEP) and the Western Regional Graduate Program (WRGP). Refer to the sections on WWAMI, WYDENT, and WICHE in this catalog for program descriptions or go to www.uwyo.edu/certwy.

Any student seeking admission to programs in the College of Health Sciences will be required to obtain a background check as specified by college policy. Please contact your school or division for specific information.

The College of Health Sciences retains the right to deny or revoke admission to any of its programs for academic, disciplinary, ethical, or professional standards reasons.

Programs of Study

Undergraduate Degrees

Bachelor of Science

Kinesiology and Health Promotion

Medical Laboratory Science

Physical Education Teacher Education K-12

Speech, Language and Hearing Sciences

Bachelor of Science in Dental Hygiene

Bachelor of Science in Nursing

Bachelor of Social Work

Graduate Degrees

Master of Science

- Health Services Administration
- Nursing
- Kinesiology and Health
- Speech-Language Pathology

Master of Social Work

Professional Degrees

Doctor of Nursing Practice

Doctor of Pharmacy

Minor in the College of Health Sciences

Disability Studies

Disability studies is a diverse interdisciplinary field that investigates broad questions about the nature, meanings, and consequences of disability from interrelated social, historical, cultural, and political perspectives. Students will gain a broad understanding of disability issues for working with people with disabilities rather than specific disciplinary skills and techniques. The minor complements any major and consists of 18 credit hours. See www.uwyo.edu/hs/divisions-and-programs/minor-indisability-studies.html.

Undergraduate and Pre-Health Advising Office

Health Sciences Center, 110

The Undergraduate and Pre-Health Advising Office (UPHAO) in the College of Health Sciences (www.uwyo.edu/preprof/) provides pre-professional health advising to all UW students regardless of their academic majors, who are interested in pursuing future study in athletic training, chiropractic, dentistry, medicine, optometry, occupational therapy, physical therapy, physician assistant, or other health care careers such as public health. A bachelor's degree is usually required for admission to a professional school. The University of Wyoming does not offer degrees in pre-professional areas. Students may pursue any UW degree program in which they have an interest and at the same time complete the admission requirements for the professional schools they wish to attend. The UPHAO advises students for their professional program prerequisites as well as other aspects of becoming solid candidates. Each student will also have an advisor in his/her major.

Through this office, pre-health students can access current information about admission requirements, entrance examinations, application process, professional school curriculums, interviewing skills, and test preparation. Specific schools may have additional requirements; students are urged to check with the schools they wish to attend.

Information and Wyoming state residency applications for the WICHE PSEP program, the WWAMI medical education program, and the WYDENT dental education program, may be found online at <http://www.uwyo.edu/certwy>.

Please view individual division and program pages list for full course and curriculum listings

Major

B.S. in Dental Hygiene (BSDH)

Dental hygienists play an important role in promoting health by helping patients understand the connection between good oral health and an overall healthy body. They provide patient education and individualized therapeutic services to help patients reach their oral health goals.

Program Prerequisites

Students interested in the bachelor's degree in dental hygiene should contact the Health Sciences Advising Office at Health Sciences 110, phone (307)766-3878, e-mail: hsadvise@uwyo.edu.

Prerequisite courses for admission into the Dental Hygiene program at Sheridan College includes a cumulative GPA of 2.750 or better in the courses listed below. These may be taken at any institution, but if taken at the University of Wyoming, the course numbering will be as follows:

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.
OR CHEM 1020 General Chemistry I

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR MOLB 2021 General Microbiology

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

UW Requirements for the BSDH Degree

In order to receive a BSDH through the University of Wyoming, students must also take the following courses:

1. Program prerequisites
2. A.A.S. in Dental Hygiene from Sheridan College (competitive application required)
3. Completion of all USP requirements, including the US and Wyoming Constitutions (USP-V) and Communication III (USP-COM3) requirements
4. STAT 2050 or STAT 2070
5. At least 120 credits hours, 42 of which are upper-division credits. This usually requires the completion of additional upper-division elective credits. Note: talk to an advisor to know whether you need to fulfill any additional credits toward your BSDH (hsadvise@uwoyo.edu).

Required Courses

Required courses after admission to the Dental Hygiene program at Sheridan College (NWCC-D):

Sheridan College Courses

Sheridan College courses, taught ONLY at Sheridan College in Sheridan, WY.

- DHYG 2100 - Dental Health Education Credits: 3
- DHYG 2300 - Preclinical Dental Hygiene Credits: 3
- DHYG 2305 - Clinical Dental Technology Credits: 1

- DHYG 2405 - Dental Anatomy Credits: 2
- DHYG 2450 - Oral Radiology Credits: 3
- DHYG 2451 - Oral Radiology Lab Credits: 1
- DHYG 2470 - Orientation to Dental Hygiene Credits: 3
- DHYG 2200 - Pharmacology Credits: 2
- DHYG 2210 - Dental Embryology & Histology Credits: 2
- DHYG 2350 - Clinical Dental Hygiene I Credits: 3
- DHYG 2400 - Head, Neck, and Oral Anatomy & Physiology Credits: 2
- DHYG 2420 - Clinical Seminar I Credits: 2
- DHYG 2455 - Dental Materials Credits: 2
- DHYG 2456 - Dental Materials Lab Credits: 1

University of Wyoming Courses

University of Wyoming courses (details below), taught ONLY at Sheridan College in Sheridan, WY.

DHYG3230 - Clinical Seminar II

Credits: 2

This course is a continuation of the Clinical Seminar Series. Course content will focus on the review and enhancement of instrumentation skills; the essentials of instrument selection; the role of root planing in dental hygiene; the development and refinement of skills needed for treatment of more advanced periodontal cases, which includes the initiation of a periodontal case study; and the introduction and preparation for the use of state-of-the-art clinical technologies.

Prerequisite: DHYG 2420.

DHYG3300 - Clinical Dental Hygiene II

Credits: 5

This course provides students the opportunity to gain further practical experience in dental hygiene procedures by providing comprehensive patient care in clinical settings. A flexible format allows students to meet requirements in procedures for patient record-keeping, patient education, dental prophylaxis, dental radiography and routine clinical procedures.

Prerequisite: DHYG 2350.

DHYG3400 - General and Oral Pathology

Credits: 3

This course is designed to teach students the concepts underlying general and oral manifestations of human disease states, manifestations of specific diseases, relationships to body defense mechanisms, and potential implications for medical and dental hygiene treatment. To the extent possible, applications to clinical situations in dental hygiene practice will be made.

Prerequisite: one year pre-dental hygiene (including general pathology); MOLB 2021 or equivalent.

DHYG3600 - Ethics and Law in Dental Hygiene

Credits: 2

This course provides an introduction to basic concepts in the analysis of ethical theories, principles, values, the professional code of ethics, and legal aspects associated with the dental hygiene healthcare profession. Contemporary issues are examined in dentistry and medicine as a strategy to explore and apply ethical principles in diverse cultures and situations.

Prerequisite: successfully complete all first-year dental hygiene courses.

DHYG3750 - Periodontology

Credits: 3

This course reviews the anatomy and histology of periodontal structures and dental accretions followed by a study of the classifications and etiology of periodontal diseases including both local and systemic factors. A thorough exploration of the hygienist's role in disease recognition, prevention, therapeutic procedures and maintenance is also included.

DHYG3770 - Pain Management

Credits: 2

This course provides clinical experience with local anesthesia and inhalation sedation techniques. It includes the detection of anatomic landmarks in the mouth pertaining to specific injection sites, preparation of the armamentarium, maintenance of asepsis, simulated and real injection of anesthetic agents at predetermined sites and administration of nitrous oxide/oxygen.

Prerequisite: successful enrollment in dental hygiene major or consent of instructor.

DHYG3775 - Pain Management Lab

Credits: 1

This course provides clinical experience with local anesthesia and inhalation sedation techniques. It includes the detection of anatomic landmarks in the mouth pertaining to specific injection sites, preparation of the armamentarium, maintenance of asepsis, simulated and real injection of anesthetic agents at predetermined sites and administration of nitrous oxide/ oxygen.

Prerequisite: successful completion of sophomore year course work in dental hygiene, current certifications in CPR, and curriculum enrollment in dental hygiene major or consent of instructor.

DHYG3250 - Clinical Seminar III

Credits: 2

This course prepares the dental hygiene student to make the transition from an educational setting to private practice. Focus is on applying, synthesizing, and transferring clinical and didactic knowledge to clinical and ethical decision-making. Students will be engaged in problem-based case studies, application of motivational theories, and analysis of evidence-based research.

Prerequisite: DHYG 3230, DHYG 3300 and DHYG 3350 or concurrent enrollment.

DHYG3350 - Clinical Dental Hygiene III

Credits: 5

This course assists students in gaining practical experience in clinical procedures requiring greater skill and knowledge than procedures previously undertaken. This course prepares students for the transition to private office practice.

Prerequisite: DHYG 3300.

DHYG3550 - Community Dental Health

Credits: 3

This course provides the dental hygiene student with an introduction to basic skills needed to evaluate the dental health community, including research methodology and basic statistical analysis. It provides the student with a basic understanding of the significant social, political, psychological and economic factors influencing the American Health System.

Prerequisite: DHYG 2100.

DHYG3720 - Office Practice

Credits: 2

This course is designed to provide the dental hygiene student with both current information and experience in office practice and management. Also included are discussions of professionalism, decision-making and leadership roles, including legal and ethical responsibilities, team responsibilities in the dental office and discussion of selecting, securing and maintaining employment.

Prerequisite: DHYG 2300, 2350, DHYG 3300 and a communications course.

DHYG3800 - Board Review

Credits: 1

This course is designed to assist dental hygiene students in preparing for the National Board Dental Hygiene Exam, the western and central regional clinical and anesthesia board exams, and state jurisprudence exams. These exams are required for licensure to practice dental hygiene in the United States. This course includes discussion of the distinction between various agencies in the education, healthcare and legal system which have jurisdiction over the licensure process, and the impact of cheating during any portion of the process on the public welfare.

Prerequisite: DHYG 3300.

Kinesiology and Health Promotion, B.S.

The B.S. in Kinesiology and Health Promotion degree prepares students for careers in clinical exercise physiology, health and movement coaching, biomechanics, nutrition, basic science, and behavioral science. The program is also excellent for students seeking to enter the field of medicine.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate and are not covered by the Kinesiology and Health Promotion major. These courses should be taken before KIN 3021 & 3022, except the Communications III (USP-C3) course.

First Year Seminar (3 credits)

Communications I (3 credits)

ENGL 1010 English Composition

Communications II (3 credits)

Communications III (3 credits)

U.S. & Wyoming Constitution (3 credits)

Human Culture

Any USP-H course (not HLED) (3 credits, meets 3 out of 6 credits of Human Culture USP requirement)

Courses required for major

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer

sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR CHEM 1020 - General Chemistry I

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

KIN1006 - Introduction to Kinesiology and Health

Credits: 1

A survey of the disciplines of kinesiology and health and exposure to foundational literature in the field.

Prerequisite: Declared Kinesiology & Health Promotion major or permission of instructor.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR STAT 2070 Introductory Statistics for the Social Sciences

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.
OR PHYS 1110 General Physics I

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

HLED3020 - Community and Public Health

Credits: 3

Public health aim to create the conditions where people can be healthy. This course introduces goals and applications of community and public health work in the US, illustrated with case studies from the most urgent health issues facing our nation.

Former Course Number [4050]

Prerequisite: HLED 1006, completion of a COM2 course, and minimum 2.750 GPA.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

A minimum cumulative GPA of 2.750 (preferred 3.000) is required before taking KIN 3021

KIN3022 - Lab Exp in Exercise Physiology

Credits: 1

An in-depth examination of the measurement of physiological principles and mechanisms related to human movement. Lab exercises emphasize skills necessary for basic morphological through advanced exercise performance testing variables. Laboratory writing exercises focus on improving students' ability to read and comprehend scientific articles and produce scientific writing based on their own experiments and data.

Prerequisite: KIN 3021 or concurrent enrollment.

KIN3024 - Fundamentals of Health and Fitness Assessment

Credits: 3

Fundamental concepts of health appraisal, assessment of health-related fitness levels, individual and group exercise programming and leadership, and methods of behavioral change. Theory and practical application of fitness presented with an emphasis on adults. Has lecture and lab components. Completion of KIN 3021 highly recommended.

Former Course Number [PEPR 3010]

Prerequisite: completed or concurrent enrollment in KIN 3021; 2.750 GPA.

KIN3034 - Lifespan Motor Development

Credits: 3

Studies lifespan motor development. Emphasizes developmental periods of infancy through adolescence. Gives attention to observation and analysis of motor behavior and movement performance of individuals across lifespan.

Former Course Number [PEPR 3034]

Prerequisite: grade of C or better in PSYC 1000; junior standing; 2.750 GPA.
OR KIN 4020 Motor Behavior

KIN3037 - Sport Psychology

Credits: 3

Studies psychological theories and techniques applied to sport to enhance the performance and personal growth of athletes and coaches. Emphasizes the influence of personality, anxiety, motivation, social factors, and psychological skills training.

Former Course Number [PEPR 3037]

Prerequisite: Admitted to the last two years of one of the programs in DK&H.
OR KIN 3038 Exercise Psychology

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

Minimum of 6 hours total in:

KIN4015 - Internship Experience in Kinesiology

Credits: 1-12

Variable-credit (1-12) and S/U course required of Kinesiology and Health undergraduate majors to provide experiential learning in kinesiology and health in a real world setting. Intended to integrate theory and technique with practical application to expose students to areas of professional/career interest and assist with building professional careers. Must have CPR/ AED/1st Aid Certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed HLED 4015.

Former Course Number [PEPR 4015]

Prerequisite: Grade of C or better in KIN 3024;
OR

HLED4015 - Internship Experience in Health

Credits: 1-12

Max Credit (Max. 12)

Variable-credit (1-12) and S/U course required of Kinesiology and Health undergraduate majors to provide experiential learning in kinesiology and health in a real world setting. Intended to integrate theory and technique with practical application to expose students to areas of professional/career interest and assist with building professional careers. Must have CPR/AED/1st Aid Certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed KIN 4015.

Prerequisite: Grade of C or better in KIN 3024; 2.750 GPA; completion of a minimum of 18 credits in KIN/HLED upper division coursework.

OR

KIN4016 - Research Experience in Kinesiology and Health

Credits: 1-6

Max Credit (Max. 6)

Offered to students who wish to gain a research experience in Kinesiology and Health. Meant for students who are interested in pursuing an advanced degree. Students may choose to complete KIN/ HLED 4016 instead of KIN/HLED 4015. Must have CPR/AED/1st Aid certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed HLED 4016.

Prerequisite: minimum sophomore standing; declared KHP major; permission of instructor; 2.750 GPA.

OR

HLED4016 - Research Experience in Kinesiology and Health

Credits: 3-6
Max Credit (Max. 6)

Offered to students who wish to gain a research experience in Kinesiology and Health. Meant for students who are interested in pursuing an advanced degree. Students may choose to complete KIN 4016/HLED 4016 instead of KIN 4015/HLED 4015. Must have CPR/AED/1st Aid certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed KIN 4016.

Prerequisite: minimum sophomore standing; declared KHP major; permission of instructor; and minimum 2.750 GPA.

Elective Courses

KIN/HLED Upper-Division Elective Coursework (15 credits)

15 credits of 3000-4000 level KIN/HLED elective coursework is required in addition to the required KIN & HLED courses listed above.

Consult with your advisor to see list of possible courses.

General Electives (25 credits)

Degree must include 120 credits, at least 48 of which must be upper-division credits.

KIN and HLED electives (i.e., non required courses) from above may be counted towards these 25 credits. KIN 2050 is recommended as one elective course.

Consult with your academic advisor and your pre-health advisor (if applicable). Pre-health students will need to take additional professional prerequisite courses as electives.

Additional Requirements

Students must complete 48 credit hours of upper division coursework (3000- or 4000-level courses) to meet the Division's minimum 48 credit hour requirement for the B.S. degree in Kinesiology and Health Promotion.

NOTE: Students should complete CPR & first aid certification and the certification should remain current throughout the program. Cards can be presented to the division registrar in Corbett 119 to be cleared of the requirement on the degree evaluation.

PRE-HEALTH ANNOUNCEMENT

This degree is great preparation for various careers in health care and allied health. If you are interested in becoming a strong applicant to graduate school for a career in these fields, please tell your primary advisor and connect with the Pre-Health Advising Office on campus as soon as possible: <https://www.uwyo.edu/preprof/> or hsadvise@uwyo.edu Your career of choice will determine which math and science courses you need to take in your first years, so talk to them early!

Medical Laboratory Science, B.S.

A degree in Medical Laboratory Science prepares healthcare professionals to perform clinical diagnostic testing in the areas of microbiology, hematology, chemistry, immunohematology, urinalysis, serology, and molecular biology.

USP - University Studies Program Requirements

Completion of all University Studies Program requirements is necessary to obtain a bachelors degree from the University of Wyoming. These requirements may be covered by the Medical Laboratory Technician Associates degree at Casper College. Please work with your advisor to ensure these requirements are fulfilled.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Casper College Requirements

MLTK and PEAC courses are available through an articulation agreement with Casper College **and can be taken only through Casper College**. Students are responsible for fulfilling all University Studies requirements. The articulation agreement, with a proposed semester-by-semester sequence, is available at:

<http://www.uwyo.edu/TRANSFER/articulation/agreements/medical-laboratory-science.html>

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.
Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.
OR MOLB 2021 General Microbiology (Casper College equivalent: MOLB 2210)

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA
USP 2015 Code U5C1

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

- PEAC xxxx: Online Activity Credits: 1
- CMAP 1505 Introduction to Computers Credits: 1
- Elective Credits: 3
- MLTK 1500 - Hematology Credits: 3
- MLTK 1600 - Clinical Immunohematology Credits: 3
- MLTK 1700 - Microscopy: UA Body Fluids Credits: 2
- MLTK 2600 - Clinical Microbiology I Credits: 2
- MLTK 2500 - Clinical Chemistry Credits: 3
- MLTK 2650 - Clinical Microbiology II Credits: 2
- MLTK 2700 - Immunology Credits: 4
- MLTK 2971 - Clinical Practicum: Hematology Credits: 2
- MLTK 2972 - Clinical Practicum: Chemistry Credits: 2
- MLTK 2973 - Clinical Practicum: Immunohematology Credits: 2
- MLTK 2974 - Clinical Practicum: Microbiology Credits: 2
- MLTK 2976 - Clinical Practicum: Serology Credits: 1
- MLTK 2977 - Clinical Practicum: UA / Body Fluids Credits: 1
- MLTK 2978 - MLT Professionalism Credits: 1

- MLTK 2800 - Clinical Pathophysiology Credits: 4
- MLTK 1800 - Principles of Phlebotomy Credits: 3

University of Wyoming Requirements

Upper-division courses required to complete the Bachelor of Science in Medical Laboratory Science (**All MLSK courses are only available through UW-Casper.**):

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MLSK4840 - Laboratory Education Methodology

Credits: 1

This course provides an overview of education methodology and issues related to roles as educators in the clinical laboratory profession. Course topics and assignments include pedagogy, curriculum design, assessment and accreditation. Major educational responsibilities for clinical laboratory professionals relating to continuing education, competency assurance, certification and licensure will be addressed.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4850 - Clinical Research Design

Credits: 2

A course in research design methods commonly used in clinical research. Emphasis is on research design, process, measurement, regulatory issues, and ethics, as used by investigators. The focus is to equip students with knowledge and skills necessary to critically examine professional literature, methodology and ethical considerations that influence research design.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4860 - Laboratory Management

Credits: 3

This course introduces students to laboratory management systems, testing, reimbursement, accrediting/regulatory issues, finances, information systems, QA/QC improvement and supervisory roles in the clinical laboratory. Emphasis is on management and communication skills needed to work successfully as entry-level professionals in a health care setting.

USP 2015 Code U5C3

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4870 - Advanced Clinical Chemistry

Credits: 4

This course is designed to introduce students to advanced topics in clinical chemistry in relation to instrumentation, diagnostic testing and its correlation to disease states, and method correlation and validation. Students will demonstrate the ability to describe principles and applications required for the entry level laboratory scientist.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

MLSK4880 - Advanced Hematology: Erythrocytes

Credits: 2

Advanced hematology principles and techniques prepare students for practice in the clinical laboratory. This course will focus on advanced topics of hematology, focusing on normal and abnormal erythrocytes in relation to assessment, and disease correlation.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

MLSK4981 - Advanced Clinical Practicum-Hematology

Credits: 3

Advanced hematology principles and techniques prepare students for practice in the clinical laboratory. Topics include

leukopoiesis, leukemias, lymphomas, hemostasis, coagulopathies, urinalysis and body fluids. Laboratory will focus on abnormal smears, normal and leukemic bone marrow evaluations, and coagulation mixing studies, factor assays and body fluids related to clinical disease states.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4982 - Advanced Clinical Practicum-Molecular

Credits: 3

Principles of molecular technology used in clinical laboratories. Laboratory experiences include cytogenetics, nucleic acid extraction, hybridization, detection, amplification, sequencing, microarrays, and in-situ hybridization. Emphasis is on the areas of the clinical laboratory that use molecular techniques related to genetics, oncology, infectious disease, and identity testing for forensic and transplant purposes.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4983 - Advanced Clinical Practicum-Immunohematology

Credits: 3

Principles of immunology theory, blood group systems, genetics, and immunohematology techniques. Procedures including evaluation of blood samples, pretransfusion compatibility testing, and transfusion reactions are studied. Serologic testing and problem-solving in antibody identification and complex procedures are stressed. Laboratory emphasizes modern practices, resolution of compatibility problems and advanced antibody identification methods.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4984 - Advanced Clinical Practicum- Microbiology

Credits: 3

Focus is on underlying mechanisms of microbial pathogenesis, host responses to infectious disease and clinical diagnosis procedures. Emphasis is on detailed mechanisms of infection, pathogenesis, and major discoveries and technologies in medical microbiology. Current issues in public and global health, epidemiology, bioterrorism, biotechnology and vaccination programs will be studied.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4890 - Professional Career Paths and Review

Credits: 2

This Medical Laboratory Sciences program prepares students for a variety of graduate degrees and careers in laboratory medicine. This course is designed to help students investigate career and education opportunities after becoming a certified Medical Laboratory Scientist and also provides students with a cumulative review to ensure mastery of content.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

- Upper-division elective credits: 1 (see below, consult your academic advisor)

Upper Division Elective Credit Hours

One upper division elective credit hour must be completed in the student's junior or senior year to meet the total 42 required upper division credits to graduate. Students may take a three credit class to meet this requirement.

These credits must be 3000 and above, and achieved through online outreach or on campus courses. A list of courses that are acceptable to fulfil this requirement can be made available to the student. If a course is in question, it is highly suggested to the student to contact the UW-C advising department or the MLS program director for requirement fulfillment confirmation.

Enrichment Rotations and Laboratory Sessions

The final semester of the student's senior year is comprised of didactic material being delivered in an online hybrid manner, supplemented with on campus lab sessions at the UW-Casper campus. These lab sessions will be accompanied by an observational enrichment rotation at a clinical site. This enrichment rotation will allow for the observation of advanced methodologies in a practical environment. It will be the students' responsibility for all travel and housing costs associated with the advanced clinical practicum courses.

Probation

Students who do not meet the minimum grade requirements stated above for MLSK course work will be placed on probation. In this period of time, students will be allowed to continue in the program under supervision, but will submit a petition which is an individualized plan of study for the next semester that is developed by the student in agreement with and signed by an academic advisor. All completed MLSK courses that fail to meet minimum grade requirements (C or 2.000 or better) must be repeated by the student. Students shall not be allowed to progress to the final semester until all courses in the previous semesters are successfully completed and a GPA of 2.000 is obtained.

Additional Requirements

The program requires 124 credit hours total, with 54 credit hours obtained in the junior/senior years to graduate. Students must complete a minimum of 42 upper division hours, 30 of which must be earned from the University of Wyoming.

Prerequisite for admission to the Medical Laboratory Sciences degree is completion of the Medical Laboratory Technician program at Casper College, or another accredited MLT program. Students interested in the MLS degree who already hold a bachelors degree should contact program director Jed Doxtater at jdoxtate@uwyo.edu.

Nursing, B.S.N., Basic BSN Option

"Basic BSN" is an on-campus BSN option for students who want to become a registered nurse and earn the Bachelor of Science in Nursing degree. Learning facilities include state-of-the-art classrooms and Clinical Simulation Center.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Pre-Clinical Component

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

Clinical Component

(Note: Course requirements/expectations are subject to change. Maintain contact with FWWSO for current expectations.)

NURS2340 - Developmental Influences on Health

Credits: 3

Explores interaction between development and health. Discusses human development of physiological, psychological, cognitive, sociocultural, and spiritual systems across the lifespan. Identifies selected theories associated with development over the lifespan and implications for healthcare.

Prerequisite: Completion or concurrent enrollment in NURS 3445 or NURS 3745, NURS 3665 or NURS 3730 and NURS 3790, and PHCY 3450.

NURS3445 - Fundamentals and Health Assessment in Professional Nursing Practice

Credits: 4

This course introduces the concepts of nursing care, safety, and assessment. Students learn to assess and document normal variations and potential alterations of physiological, psychological, sociocultural, spiritual, and developmental dimensions of individuals across the lifespan.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3665, and PHCY 3450.

NURS3490 - Health Promotion in Professional Nursing Practice

Credits: 4

Students will learn and apply concepts of health promotion across the lifespan. Emphasis is on cultural diversity, health risks, behavior change and healthy practices for individuals, families, and populations. Students will incorporate evidence in designing interventions to promote health and prevent illness for self and clients.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: 3 credits; Prerequisite: NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3690, NURS 3695, and NURS 4125.

Prerequisite: Progression or admission to the clinical component of the program and completion or concurrent enrollment with NURS 2340, NURS 3435, and PHCY 3450 or PHCY 4450.

NURS3665 - Foundations of Professional Nursing Roles

Credits: 3

This course introduces the student to professionalism, leadership, safety, and patient-centeredness. The concepts emphasized provide the foundation for professional nursing practice.

Prerequisite: Fall 2021: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3690, and NURS 3695. **Effective Spring 2022:** Completion or concurrent enrollment in NURS 2340, NURS 3445, and PHCY 3450.

NURS3690 - Professional Nursing Acute/Chronic Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with acute and chronic illness. Emphasis is on utilizing the nursing process to develop clinical judgement.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3490, NURS 3695, and NURS 4125.

Prerequisite: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3665, and NURS 3695.

NURS3695 - Professional Nursing Acute/Chronic Illness Practicum

Credits: 4

Students provide nursing care using the nursing process in a clinical setting with adult clients experiencing acute and chronic illness. Emphasis is on demonstration of clinical judgement.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3490, NURS 3690, and NURS 4125.

Prerequisite: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3665, and NURS 3690.

NURS3890 - Professional Nursing Care in Complex Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with complex illness. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3891, NURS 3892, and NURS 3895.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3891, 3892, 3895, 4125.

NURS3891 - Professional Nursing Care of Older Adults

Credits: 3

Students will examine concepts of nursing practice in the care of older adults. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3892, and NURS 3895.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3895, NURS 4125.

NURS3892 - Professional Nursing Care in Mental Health and Illness

Credits: 3

This course explores mental health and illness concepts. Emphasis is on the role of the professional nurse in caring for clients with alterations in mental health.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3895.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3891, NURS 3895, NURS 4125.

NURS3895 - Professional Nursing Care in Complex Illness Practicum

Credits: 4

Students provide patient-centered care using the nursing process in clinical setting with adult and older adult clients experiencing complex illness and alterations in mental health. Emphasis is on demonstration of clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3892.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3891, NURS 3892, NURS 4125.

NURS4125 - Evidence-Based Nursing

Credits: 3

Prepares students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find

relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB or COM1 and COM2; STAT 2050 or STAT 2070 or equivalent; admission into the nursing major component of the program.

NURS4665 - Healthcare Informatics in Professional Nursing Practice

Credits: 3

Utilizing a conceptual framework, students will examine nursing informatics within healthcare systems. Emphasis is placed on examining the role of clinical information systems in improving patient outcomes across practice, education, administrative, research, and interdisciplinary applications. Ethical and legal considerations of data management are examined.

A&S College Core 2015 **Course changes effective Fall 2023 - Prerequisite:** *NURS 3895 and completion or concurrent enrollment in NURS 4690, NURS 4691, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4690, 4691, 4695.

NURS4690 - Professional Nursing Care of Populations

Credits: 4

Introduces the student to population-focused nursing and applies the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, planning, and implementation; analysis of the healthcare system; emergency preparedness; and ethical/ legal aspects of public health.

A&S College Core 2015 **Course changes effective Fall 2023 - Description:** *Introduces the student to population-focused nursing and applies the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, and analysis of the healthcare system. Prerequisite:* *NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4691, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4691, NURS 4695.

NURS4691 - Professional Nursing Care of Children and Families

Credits: 3

This course encompasses the care of women, children, and their families across physiological, psychological, spiritual, developmental, and socio-cultural dimensions. The focus of this class is on women's health, obstetrical, and pediatric nursing care including health promotion and wellness specific to maternal and pediatric health.

A&S College Core 2015 **Course changes effective Fall 2022 - Credits:** *4 credits; Course changes effective Fall 2023 - Description:* *This course encompasses the care of women, children, and their families across physiological, psychological, spiritual, developmental, and sociocultural*

dimensions. The focus is on women's health, obstetrical, and pediatric nursing care including health promotion and wellness specific to maternal and pediatric health.

Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4690, and NURS 4695.

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4690, NURS 4695.

NURS4695 - Professional Nursing Care of Populations Practicum

Credits: 4

Students will apply the nursing process to childbearing families, children, and communities. The focus is on physiological, psychological, spiritual, developmental, and socio-cultural dimensions of individuals, families, and populations. Students will incorporate professional nursing roles into population-based care.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: *The focus is on the application of professional nursing roles to the physiological, psychological, spiritual, developmental, and sociocultural dimensions of individuals, families, communities, and populations.* Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4690, and NURS 4691.

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4690, NURS 4691.

NURS4865 - Professional Nursing Leadership

Credits: 3

The role of the nurse leader in nursing practice is developed through integration of leadership, management, and organizational theories. Emphasis is on interprofessional care management, planned change, advocacy, activism, and professional development.

A&S College Core 2015 **Course changes effective Spring 2024** - Description: *The role of the nurse leader is developed through integration of leadership, management, and organizational theories. Emphasis is on interprofessional care, planned change, advocacy, activism, and professional development.* Prerequisite: NURS 4695 and completion or concurrent enrollment in NURS 4895.

Prerequisite: NURS 4695 and completion or concurrent enrollment with NURS 4895.

NURS4895 - Professional Nursing Capstone Practicum

Credits: 9-12

Students utilize and synthesize basic concepts of professional nursing practice. The course socializes students into a healthcare system. Learning experiences allow students to gain confidence in managing patient care, practicing critical thinking, developing leadership and advocacy skills, and exploring ethical decision-making in clinical situations.

A&S College Core 2015 **Course changes effective Spring 2024** - Description: *Students synthesize concepts of professional nursing practice. The course socializes students into a healthcare system. Learning experiences allow students to manage patient care, apply critical judgment, develop leadership and explore ethical decision-making in healthcare settings.* Prerequisite:

NURS 4695 and completion or concurrent enrollment in NURS 4865 .

Prerequisite: NURS 4695 and completion or concurrent enrollment with NURS 4865.

With approval from FWWSO, ARMY 3050 may be applied to this requirement and NURS 4895 taken for 9 credits.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies.

This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.

6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Basic BSN has two different admission entries: 1) Freshman Admission to the Nursing major and 2) Non-Freshman Admission to the Nursing major. Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, Basic BSN, Freshman Admission or Non-Freshman Admission under Admission to Basic BSN*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for Basic BSN. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, Basic BSN, Basic BSN Student Handbook - section 6 Scholastic Requirements*).

Curriculum

The minimum requirement to graduate with a BSN is 120 semester hours of credit. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450] and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability.

Nursing courses are offered fall and spring semesters of the university academic calendar. Students are required to have transportation to all clinical sites. A number of clinical sites are located in Cheyenne. The capstone practicum experience during spring of the senior year requires students to live in locations away from campus.

Program of Study

A detailed, semester sequenced Basic BSN Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, Basic BSN, Basic BSN Program of Study*). All required courses identified under Pre-Clinical Component and Clinical Component must be passed with a C or better (or S) except for CHEM 1000, which requires a B or better. .

Applicable for: Freshman/Non-Freshman Admission to the Nursing Major

Nursing, B.S.N., BRAND Option

"Bachelors Reach for Accelerated Nursing Degree": an accelerated Bachelor of Science (BSN) option for students with a previous non-nursing baccalaureate degree who desire to become a registered nurse. This option is a 'summer to summer' format with a full-time schedule of courses.

University Studies Program Requirements

The University Studies Program 2015

V - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Prerequisite Courses

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces

statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

Nursing Courses

(Note: Course requirements/expectations are subject to change. Maintain contact with FWWSON for current expectations.)

NURS2340 - Developmental Influences on Health

Credits: 3

Explores interaction between development and health. Discusses human development of physiological, psychological, cognitive, sociocultural, and spiritual systems across the lifespan. Identifies selected theories associated with development over the lifespan and implications for healthcare.

Prerequisite: Completion or concurrent enrollment in NURS 3445 or NURS 3745, NURS 3665 or NURS 3730 and NURS 3790, and PHCY 3450.

NURS3730 - Introduction to Professional Nursing

Credits: 2

Introduces students to the core concepts of professional nursing practice. Nursing process, domains of nursing practice, health policy, evidence-based practice, legal and professional standards will be introduced.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3745, NURS 3790, and PHCY 3450.

NURS3745 - Nursing Fundamentals and Health Assessment

Credits: 4

Includes concepts of basic care/comfort, technical skills, medical equipment, asepsis, medication administration, nurse/client safety, and client rights. Students learn to assess and document normal variations and potential alterations of physiological, sociocultural, spiritual, and developmental dimensions of individuals across the lifespan.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3730, NURS 3790, and PHCY 3450.

NURS3790 - Health Promotion of Individuals, Families, and Populations

Credits: 3

Components of the nursing process and evidence-based nursing practice are used to protect the health of clients through health promotion, risk reduction, and disease prevention.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3730, NURS 3745, and PHCY 3450.

NURS3770 - Nursing Care in Acute and Chronic Illness

Credits: 8

Discern critical elements of professional nursing medical-surgical concepts for adults experiencing acute/chronic health alterations progressing to complex health alterations. Focuses on patient safety principles; quality initiatives; evidence-based nursing; information technology; interprofessional collaboration, communication; health promotion strategies; and critical thinking in the planning of client centered nursing care for the adult.

Prerequisite: NURS 3745 and completion or concurrent in NURS 3771, NURS 3780, and NURS 4765

NURS3771 - Nursing Care in Acute and Chronic Illness Practicum

Credits: 6

Application of critical elements of professional nursing practice with adults experiencing acute and chronic health alterations. Focus is on incorporation of patient safety principles; quality initiatives; evidence-based nursing practice; information technology; interprofessional collaboration and communication; health promotion strategies; and critical thinking and clinical reasoning in the provision of nursing care.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: *Nursing Care in Acute, Chronic, and Complex Illness Practicum*; Credits: 4 credits; Prerequisite: NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3780, and NURS 4765.

Prerequisite: NURS 3710, NURS 3750, NURS 3730, NURS 3780.

NURS3780 - Evidence-Based Practice in Nursing

Credits: 4

Prepares nursing students to engage in evidence-based practice in nursing, specifically how to search the literature and

databases, ask meaningful clinical questions, find relevant evidence, critically appraise evidence, integrate best evidence with clinical expertise and patient/community values.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: 3 credits; Prerequisite: STAT 2050 or STAT 2070 or equivalent; NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3771, and NURS 4765.

Prerequisite: admission to the BRAND program, concurrent enrollment in NURS 3770.

NURS4765 - Healthcare Informatics in Nursing

Credits: 3

Students will describe information and technology utilized to communicate, manage knowledge, support clinical decision-making, and effectively optimize patient outcomes while adhering to ethical and legal considerations of data management.

Prerequisite: NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3771, and NURS 3780.

NURS4710 - Population Health

Credits: 4

Introduces the student to population-focused nursing and applied the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, planning and implementation; analysis of the health care system; emergency preparedness; and legal aspects of public health.

A&S College Core 2015 **Course changes effective Spring 2023** - Name: *Nursing Care for Population Health*; Description: *Introduces the student to population-focused and public health nursing through the application of the nursing process with the community as client. Focuses on vulnerable populations; epidemiology; community assessment, and analysis of the healthcare system.* Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4735, NURS 4740, and NURS 4771.

Prerequisite: NURS 3770, NURS 3771; concurrent enrollment in NURS 4740, NURS 4741, NURS 4735, NURS 4736.

NURS4735 - Vulnerable Populations and Mental Health

Credits: 3

This course introduces students to nursing principles and concepts of mental health psychopathology, physiology, psychology, and spirituality, along with developmental and socio-cultural considerations while incorporating treatment modalities related to the nursing of the middle-aged and aging adult.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4740, and NURS 4771.

Prerequisite: NURS 3770 and NURS 3780; concurrent enrollment in NURS 4736.

NURS4740 - Nursing Care of the Young Family

Credits: 6

Utilizes nursing process to assess, promote, and protect the health of young families as client. Focus is human sexuality and reproduction, family planning, pregnancy stages, neonatal, pediatrics. Growth and development, health promotion, disease prevention, family dynamics are included. Evidence-based nursing guides practice to promote a healthy family and family system.

A&S College Core 2015 **Course changes effective Spring 2023** - Description: *Utilizes nursing process to assess, promote, and protect the health of young families as client. Focus is human sexuality and reproduction, family planning, pregnancy stages, and pediatrics to promote a healthy family and family system. Credits: 4 credits; Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4735, and NURS 4771.*

Prerequisite: NURS 3770; NURS 3771, and concurrent enrollment in NURS 4741.

NURS4771 - Nursing Care of Young Families and Vulnerable Populations Practicum

Credits: 4

Applies and synthesizes clinical judgment related to nursing care of clients with a focus on the young family and vulnerable populations across the lifespan. Concepts address human sexuality, reproduction, mental health, and core functions of public health.

Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4735, and NURS 4740.

NURS4775 - Nursing Senior Capstone

Credits: 10

Provides opportunities to utilize and synthesize core concepts of professional nursing. Intensive clinical experience allowing students to become socialized into health care delivery system; gain in autonomy/confidence in performing skills; practice critical thinking and clinical reasoning in making ethical clinical decisions; develop leadership in providing and coordinating evidence-based nursing care.

A&S College Core 2015 **Course changes effective Summer 2023** - Description: *Provides opportunities to synthesize core concepts of professional nursing through intensive clinical experiences. Focuses on students' socialization into the healthcare system through application of clinical judgment in making safe and ethical decisions while coordinating evidence-based nursing care. Prerequisite: NURS 4771 and completion or concurrent enrollment in NURS 4785.*

Prerequisite: NURS 4710; NURS 4735; NURS 4736; and concurrent enrollment in NURS 4785.

NURS4785 - Nursing Integration

Credits: 2

Focuses on the continuing integration of previously learned concepts. The student further develops the role of consumer of research and incorporates leadership and management skills as a member of the profession.

A&S College Core 2015 **Course changes effective Summer 2023** - Name: *Integration of Leadership in Nursing;*

Description: *Focuses on the continuing integration of previously learned concepts of leadership, management, and professional development. The student further develops their role as a consumer of research and as a leader of an interprofessional healthcare team.* Prerequisite: NURS 4771 and completion or concurrent enrollment in NURS 4775.

Prerequisite: NURS 4735; NURS 4736; NURS 4710; and concurrent enrollment in NURS 4775.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Students who meet university requirements are admitted to the university in the pre-nursing component of BRAND (*declared PNBR major*). The number of students admitted to BRAND is limited, and admission is a competitive process. Applicants meeting minimum requirements are not guaranteed admission.

Criteria for admission to BRAND as well as application instructions and deadlines can be found on the nursing website, www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BRAND, Admission Criteria/Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for BRAND. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BRAND, BRAND Student Handbook - section 6, Scholastic Requirements*).

Curriculum

The minimum requirement for the second bachelor's (SB) degree candidate to graduate with a BSN is 50 semester hours of credit. This curriculum option totals 55 credit hours.

The minimum requirement for an SB degree is 30 additional semester hours earned from UW, 12 of which must be in upper division level courses. If prior baccalaureate degree was earned through UW, the 30 credit minimum is in addition to the credits earned for previous degree. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450] and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability. PHCY 3450 and PHCY 4470 must be completed within three years **before** the May start date.

Program of Study

A detailed, semester sequenced BRAND Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BRAND, BRAND Program of Study*). All required courses identified under Prerequisite Courses and Nursing Courses must be passed with a C or better (or S).

Nursing, B.S.N., BSN Completion - ReNEW Option

The BSN Completion - ReNEW (Revolutionizing Nursing Education in Wyoming) option is Wyoming's shared BSN nursing curriculum. Entry into the ReNEW option begins at a participating Wyoming community college ADN nursing program.

University Studies Program Requirements

The University Studies Program 2015

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Related Coursework

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.
Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.
OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021
When Offered Fall and Spring
Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.
OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.
Prerequisite: LIFE 1010.
OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.
When Offered Spring
Prerequisite: LIFE 1010.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

- Humanities Elective course Credits: 3 (*not PSYC 1000*)

Nursing Courses

NURS3005 - ReNEW Distance Foundations

Credits: 1

Prepares learners for ReNEW BSN Completion in a distance delivery format. The course includes concept-based delivery in the UW learning system, APA formatting, writing scholarly papers, and library resources and skills.

Prerequisite: Enrolled in or graduate of Wyoming ReNEW Nursing Program.

NURS4055 - Application of Evidence in Nursing Practice

Credits: 3

Prepares RN students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L

USP 2015 Code U5C3

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; STAT 2050 or STAT 2070 or equivalent; COM1 and COM2.

NURS4630 - Public/Community Health

Credits: 2

Learners examine public/community health nursing roles and apply the nursing process to community as client. Focuses on improving community health, levels of prevention, and addresses multiple determinants of health. Core functions, essential services, community assessment and planning, emergency preparedness, and analysis of the public healthcare system will be studied.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4635 - Community as Client

Credits: 2

Learners will understand relationships among health, disease, and the environment, with emphasis on the role of community health agencies and programs for communities in need of health care support, regionally, nationally, and globally. In this course, an assessment and planning framework guides students in assessing the health of a community.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4640 - Health Equity

Credits: 2

Learners will examine population-focused concepts to assess vulnerable and oppressed populations. The magnitude of health disparities both in the United States and globally will be discussed. Focuses on a multi-level and multi-cultural view of population health challenges, alleviating health disparities, and a commitment to health equity.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4645 - Population Health

Credits: 2

Focuses on analysis of local, regional, national, and international data that are indicators of population health. Disease outbreaks are analyzed. Learners study development of innovative, collaborative, multi-disciplinary interventions and policies to improve public health. This course provides opportunities for learners to improve population health through application of theory and evidence.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4660 - Healthcare Informatics

Credits: 3

Students will develop knowledge and skills to utilize and evaluate information technologies to improve patient outcomes across diverse populations. Includes the use of Clinical Information Systems to plan and document the nursing process. Ethical and legal considerations of data management and interdisciplinary use of healthcare informatics are presented.

Prerequisite: ReNEW Progression or Current RN license.

NURS4830 - Leadership in Healthcare Today

Credits: 2

Focuses on the role of nurse leader and manager through integration of leadership, management, and organizational concepts, models, and theories. Emphasis in on leadership, followership, management, advocacy, professional development and activism, and managing resources.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4835 - Leading Nursing Practice

Credits: 2

Focuses on nurse leaders making a difference using evidence-based nursing practice. Learners utilize and synthesize basic concepts of professional nursing practice. This course creates the opportunity for learners to lead nursing practice in a variety of settings.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4840 - Healthcare Systems and Policy

Credits: 2

Learners examine healthcare quality and the regulation of professional nursing practice in various settings. The focus is on ethical and legal issues and policy development for healthcare delivery.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4845 - Innovation in Nursing Practice

Credits: 2

Focus in on use and synthesis of concepts in professional nursing practice. This course provides an opportunity to employ critical thinking, to apply ethical decision-making, to use evidence, and to demonstrate the ability to lead planned change.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4855 - Contemporary Nursing Practice

Credits: 2

Focus in on practice as critically effective members and leaders of the healthcare team. Learners analyze a variety of societal, economic, political, and professional issues that influence contemporary nursing. This course provides an opportunity to be creative in examining trends in nursing and healthcare.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Students who apply to UW and meet university requirements are admitted to the university in the pre-nursing component of ReNEW BSN (*declared PNRN*). Criteria for UW admission can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for BSN Completion. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW or RN-BSN, BSN Completion Student Handbook - section 6, Scholastic Requirements*).

Curriculum

The minimum UW requirement to graduate with a BSN in 120 semester hours of credit. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450], and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability.

Program of Study

A detailed Program of Study for ReNEW ADN Entry can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW, Program of Study for ReNEW ADN Entry*). All required courses identified under Related Coursework and Nursing Courses must be passed with a C or better (or S).

Nursing, B.S.N., BSN Completion - RN-BSN Option

The BSN Completion - RN-BSN option is for non-ReNEW associate degree or diploma-educated registered nurses. This option is delivered nationwide with no on-campus time required.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Related Coursework

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences.

Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

- An approved Human Anatomy course Credits: 4
- An approved Human Physiology course Credits: 4

Nursing Courses

NURS3425 - Bridging Nursing Paradigms

Credits: 3

This course prepares incoming ADN- or Diploma-educated Registered Nurses for completion of the Fay W. Whitney School of Nursing (FWWSON) BSN degree. Nursing knowledge, skills, and abilities in selected content areas will be evaluated and augmented in preparation for BSN Completion coursework.

Prerequisite: Current RN license.

NURS4055 - Application of Evidence in Nursing Practice

Credits: 3

Prepares RN students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L

USP 2015 Code U5C3

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; STAT 2050 or STAT 2070 or equivalent; COM1 and COM2.

NURS4630 - Public/Community Health

Credits: 2

Learners examine public/community health nursing roles and apply the nursing process to community as client. Focuses on improving community health, levels of prevention, and addresses multiple determinants of health. Core functions, essential services, community assessment and planning, emergency preparedness, and analysis of the public healthcare system will be studied.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4635 - Community as Client

Credits: 2

Learners will understand relationships among health, disease, and the environment, with emphasis on the role of community health agencies and programs for communities in need of health care support, regionally, nationally, and globally. In this course, an assessment and planning framework guides students in assessing the health of a community.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4640 - Health Equity

Credits: 2

Learners will examine population-focused concepts to assess vulnerable and oppressed populations. The magnitude of health disparities both in the United States and globally will be discussed. Focuses on a multi-level and multi-cultural view of population health challenges, alleviating health disparities, and a commitment to health equity.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4645 - Population Health

Credits: 2

Focuses on analysis of local, regional, national, and international data that are indicators of population health. Disease outbreaks are analyzed. Learners study development of innovative, collaborative, multi-disciplinary interventions and policies to improve public health. This course provides opportunities for learners to improve population health through application of theory and evidence.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4660 - Healthcare Informatics

Credits: 3

Students will develop knowledge and skills to utilize and evaluate information technologies to improve patient outcomes across diverse populations. Includes the use of Clinical Information Systems to plan and document the nursing process. Ethical and legal considerations of data management and interdisciplinary use of healthcare informatics are presented.

Prerequisite: ReNEW Progression or Current RN license.

NURS4830 - Leadership in Healthcare Today

Credits: 2

Focuses on the role of nurse leader and manager through integration of leadership, management, and organizational concepts, models, and theories. Emphasis in on leadership, followership, management, advocacy, professional development and activism, and managing resources.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4835 - Leading Nursing Practice

Credits: 2

Focuses on nurse leaders making a difference using evidence-based nursing practice. Learners utilize and synthesize basic concepts of professional nursing practice. This course creates the opportunity for learners to lead nursing practice in a variety of settings.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4840 - Healthcare Systems and Policy

Credits: 2

Learners examine healthcare quality and the regulation of professional nursing practice in various settings. The focus is on ethical and legal issues and policy development for healthcare delivery.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4845 - Innovation in Nursing Practice

Credits: 2

Focus in on use and synthesis of concepts in professional nursing practice. This course provides an opportunity to employ critical thinking, to apply ethical decision-making, to use evidence, and to demonstrate the ability to lead planned change.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4855 - Contemporary Nursing Practice

Credits: 2

Focus in on practice as critically effective members and leaders of the healthcare team. Learners analyze a variety of societal, economic, political, and professional issues that influence contemporary nursing. This course provides an opportunity to be creative in examining trends in nursing and healthcare.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

Escrow Courses

(Credits are automatically posted to the student's UW transcript during the semester of NURS 4855 enrollment. These credits represent credit for nursing content learned in the associate degree or diploma in nursing program.)

(Note: Course requirements/expectations are subject to change. Maintain contact with FWWSO for current expectations.)

NURS3665 - Foundations of Professional Nursing Roles

Credits: 3

This course introduces the student to professionalism, leadership, safety, and patient-centeredness. The concepts emphasized provide the foundation for professional nursing practice.

Prerequisite: **Fall 2021:** NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3690, and NURS 3695. **Effective Spring 2022:** Completion or concurrent enrollment in NURS 2340, NURS 3445, and PHCY 3450.

NURS3890 - Professional Nursing Care in Complex Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with complex illness. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3891, NURS 3892, and NURS 3895.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3891, 3892, 3895, 4125.

NURS3895 - Professional Nursing Care in Complex Illness Practicum

Credits: 4

Students provide patient-centered care using the nursing process in clinical setting with adult and older adult clients experiencing complex illness and alterations in mental health. Emphasis is on demonstration of clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3892.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3891, NURS 3892, NURS 4125.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.

11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Students who apply to UW and meet university requirements are admitted to the university in the pre-nursing component of RN-BSN (*declared PNBS*). Criteria for admission as well as application instructions can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, RN-BSN, Admission Criteria/ Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for BSN Completion. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW or RN-BSN, BSN Completion Student Handbook - section 6, Scholastic Requirements*).

Curriculum

The minimum UW requirement to graduate with a BSN is 120 semester hours of credit. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450], and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability.

Program of Study

A detailed Program of Study for RN-BSN Entry can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, RN-BSN, Program of Study for RN-BSN Entry*). All required courses identified under Related Coursework and Nursing Courses must be passed with a C or better (or S).

Physical Education Teacher Education K-12, B.S.

The Physical Education program is a nationally accredited program where students learn the content and teaching methods required to be certified to teach physical education K-12 in the public schools of Wyoming.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate. Many of these requirements are covered by the Physical Education Teacher Education K-12 major. All USP courses except the Communications II (USP-C2) and Communications III (USP-C3) courses must be completed prior to admission into the Physical Education Teacher Education Program.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Prerequisites for Admission

Prerequisites for admission into the Physical Education Teacher Education program:

PSYC1000 - General Psychology

Credits: 3
Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

OR MATH 1405 Trigonometry

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.
OR CHEM 1020 - General Chemistry

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

KIN2000 - Movement Core I: Striking/Fielding and Invasion Games

Credits: 2

Exposes students to skill and tactical themes comprising striking/fielding and invasion games. Course aims for students' ability to understand, demonstrate and analyze the different offensive and defensive tactics that facilitate game play success in invasion (soccer, tag rugby, basketball) and striking/fielding (softball, cricket) games.

Former Course Number [PEPR 2000]

Prerequisite: sophomore standing.

KIN2001 - Movement Core II: Net and Target Games

Credits: 2

Exposes students to skill and tactical themes comprising net and target games. Course aims for students' ability to understand, demonstrate and analyze different offensive and defensive tactics facilitating game play success in net (volleyball, tennis, badminton) and target (archery) games.

Former Course Number [KIN 1025, PEPR 1025]

Prerequisite: sophomore standing.

KIN2003 - Move Core IV: Adv. & Otdr. Ed.

Credits: 2

Max Credit 2

Movement Core IV: Adventure and Outdoor Education - To provide prospective pre-service physical education teachers (PTs) with the skills and knowledge necessary to teach adventure and outdoor education curricula to K-12 learners.

Former Course Number [KIN 1000, PEPR 1000]**Restricted** Sophomore standing

Prerequisite: sophomore standing.

KIN2004 - Move Core V: FMS & Ind. Act.

Credits: 3

Max Credit 3

Movement Core V: Fundamental Movement Skills, Gymnastics, Dance, and Swimming - To provide prospective pre-service physical education teachers (PTs) with the skills and knowledge necessary to teach fundamental motor skills, gymnastics, dance, and swimming to K-12 learners.

USP 2003-2014 Code U3CA

Former Course Number [KIN 3025, PEPR 3025]**Restricted** Sophomore standing

KIN2005 - Movement Core VI: Physical Fitness and Physical Activity

Credits: 2

Designed for prospective school-based physical and health education teachers K-12. Focuses on five primary content areas: what is fitness education and why do we need it; development of content-based fitness curriculum; teaching cognitive aspects of fitness education; teaching physical aspects of fitness education; and promoting fitness education.

Former Course Number [KIN 2025, PEPR 2025]

Prerequisite: sophomore standing.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.
OR PHYS 1110 General Physics I

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.
OR STAT 2070 Introductory Statistics for the Social Sciences

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

EDSE3540 - Teaching Reading and Study Strategies in the Content Areas

Credits: 2-4

Provides students majoring in secondary education programs with a knowledge of reading factors as they relate to various disciplines. Content includes estimating students' reading ability, techniques for vocabulary development, questioning strategies, and developing reading related study skills.

Former Course Number [EDCI 3540]

Prerequisite: junior standing and minimum 12 hours in discipline area.

Required Courses After Admission

Required courses after admission into the professional program.

Consult with your academic advisor for the order in which these courses must be taken, or if you have any questions.

KIN3011 - Teaching Methods in Physical Education K-12

Credits: 3

Develops knowledge, skills and understandings appropriate to successful participation in a class setting when functioning in the teaching role.

Former Course Number [PEPR 3011]

Prerequisite: grade of C or better in KIN 3012; concurrent enrollment in KIN 3015 and KIN 4080.

KIN3012 - Teaching Laboratory I

Credits: 3

Provides the opportunity to develop skills and acquire knowledge needed to teach physical education. Allows the opportunity for students to evaluate the motor status and progress of a preschool aged child, as well as plan and implement a developmentally appropriate motor program.

When Offered (Offered fall semester)

USP 2015 Code U5C2

Former Course Number [PEPR 3012]

Prerequisite: Admitted to PHET program.

KIN3015 - Teaching Laboratory II

Credits: 3

Provides pre-service physical education teacher with skills, knowledge and principles of teaching through application of peer teaching and small group elementary school teaching. Emphasizes and practices program development, lesson planning and development of a physical education teaching unit.

When Offered (Offered spring semester)

USP 2003-2014 Code U3WC

Former Course Number [PEPR 3015]

Prerequisite: grade of C or better in KIN 3012; concurrent enrollment in KIN 3011, KIN 4080.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular, circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3022 - Lab Exp in Exercise Physiology

Credits: 1

An in-depth examination of the measurement of physiological principles and mechanisms related to human movement. Lab exercises emphasize skills necessary for basic morphological through advanced exercise performance testing variables. Laboratory writing exercises focus on improving students' ability to read and comprehend scientific articles and produce scientific writing based on their own experiments and data.

Prerequisite: KIN 3021 or concurrent enrollment.

KIN3034 - Lifespan Motor Development

Credits: 3

Studies lifespan motor development. Emphasizes developmental periods of infancy through adolescence. Gives attention to observation and analysis of motor behavior and movement performance of individuals across lifespan.

Former Course Number [PEPR 3034]

Prerequisite: grade of C or better in PSYC 1000; junior standing; 2.750 GPA.

KIN3037 - Sport Psychology

Credits: 3

Studies psychological theories and techniques applied to sport to enhance the performance and personal growth of athletes and coaches. Emphasizes the influence of personality, anxiety, motivation, social factors, and psychological skills training.

Former Course Number [PEPR 3037]

Prerequisite: Admitted to the last two years of one of the programs in DK&H.
OR KIN 3038 Exercise Psychology

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of

athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

KIN3060 - Understanding Skill Acquisition for Teaching

Credits: 3

Addresses practical questions specific to teaching physical activity

Prerequisite: C or better in PSYC 1000; junior standing; declared major in KHP or PHET; 2.750 GPA; or permission of instructor.

KIN4012 - Curriculum Development in Physical Education

Credits: 3

Focuses on the design of K-12 school physical education programs. It provides opportunities to study alternative curriculum models, engage in the process of curriculum design, and examine policy and theoretical issues of concern to curriculum designers.

When Offered (Offered fall semester)

Former Course Number [PEPR 4012]

Prerequisite: grade of C or better in KIN 3011, KIN 3015 and KIN 4080.

KIN4013 - School Administration for the Health Sciences

Credits: 2

Provides teaching majors with information about staff-administrator relationships in school settings. Topics include principles of leadership, school organization and culture, legal issues, financial issues, building and facilities management.

Prerequisite: grade of C or better in KIN 3011, KIN 3015, KIN 4080.

KIN4017 - Teaching Laboratory III

Credits: 3

Focuses on the application of teaching skills and the effective utilization of sport-based curricular and instructional models in the secondary public school setting.

When Offered (Offered fall semester)

Former Course Number [PEPR 4017]

Prerequisite: grade of C or better in KIN 3011, KIN 3015, and KIN 4080; 2.750 minimum cumulative GPA; concurrent enrollment in KIN 4012.

KIN4055 - Adapted Physical Education

Credits: 2

Presents skills necessary to plan, implement and evaluate individualized physical education programs in the least restrictive environment. Acquaints students with current laws, characteristics, assessment instruments and nationally validated programs in physical education for the disabled child.

When Offered (Offered spring semester)

Former Course Number [PEPR 4055]

Prerequisite: KIN 3012.

KIN4080 - Assessment in Physical Education

Credits: 3

Provides prospective teachers with a thorough knowledge of learner assessment as applied to physical education K-12.

When Offered (Offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Former Course Number [PEPR 4080]

Prerequisite: grade of C or better in KIN 3012.

KIN4099 - Student Teaching in Physical Education

Credits: 1-16

Student teaching is the culminating experience required of all students in teacher education for graduation and recommendation for certification. Consists of full-time assignment of 16 weeks in an approved school station in Wyoming under supervision of an experienced, approved supervising teacher.

Former Course Number [PEPR 4099]

Prerequisite: grade of C or better in KIN 4017.

Note(s):

*** Note: Students must be certified in first aid and CPR prior to enrollment in KIN 4099.

Additional Requirements

Students must complete 48 credit hours of upper-division coursework (3000- or 4000-level courses) to meet the Division's requirement for the B.S. in Physical Education Teacher Education. For any elective coursework, it is recommended that these courses are selected from the Affiliated Options on this page.

In order to advance into the professional program, students must be admitted through a competitive application process. The entry course for admission to the Physical Education Teacher Education (PHET) program is KIN 3012, Teaching Lab 1. To be eligible for the PHET professional program, students must have completed all program course prerequisites and have a minimum cumulative grade point average of 2.750, preferred GPA of 3.000.

NOTE: Students should complete CPR certification and the certification should remain current throughout the program. Cards can be presented to the division registrar in Corbett 119 to be cleared of the requirement on the degree evaluation.

Affiliated Options

The Division of Kinesiology and Health offers two options for the general undergraduate population. They require course work beyond degree requirements.

Athletic Coaching Endorsement/Permit

Students who wish to qualify for an athletic coaching permit to coach in Wyoming public schools must complete four courses. Note: Endorsements are for current teachers. Permits are for those who are not a licensed educator.

- CPR Certification

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

- Foundations of Coaching KIN 4090 /KIN 5090 - 3 Credit Hours
- Students completing the Physical Education Teacher Education undergraduate degree are exempt from the KIN 4090/5090 requirement.
- Coaching in... Experience (completed at a community college or complete a coaching experience in a specific sport for one season or more with a letter written by your supervising coach to submit with your PTSB endorsement application form).

School Health Education K-12

In addition to completing a bachelor's degree in teaching at the secondary level from an approved university program, 25 credit hours are required to be endorsed to teach health education K-12 in the public schools of Wyoming.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

- CPR Certification

HLED4120 - Assessment in Health

Credits: 3

Provide students with an understanding of components of a balanced assessment system in school health education. Students review the basics of standards-based health education and explore innovations in assessment that provide teachers and students with a more complete and authentic picture of student learning.

Prerequisite: Minimum 2.500 GPA; concurrent enrollment in KIN 4099 or certified K-12 teacher.

HLED4025 - Teaching Sensitive Issues In Human Sexuality

Credits: 3

Prepares educators and other helping professionals whose work involves promoting healthy sexuality in children, young people, and adults. It also provides detailed investigation into important aspects of teaching sensitive issues related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 5025.

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4110 - Teaching Health in Schools K-12

Credits: 3

Presented appropriate knowledge and skills to become health literate. Explore ways to teach health skills and knowledge and use assessment strategies for health education.

When Offered (Offered fall semester)

Prerequisite: Grade C or better in KIN 3015 or certified K-12 teacher.

HLED4130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 5130.

When Offered (Offered fall semester)

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

HLED4030 - Teaching About Alcohol and Substance Abuse

Credits: 3

Introduces students to the issues of societal and personal attitudes towards alcohol and substance use, misuse and abuse. Prepares an educator to teach about alcohol and substance abuse in the classroom and out of the school setting.

Prerequisite: Sophomore standing; minimum 2.750 GPA; or permission of instructor.

Adapted Physical Education K-12 Endorsement

In addition to completing the Bachelor of Science degree in physical education teacher education from the University of Wyoming, students can qualify for K-12 endorsements in adapted physical education and/or health education by completing the following course requirements:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

KIN4055 - Adapted Physical Education

Credits: 2

Presents skills necessary to plan, implement and evaluate individualized physical education programs in the least restrictive environment. Acquaints students with current laws, characteristics, assessment instruments and nationally validated programs in physical education for the disabled child.

When Offered (Offered spring semester)

Former Course Number [PEPR 4055]

Prerequisite: KIN 3012.

KIN4065 - Resources in Adapted Physical Education

Credits: 2-3

Max Credit (Max. 3)

Offers flexible credit for students interested in pursuing intensive study of resources for adapted physical education. Required for state endorsement in Adapted Physical Education.

Former Course Number [PEPR 4065]

Prerequisite: grade of C or better in KIN 4055.

KIN4075 - Assessment in Adapted Physical Education

Credits: 3

Designed to provide an overview of the assessment process in adapted physical education. Developmentally and disability appropriate psychomotor assessments and procedures for administering them are examined.

Prerequisite: grade of C or better in KIN 4055 and KIN 4080.

Social Work, B.S.W.

Want to make a difference in the world? Turn your passion into action. Our BSW program combines classroom and field experience to provide you with knowledge and skills to help improve the quality of life of individual clients and impact communities.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate and are not covered by the Social Work major.

First Year Seminar (3 credits)

Communications I (3 credits)

ENGL 1010 College Composition and Rhetoric

Communications II (3 credits)

Quantitative Reasoning (3 credits)

MATH 1000 Problem Solving

Physical and Natural World (minimum 6 credits)

LIFE 1003 Current Issues in Biology (4 credits) strongly recommended (LIFE 1010 General Biology also acceptable)

Any other USP Physical & Natural World course (3-4 credits)

Prerequisites for Admission

Prerequisites for admission into the BSW program includes a C or higher in the following courses:

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

SOWK2000 - Introduction to Social Work

Credits: 3

Introduces social work and social welfare through an overview of the history, philosophy, ethics, values, methods, and fields of practice to generalist social work.

Former Course Number [3000]

Prerequisite: Sophomore standing or higher and completion of USP-C2 with a grade of C or higher.

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

- Human Biology. Credits: 3. (PSYC 2080: Biological Psychology or KIN 2040: Human Anatomy)*
*This requires a prerequisite general biology course, usually LIFE 1003: Current Issues in Biology.

Required courses after admission into the Social Work program

NOTE: Once admitted, social work students must achieve a C or better in all social work courses and maintain a 2.500 or above UW and SOWK GPA every semester after admittance to Admitted Major. Please view full requirements and expectations for admitted majors on the Division of Social Work catalog page.

SOWK3530 - Human Behavior and the Social Environment I

Credits: 3

Covers theories and knowledge of human bio-psycho-social-spiritual development and social interactions within a systems framework. Introduces theories of individuals and families and their development. Paradigms of culture, marginalization and oppression are examined.

USP 2003-2014 Code U3CS

Prerequisite: admitted social work major status.

SOWK3630 - Generalist Social Work Practice I, Individual and Families

Credits: 3

Introduces generalist social work practice at all systems' levels, with focus on individuals and families. It covers the nature of social work practice, theoretical perspectives, ethics and values, engagement, assessment, intervention and evaluation processes and skills.

Prerequisite: admitted social work major status.

SOWK3645 - Ethical Social Work Practice

Credits: 3

Focuses on the ethical principles that undergird the practice of social work, addresses how to practice ethically, and explores the process of ethical decision-making. Social work practice with various client systems will be considered, as well as practice in varied settings.

SOWK4060 - Diversity and Difference in Social Work Practice

Credits: 3

Practice class examines social works' roles and issues related to human diversity. Social work values and ethics and social and economic justice are explored throughout.

USP 2003-2014 Code U3D

Prerequisite: admitted social work major status.

SOWK3540 - Human Behavior and Social Environment II

Credits: 3

Covers theories and knowledge of human bio-psycho-social-spiritual development and social interactions within a systems framework, with a focus on groups, communities, organizations and institutions.

USP 2003-2014 Code U3CS

Prerequisite: SOWK 3530 with a C or better and admitted social work major status.

SOWK3640 - Generalist Social Work Practice II, Groups

Credits: 3

Focuses on group work within the generalist social work perspective, covering theoretical perspectives, ethics and values, and problem-solving skills applied to task and treatment groups.

Prerequisite: SOWK 3630 and SOWK 3530 with a C or better and admitted major status.

SOWK3650 - Generalist Social Work Practice III; Communities and Organizations

Credits: 3

Teaches engagement, assessment, intervention and evaluation with organizations, communities and institutions within the generalist social work perspective.

Prerequisite: SOWK 3630 with a C or better; SOWK 3540 pre or concurrent; admitted social work major status.

SOWK4850 - Human Rights, Social Justice and Social Policy

Credits: 3

Examines human rights, social welfare policy, and social, political and economic justice, as well as systems that oppress and create injustice, both in the US and internationally. A focus of the course will be the analysis of social welfare policy as it affects social justice issues.

Restricted Include: BSW-SOWK major, Exclude: Freshman & Sophomore class standings

Prerequisite: SOWK 4060 and admitted social work major status

SOWK4560 - Social Work Research

Credits: 3

Max Credit 3

Introduces social work research and practice evaluation. Prepares students to use research in practice.

Restricted Include: SOWK students (= admitted majors), Exclude: Freshman & Sophomore class standing

Prerequisite: Admitted social work major status.

SOWK4990 - Social Work Practicum

Credits: 5-10

Max Credit (Max. 10)

Represents the culmination of preparation for entry level generalist social work practice. Supervised practice in the knowledge, values and skills learned in the classroom.

Prerequisite: SOWK 3640, SOWK 3650 and application to the field program.

SOWK4991 - BSW Field Seminar I

Credits: 2

Develops and supports student integration of classroom and field practicum experiences in a final demonstration of competencies for the beginning practitioner. This course is taken in Fall, concurrent with SOWK 4990, Field Practicum.

Prerequisite: concurrent enrollment in SOWK 4990.

SOWK4570 - Research-Informed Practice

Credits: 3

Learn about and engage in methods of research applicable to their social work practice. Competence in methods such as single system design and program evaluation will be assessed in this course.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SOWK 4560 with a C or better and admitted social work major status.

SOWK4992 - BSW Field Seminar II

Credits: 2

Develops and supports student integration of classroom and field practicum experiences in a final demonstration of competencies for the beginning practitioner.

Prerequisite: taken concurrently with SOWK 4990, Field Practicum.

- Social Work electives Credits: 6 (selected with advisor consultation)

Electives

General Electives (28-29 credits)

Degree must include 120 credits total, at least 42 of which must be upper-division credits. Total number of general elective credit needed may vary per student. Consult with your academic advisor to determine the best electives for your particular interests or needs. It may be worthwhile to add a minor to your degree.

Suggested lower-division electives:

Below are suggested lower-division electives that can be taken before admission into the BSW program. Consult with your academic advisor to determine the best electives for your particular interests or needs. It may be worthwhile to add a minor to your degree.

- SPAN1010 - First Year Spanish I Credits: 4
- SPAN1020 - First Year Spanish II Credits: 4
- RELI1000 - Introduction to Religion Credits: 3
- WIND2100 - Introduction to Disability Studies Credits: 3
- SOC2350 - Race and Ethnic Relations Credits: 3

Suggested upper-division electives:

- FCSC 3110 Personal Finance Credits: 3
- FCSC 4112 Family Decision-Making and Resource Management Credits: 3

Additional Requirements

Social work is a professional degree program. Prior to admission to the professional degree program, students who are working to complete program prerequisites and most University Studies courses are "Social Work-Pre-Admit" majors. Students must be accepted into the BSW program as an admitted "Social Work" major in order to proceed in the program and enroll in professional degree courses beginning in the fall semester (usually of the junior year).

Acceptance to Admitted Major (professional degree program) is competitive and requires an application. See the Division of Social Work catalog page for full admission requirements.

The program requires 120 credit hours to graduate. Students must have completed all social work requirements, 42 upper-division hours, maintain a 2.500 GPA overall, a 2.500 GPA in social work coursework, and have achieved a grade of C or better in all social work courses. Courses must be taken for a letter grade unless offered for S/U only.

Speech, Language and Hearing Science, B.S.

Learn about working with people to improve their speech, language, and hearing. Study American Sign Language. This pre-professional degree is preparation for application to a graduate studies in speech-language pathology, audiology, or other areas.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate and are not covered by the Speech, Language and Hearing Science major:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

Courses required for major

PSYC1000 - General Psychology

Credits: 3
Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4
Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

SPPA1010 - Introduction to Communication Disorders

Credits: 3

Introduces information regarding basics of speech and hearing. Discusses disorders of speech and hearing by defining the problem, etiology or theories of cause, classifications and controversies, evaluation techniques and therapies to correct the disorder.

USP 2003-2014 Code U3I,U3L

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

SPPA2210 - Phonetics

Credits: 3

Articulatory and acoustic description of speech sound production. Introduction to the International Phonetic Alphabet

and phonetic transcription.

Former Course Number [3210]

Prerequisite: SPPA 1010 or consent of instructor.

SPPA3160 - Speech and Language Development

Credits: 4

Deals with the development of speech sound production, phonology, semantics, syntax, morphology, discourse, and pragmatics for typically-developing children from infancy to adolescence. Includes prelinguistic and paralinguistic communication, the cognitive correlates of communication, and written language. Considers the effects of sociocultural context and multiple language acquisition. Application component provides weekly experience in language sample analysis.

Former Course Number [4160]

Prerequisite: SPPA 2210 or instructor permission.

SPPA3265 - Anatomy and Physiology of Speech, Swallowing and Hearing

Credits: 4

Introduces the student to the anatomy of the normal speech and hearing systems as well as the physiologic underpinnings of the speech (respiration, phonation, articulation), swallowing, and hearing (external, middle, and inner ear) systems. Theories of speech production and speech perception are presented.

Former Course Number [3400]

Prerequisite: KIN 2040 or consent of instructor.

SPPA4240 - Speech and Language Disorders Across the Lifespan

Credits: 3

The nature and causes of developmental and acquired speech and language disorders across the lifespan are examined. Principles of assessment and intervention are introduced.

Prerequisite: SPPA 3160 or consent of instructor.

SPPA4340 - Basic Audiology

Credits: 3

An introduction to audiology as a profession, with primary focus on screening and diagnostic methods for the clinical evaluation of hearing loss in children and adults.

When Offered (Normally offered spring semester)

Prerequisite: SPPA 3265 or concurrent enrollment.

SPPA4150 - Aural Rehabilitation

Credits: 3

Examines basis for and characteristics of communication problems created by hearing loss and management procedures to facilitate communication and adjustment to hearing loss. Includes acoustic and visual properties of speech, amplification devices and hearing loss in school children.

Prerequisite: SPPA 4340 or consent of instructor.

SPPA4250 - Clinical Methods

Credits: 4

Introduction to clinical procedures, such as: collecting data, clinical writing and documentation, reviewing practice regulations, interviewing, and counseling. Students will obtain initial clinical experience (i. e. observation, simulation and/ or clinical assignment). Requirements (e. g. , background check, TB screen) must be met for involvement in the Speech & Hearing Clinic.

Prerequisite: SPPA 3265

SPPA4380 - Neurological Basis of Communication

Credits: 3

Studies details of human nervous system, including central and peripheral nervous systems, major motor and sensory pathways and special senses. Emphasizes neurology of various communication disorders.

Prerequisite: SPPA 3265 or consent of instructor.

Notes:

A grade of C or better must be earned in all SPPA courses; courses in the major must be taken for a letter grade unless offered for S/U only. Also note that speech, language, and hearing topic courses from community colleges do not transfer or count as course equivalents.

Elective Courses

Upper-Division Social Behavior Credits (choose one)

Choose one from the list below (students are responsible for knowing prerequisites for these courses).

CNSL4520 - Fundamentals of Counseling (B)

Credits: 3

Students learn some of the skills of counseling and develop an understanding of elementary principles of counseling theory, as well as a better understanding of themselves in relation to other people.

Dual Listed CNSL 5520.

When Offered (Offered on campus and online all semesters)

Prerequisite: junior standing; 6 hours of education or psychology and graduate standing to receive graduate credit.

PSYC4310 - Developmental Psychopathology

Credits: 3

Provides basic understanding of developmental psychopathology. Examines characteristics, etiology, assessment and treatment of psychological disorders in children including autism, mental retardation, anxiety, depression, attention, learning, and conduct problems.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or FCSC 2121 or EDST 2450.

PSYC4320 - Intellectual Disability

Credits: 3

Acquaints students with all aspects of intellectual disability including assessment, diagnosis and classification, etiology, and associated health and mental health difficulties. Prevention, educational and psychological intervention, family adaptation, and community involvement are also addressed.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 4300 or FCSC 2121 or EDST 2450.

Electives

Lower division (1/2000) open electives (student choice - any course that does not meet another university or major requirement): 24 credits

Upper division (3/4000) open elective (student choice - any course that does not meet another university or major requirement): 12 credits

Additional Information

The BS degree prepares students for graduate study in communication disorders disciplines. Students study the normal processes associated with understanding and producing speech and language. These include anatomy, physiology, and neurology. Students also learn about normal development of speech and language in children, and they are introduced to disorders and clinical methods. Courses in related areas, such as anatomy, psychology, child development, statistics, and linguistics are also part of the program. Students obtain initial clinical experiences through observing clinical practice in the UW Speech & Hearing Clinic as part of coursework.

The B.S. degree is considered pre-professional preparation for entrance into a graduate program in speech-language pathology, audiology, or related fields. A clinical graduate degree is required in order to become a speech-language pathologist or an audiologist. The B.S. degree at UW is not designed to meet requirements to become a speech-language pathology assistant (SLP-A), additional practicum and some coursework at another institution would be required to become an SLP-A. For information on SLP-A technical programs please visit ASHA.org.

Student Learning Objectives

The BS degree provides students with a broad-based foundation in the sciences and humanities, fundamental knowledge of human communication, communication development, and the nature of communication disorders across the lifespan. Specific learning objectives can be found on the BS program website.

<http://www.uwyo.edu/comdis/undergraduate/bachelors-of-speech-language-and-hearing-science.html>

Criminal Background Check

Eligibility for the B.S. degree is contingent upon passing a criminal background check. Usually during the senior year, each student will be required to obtain, pay for, and pass a criminal background check as part of enrollment in advanced courses. These background checks are required in order to participate in any aspect of the UW Speech & Hearing Clinic. The results of the background check may impact a student's ability to complete the required coursework and obtain the degree. Please see the College of Health Sciences website for the policy and procedures document.

National Student Speech Language Hearing Association

Students can join the UW chapter of the National Student Speech Language Hearing Association (NSSLHA) to become a part of a community of students interested in communication sciences and disorders. Objectives are to promote and recognize scholastic achievement and to support clinical, research, and service endeavors.

Minor

Disability Studies Minor

A diverse interdisciplinary field that investigates the nature, meanings, and consequences of dis/ability from social, cultural, and policy perspectives.

Program Goals:

Disability studies views disability as a political construction, cultural identity, and valued lived experience, not simply as a medical condition. The minor curriculum embeds these overarching goals:

1. Promoting full civic integration of people with disabilities;
2. Positioning disability as an integral aspect of human diversity; and
3. Addressing disability rights, equity, and justice in personal, relational, community, and structural contexts.

Requirements:

All students in the minor are required to complete 18 credit hours consisting of three WIND core courses, one WIND elective, and two additional WIND or external electives related to disability studies. External electives should be selected in consultation with a disability studies faculty advisor.

Required Core Courses: 9 Credits

WIND2100 - Introduction to Disability Studies

Credits: 3

Provides students with an overview of the disability studies field. Students gain introductory knowledge about the disability studies perspective by examining the work of scholars from many academic backgrounds, which will facilitate students' understanding of the interdisciplinary nature of disability studies.

USP 2003-2014 Code U3CH,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

WIND4020 - Disability Studies Theory and Practice

Credits: 3

Explores the interdisciplinary nature of disability studies theory and scholarship, including investigation of embodied knowledge, cultural meanings, and socio-political practices related to disability. Students will develop in-depth critical disability research papers and deliver accessible, professional presentations.

Cross Listed SOWK 4020.

Dual Listed WIND 5020.

USP 2003-2014 Code U3CS

USP 2015 Code U5C3

Prerequisite: WIND 2100 or WB or COM2.

WIND4500 - Practicum

Credits: 3

Provides students practical experience in the field of Disability. Typically taken during a student's final semester in the Disability Studies Minor.

Prerequisite: completion of WIND 2100, and WIND elective, WIND 4020 (or concurrent enrollment).

WIND Electives: 3-9 Credits

At least 3 credits, and up to 9 credits, selected from WIND electives:

WIND2500 - Special Topics

Credits: 1-3

Max Credit (Max. 6)

Provides undergraduate students with the opportunity to gain introductory knowledge of critical topics and new areas of inquiry in the field of disability studies.

WIND2700 - Gender and Disability

Credits: 3

Disability studies draws upon critical theory to investigate disability as a discursive construction. Investigates how intersecting conceptions of disability and gender have shaped cultural meanings and the social positioning of specific groups, especially women with disabilities. Topics include non-normative embodiment, issues of representation and

subjectivity, and the politics of health, sexuality, and care.

Cross Listed GWST 2700.
USP 2003-2014 Code U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

WIND3150 - Literature and Medicine

Credits: 3

This course explores how literature and memoirs have grappled with illness, disease, and disability, paying particular attention to the perspectives of doctors, nurses, patients, families, and communities in shaping meanings of diagnoses, health, and access to care.

Prerequisite: Completion of COM1.

WIND4050 - Independent Study

Credits: 1-3
Max Credit (Max. 6)

Offers the advanced student the opportunity to pursue a topic of interest with the direction of an instructor in disability studies.

Dual Listed WIND 5050.
Prerequisite: WB and consent of instructor.

WIND4100 - Global Disability Studies

Credits: 3

The course investigates global approaches to disability, including the UN Convention on the Rights of Persons with Disabilities (CRPD), and crucial disability issues such as education, employment, poverty and social integration. Students will carry out research projects and present on their work.

USP 2003-2014 Code [none] < >COM3]
Prerequisite: COM2

WIND4200 - Diverse Minds

Credits: 3

Through investigations of novels, memoirs, films, and media representations of intellectual disability, autism/neurodiversity, and psychiatric disability, students critically analyze figurations of "unstable," "unruly," or what we will conceptualize as "diverse" minds.

Dual Listed WIND 5200.
USP 2003-2014 Code [none] < >COM3]
Prerequisite: COM2

WIND4600 - Special Topics

Credits: 3

Provides upper division undergraduate students with the opportunity for in-depth examination of critical topics and new areas of inquiry in the field of disability studies.

Prerequisite: WIND 2100 , Junior standing and consent of instructor.

External Electives: 0-6 Credits

The following UW courses are accepted as external electives:

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

SPPA4070 - Deaf Studies

Credits: 3

Studies deaf culture and deaf history in the United States. Culture topics will include deaf community dynamics, humor, behavior, emotional and social interaction, besides issues involving deaf children as a linguistic minority.

History will be discussed from the 1700s to the present in the U. S.

USP 2003-2014 Code U3CS,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: SPPA 2110.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

PSYC4320 - Intellectual Disability

Credits: 3

Acquaints students with all aspects of intellectual disability including assessment, diagnosis and classification, etiology, and associated health and mental health difficulties. Prevention, educational and psychological intervention, family adaptation, and community involvement are also addressed.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 4300 or FCSC 2121 or EDST 2450.

- Note: many courses in GWST, AMST, and other units in the School of Culture, Gender, and Social Justice would also be acceptable external electives.

More Information:

As an interdisciplinary minor, this program complements majors across the university. For more information, visit the website: www.uwyo.edu/wind/disabilitystudies/index.html, contact program director, Michelle Jarman at mjarman@uwyo.edu or by phone at 766-5060, or visit the WIND office located in the Health Sciences Building, room 147.

18 Credit Hours Total

Graduate

Doctor of Pharmacy, MBA/PharmD Dual Degree

This dual degree program provides students with a complementary business degree to start their own business or to advance into management positions in their careers. Students acquire decision-making skills that allow them to excel in their field of practice.

Additional Requirements

The School of Pharmacy offers an MBA/Pharm.D. dual degree program that is geared toward students who have already obtained a Bachelor's degree. A dual M.B.A./Pharm.D. degree allows a student to diversify their skill set and enhance their value proposition to prospective employers.

The Doctor of Pharmacy/Master of Business Administration dual degree takes five years to complete - four years of Pharmacy studies and one year of MBA core courses. Students spend their first year (Fall, Spring, and Summer semesters) in the MBA program taking core courses and completing other program requirements. The next four years will encompass the traditional Pharm.D. curriculum. Students completing this program will earn a Doctor of Pharmacy degree and a Master of Business Administration degree. Please review the program specific information for each program:

- Business Administration, M.B.A.
- Pharmacy, Pharm.D.

MBAM5101 - MBA Foundations

Credits: 1

The purpose of this course is to prepare students for the academic rigors of the MBA program.

Restricted Enrollment in MBAM or MBAF degree program.

Prerequisite: Admission to full-time MBA program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5107 - Decision Making I

Credits: 1

This course develops a systematic process for making decisions in complex business situations, by integrating six dimensions of business risk: competitive, financial, organizational, legal, social, and ethical. The process combines analytical and ethical reasoning methods that compensate for the flawed decision making common in business

organizations.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5209 - Decision Making II

Credits: 1

An experiential learning course that builds on MBAM 5107. Students apply systematic business decision making process to real-world business situations. Student teams work directly with owners and managers of Wyoming companies to address their strategic, competitive, operational, financial, and/or administrative challenges in real time.

Prerequisite: MBAM 5107.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

MBA-MBA students, including dual degree students, must take an additional nine (9) credit hours of 4000 or 5000 level College of Business courses. Three (3) of these credit hours can be taken outside of the College of Business. Dual degree students (JD/PharmD/MS) may take three (3) credit hours outside the College of Business following dual degree agreement guidelines. Please contact your advisor for additional information.

Health Services Administration, M.S.

The School of Pharmacy offers a Master of Science online degree in health services administration (MSHSA).

Specialty Tracks

All students select one specialty track.

Biopharmaceutical Regulatory Compliance Group Specialty Listings

Specialty Tracks through the Biopharmaceutical Regulatory Compliance Group

- o Biopharmaceutical Regulatory Compliance
- o Healthcare Risk Management
- o Forensic Pharmacy
- o Healthcare Policy Analysis
- o Biopharmaceutical Product Representation
- o Clinical Research Administration
- o Patient Safety Systems
- o Healthcare Security Systems
- o Healthcare Ethics & Equity

Health Institution Leadership Group Specialty Listings

Specialty Tracks through the Health Institution Leadership Group

- o Health Institution Leadership
- o Health Economics & Outcomes
- o Healthcare Quality & Improvement
- o Rural Healthcare Coordination
- o Geriatric Care Systems
- o Healthcare Entrepreneurism
- o Healthcare Financing
- o Health Information Technology
- o Healthcare Writing and Reporting

Biopharmaceutical Regulatory Compliance Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks.

PHCY5040 - The Evolution of American Health

Credits: 2

This course explores the evolution of the healthcare system in response to various needs and crises over the years. The professionalization of health care; the development of the modern hospital; the implications of computerized health information; and the empowerment of patients will be covered.

Prerequisite: Admission into the Health Services Administration MS program.

PHCY5042 - Statistics for Health Services

Credits: 3

This course will introduce students to correlation analysis, regression, analysis of variance and selected non-parametric tests, focusing on appropriate use of each and how to interpret the output of a statistical test to answer a research question.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5043 - Empirical Analysis for Health Services Administration

Credits: 3

This course will equip students with an understanding of research and policy debates related to economic, political, and administrative aspects of health services by providing an overview of how research can be used by health service researchers to draw conclusions about health services and their administration.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5045 - Health Services Administration Applied Research

Credits: 1-4

This course provides the opportunity for students to apply knowledge and skills obtained in the HSA program while gaining practical experience with real-world projects.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5046 - Health Services Administration Seminar1

Credits: 1

Max Credit (Max. 2)

An in-depth investigation of a timely issue in health services, including the regulatory, economic, patient-safety, marketing, leadership, and ethical aspects of that issue. Students will participate in separate group analysis of a presented problem, and in their presentations of their group's assessment of the problem.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5041 - Health Services Administration Research Methods

Credits: 2

This course will cover the basic research designs used in health services research. Focus will be given on framing the research questions, selecting the appropriate study design and threats to the internal validity of the study designs.

Prerequisite: Must be enrolled in the HSA program.

Sub-Total Program Required Coursework: 15 credit hours

Biopharmaceutical Regulation & Compliance Track

The following tables provides a list of required courses for the track listed

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions,

focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5242 - The Food and Drug Administration

Credits: 2

This course examines the regulatory climate for FDA-regulated drug and biological products. Regulatory standards are reviewed (including discovery of new therapeutic modalities, their approval, manufacturing, promotion, and distribution), and the enforcement authority of the FDA is examined (focusing on methods that promote safe and effective drug use).

Prerequisite: PHCY 5241.

PHCY5243 - The Drug Enforcement Administration

Credits: 2

This course examines the balance of health professionals and institutions working with regulators to develop programs that reflect both the best interests of individual patients and of society. Focusing on challenges of treating chronic pain, prescription drug abuse, and actions that have led to conflict between regulators and health practitioners.

Prerequisite: PHCY 5241.

PHCY5244 - State Regulations of Health Professions

Credits: 2

This course examines how state regulatory agencies assure the initial competence of practitioners, as well as their continuing competence in the years following the completion of academic training. The course also examines the factors that are applied to the regulation of health care settings, using the structure-process-outcomes typology of Donabedian.

Prerequisite: PHCY 5241.

Specialty Track Electives (choose 6 hours)

Healthcare Risk Management Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5342 - Healthcare Risk and Quality

Credits: 3

This course surveys the importance and processes of quality and risk in health care institutions. Students will be assigned to lead topics. Current events/topics will be utilized to inform the class.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5670 - Medication Malpractice

Credits: 2

Using a case-study approach, potential legal liability issues are studied, within a health care context that primarily focuses on legal liability related to the use of medications. Strategies for reduction of legal liability are explored. The implementation and oversight of legal risk management programs is addressed.

Dual Listed Dual listed with: PHCY 4670.

Prerequisite: Enrollment in graduate or professional program or department permission.

PHCY5240 - Pharmaceutical Homicide

Credits: 2

Legal pharmaceutical products are sometimes used by healthcare professional criminals to kill people. This course focuses on identifying the zone of risk for people who could be harmed by pharmaceuticals, and the development of best practices to protect patients and others from the harm.

Dual Listed PHCY 4240.

Prerequisite: Enrollment in graduate or professional program or department permission.
Specialty Track Electives (Choose 6 hours)

Forensic Pharmacy Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5240 - Pharmaceutical Homicide

Credits: 2

Legal pharmaceutical products are sometimes used by healthcare professional criminals to kill people. This course focuses on identifying the zone of risk for people who could be harmed by pharmaceuticals, and the development of best practices to protect patients and other from the harm.

Dual Listed PHCY 4240.

Prerequisite: Enrollment in graduate or professional program or department permission.

PHCY 5XXX The Chemistry of Poisonings 2 Credits

PHCY 5XXX Thr Process of Forensic Science 2 Credits

Specialty Track Electives (choose 6 hours)

Healthcare Policy Analysis Track

Specialty Track Required Coursework (9 credit hours)

PHCY5047 - Pandemic Preparedness Policy

Credits: 2

Analysis of regulatory measures undertaken to protect the public from adverse effects of a global pandemic. Evaluation of alternative means of preparing for a pandemic and for management of pandemic response. Considers balancing of individual interests and community interests.

PHCY5148 - Health Economics and Policy

Credits: 2

This course explores the financing and structure of the U. S. healthcare system with the purpose of understanding how these systems impact patient care, health policy, and economics. Topics include organization of healthcare systems, insurance programs, legislation, healthcare labor markets and drug costs.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5246 - Prescription Drug Costs

Credits: 2

Max Credit 2

Overview of prescription drug prices and the consequences for patients and society of the high cost of pharmaceutical products. Causes of escalating pharmaceutical prices are reviewed. Legal and economic factors that contribute to high drug prices are considered. Potential solutions are identified.

Restricted Professional and Graduate students only.

Biopharmaceutical Product Representation Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5541 - Introduction to Biopharmaceutical Marketing and Production

Credits: 3

This course will review empirical evidence in various topic areas within the fields of biopharmaceutical marketing, sales promotion, communication, and selling effectiveness focusing on the history and structure of the biopharmaceutical product representative function and theoretical domains associated with the associated activities.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

Specialty Track Electives (choose 6 hours)

Clinical Research Administration Track

Specialty Track Required Coursework (10 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5242 - The Food and Drug Administration

Credits: 2

This course examines the regulatory climate for FDA-regulated drug and biological products. Regulatory standards are reviewed (including discovery of new therapeutic modalities, their approval, manufacturing, promotion, and distribution), and the enforcement authority of the FDA is examined (focusing on methods that promote safe and effective drug use).

Prerequisite: PHCY 5241.

PHCY 5XXX Biomedical Ethics 3 Credits

PHCY 5XXX Clinical Research Regulation 2 Credits

Specialty Track Electives (choose 5 hours from list)

Patient Safety Systems Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

Specialty Track Electives (choose 6 hours)

Healthcare Security Systems Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY 5XXX Cybersecurity 2 Credits

PHCY 5XXX HIPPA Compliance 2 Credits

PHCY 5XXX Disaster Management 2 Credits

Specialty Track Electives (choose 6 hours)

Healthcare Ethics & Equity Track

Specialty Track Required Coursework (10 Credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY 5XXX Biomedical Ethics 3 Credits

PHCY 5XXX HIPAA Compliance 2 Credits

PHCY 5XXX Clinical Research Regulation 2 Credits

Specialty Track Electives (choose 5 hours)

Health Institution Leadership Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks

PHCY5040 - The Evolution of American Health

Credits: 2

This course explores the evolution of the healthcare system in response to various needs and crises over the years. The professionalization of health care; the development of the modern hospital; the implications of computerized health

information; and the empowerment of patients will be covered.

Prerequisite: Admission into the Health Services Administration MS program.

PHCY5041 - Health Services Administration Research Methods

Credits: 2

This course will cover the basic research designs used in health services research. Focus will be given on framing the research questions, selecting the appropriate study design and threats to the internal validity of the study designs.

Prerequisite: Must be enrolled in the HSA program.

PHCY5042 - Statistics for Health Services

Credits: 3

This course will introduce students to correlation analysis, regression, analysis of variance and selected non-parametric tests, focusing on appropriate use of each and how to interpret the output of a statistical test to answer a research question.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5043 - Empirical Analysis for Health Services Administration

Credits: 3

This course will equip students with an understanding of research and policy debates related to economic, political, and administrative aspects of health services by providing an overview of how research can be used by health service researchers to draw conclusions about health services and their administration.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5045 - Health Services Administration Applied Research

Credits: 1-4

This course provides the opportunity for students to apply knowledge and skills obtained in the HSA program while gaining practical experience with real-world projects.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5046 - Health Services Administration Seminar1

Credits: 1

Max Credit (Max. 2)

An in-depth investigation of a timely issue in health services, including the regulatory, economic, patient-safety, marketing, leadership, and ethical aspects of that issue. Students will participate in separate group analysis of a presented problem, and in their presentations of their group's assessment of the problem.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.
Sub-Total Program Required Coursework: 15 Hours

Health Institution Leadership Track

Specialty Track Required Coursework (9 credit hours)

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5442 - Healthcare Financial Planning

Credits: 2

This course explores financial principles incorporating the unique environment of the health institution. The mix of services (inpatient, outpatient, nursing facilities, urgent/emergency care and components) will be studied through extensive use of case studies and models to develop the health institution leader's financial skills.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5443 - Healthcare Human Capital Plan

Credits: 2

This course will provide skills for developing and managing human capital by the health institution leader through exploration of best practices for human capital selection and development to optimize the performance of the workforce while complying with legal, regulatory, and contractual requirements through extensive use of case studies and models.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5444 - Healthcare Strategic Innovation

Credits: 2

This course develops strategic skills by the health institution leader through exploration of principles incorporating the unique environment of the health institution. The strategic skills will be applied to the concept of innovation through extensive use of case studies and models.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Health Economics and Outcomes

Specialty Track Required Coursework (10 credit hours)

PHCY5141 - Principles of Health Econ and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5142 - Health Economic Decision Analysis

Credits: 2

This class is designed to provide the student with the methods of comparative effectiveness research with special focus on how various decision makers use comparative effectiveness data to assist in decision-making.

Prerequisite: PHCY 5141.

PHCY5143 - Comparative Effectiveness Research

Credits: 2

This class is designed to provide the student with the methods of comparative effectiveness research with special focus on how various decision makers use comparative effectiveness data to assist in decision-making.

Prerequisite: PHCY 5141.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (Choose 5 hours)

Healthcare Quality & Outcomes Track

Specialty Track Required Coursework (8 credit hours)

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5342 - Healthcare Risk and Quality

Credits: 3

This course surveys the importance and processes of quality and risk in health care institutions. Students will be assigned to lead topics. Current events/topics will be utilized to inform the class.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

Specialty Track Electives (choose 7 hours)

Rural Healthcare Coordination Track

Specialty Track Required Coursework (9 credit hours)

PHCY5141 - Principles of Health Econ and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Geriatric Care Systems Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Healthcare Entrepreneurism Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5541 - Introduction to Biopharmaceutical Marketing and Production

Credits: 3

This course will review empirical evidence in various topic areas within the fields of biopharmaceutical marketing, sales promotion, communication, and selling effectiveness focusing on the history and structure of the biopharmaceutical product representative function and theoretical domains associated with the associated activities.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Healthcare Financing Track

Specialty Track Required Coursework (9 credit hours)

PHCY5141 - Principles of Health Econ and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5541 - Introduction to Biopharmaceutical Marketing and Production

Credits: 3

This course will review empirical evidence in various topic areas within the fields of biopharmaceutical marketing, sales promotion, communication, and selling effectiveness focusing on the history and structure of the biopharmaceutical product representative function and theoretical domains associated with the associated activities.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.
Specialty Track Electives (choose 6 hours)

Health Information Technology Track

Specialty Track Required Coursework (9 credit hours)

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
PHCY 5XXX Information Design and Analysis 2 Credits
PHCY 5XXX Healthcare Information Systems 2 Credits
PHCY 5XXX Information Management 2 Credits
Specialty Track Electives (choose 6 hours from list)

Healthcare Writing & Reporting Track

Specialty Track Required Coursework (9 credit hours)

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
PHCY 5XXX Professional Writing in Healthcare 2 Credits
PHCY 5XXX Health Data in Figures, Tables & Graphs 2 Credits
PHCY 5XXX The Healthcare Message 2 Credits
Specialty Track Electives (choose 6 hours)

Additional Notes

NOTE: Specialty track electives can be any course provided in the MSHSA program.

Please consult with the program director if you have questions on the electives to choose for a specific track.

Those course numbers with PHCYXXXX are currently being built or waiting on approval from the University. Please contact the MS HSA program for questions.

Additional Requirements

This degree is geared toward new and mid-career practitioners including pharmacists, nurses, physicians, social workers, and other health care professionals who want to become department directors, patient safety coordinators and/or directors, regulatory compliance officers, clinical research associates, health outcomes researchers or take on leadership roles as advanced practice practitioners.

The program also benefits health care workers in fields such as management positions, pharmaceutical sales representatives, medical science liaisons, and pharmacy technician educators as well as new clinical faculty at newly established pharmacy colleges.

Available nationwide the master's program is delivered via a mix of online self-study and online project-based coursework.

The program can be completed in two years of part-time study. Students are requested to travel to the UW Laramie campus for two weekend seminars during the two-year program (based on travel restrictions during the pandemic this course was held online). Graduates will be expected to complete 30 credit hours of coursework and pass a comprehensive final exam. Coursework will be completed over five consecutive semesters however students can take up to 6 years to complete the program.

A prospective student should have earned at least a bachelor's degree from a regionally accredited institution. To find out more about the application process please see the following website www.uwyo.edu/pharmacy/online-ms-program or contact the Student Services Office.

Kinesiology and Health Distance Education, M.S.

Master of Science Distance Education Program is designed for teachers, coaches, and other health professionals to fit into their busy schedules. Students can complete the Master of Science degree via synchronous or online modalities in a three, four, or five year period of time.

Plan B (Paper)

General Information

Teachers of health and physical education typically teach throughout the day and coach during the evenings and weekends. Therefore, traditional on campus Master's degree programs that require students to attend the University of Wyoming in Laramie are often simply impossible for teachers and other health professionals to fit into their busy schedule.

The Division of Kinesiology and Health offers the Master of Science degree in Kinesiology and Health as an off-campus, distance education program. All courses are delivered via synchronous or online modalities. The distance

education program is designed such that you can complete the Master of Science degree in a three, four, or five year period of time.

This program involves a minimum of thirty (30) total credit hours of coursework and a culminating paper or case study presentation (experiential learning option) that is developed on a topic selected by the student in conjunction with her or his graduate faculty advisor. The process for composing the culminating paper or case study includes the development of a prospectus and final presentation of the paper or case study. Students who elect the experiential learning option will also be required to complete three (3) credits of KIN 5990 (Internship) . At least twenty-one (21) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the nine (9) hours of general required courses.

General Required Courses (9 Credits)

¹ May substitute EDRE 5530

KIN5080 - Investigations in Kinesiology and Health

Credits: 1-3
Max Credit (Max. 3)

Designed to develop Master of Science level graduate students into critical consumers of research. An additional purpose is to develop research skills to the level necessary to complete a master of science Plan B paper.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5085 - Research Methods

Credits: 3
Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

EDRE5600 - Introduction to Quantitative Research

Credits: 3
Basic concepts of educational survey research design, statistics, and measurement. The focus is on descriptive statistics (measures of central tendency, variability, percent and frequency distribution, bivariate correlation, graphical displays, testing hypotheses about proportions). Students develop questionnaires and plan, conduct, and report on a survey study.

OR

EDRE5640 - Introduction to Qualitative Research

Credits: 3
This course introduces qualitative research. Students will explore the foundations, social science theories, methods, and processes of qualitative research and will learn to critically evaluate published research. Emphases will include basic design principles, trustworthiness, and analysis. Students will engage in original data collection and will produce a mini report.

Prerequisite: EDRE 5530.

Kinesiology and Health Electives (15 Credits)

12 credits selected from the following KIN courses:

KIN5011 - Teacher Socialization in PE

Credits: 3

Max Credit 3

This course provides students with understanding of how physical educators are recruited into, professionally trained, and function in the workplace. Students will have the opportunity to analyze, critique, and evaluate empirical evidence related to socialization in physical education, as well as conduct research on given topics from the socialization literature.

Prerequisite: Graduate standing or permission from instructor

KIN5014 - Teaching Tactics in Sport-Based Physical Education

Credits: 3

Introduces students to the instructional strategy of the Tactical Games Approach (Mitchell, Oslin, & Griffin, 2006) of teaching sport-based activities in physical education. Emphasis is on planning, implementing, assessing and evaluating the tactical approach within the K-12 physical education context.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5016 - Analysis and Supervision of Teaching in Physical and Health Education

Credits: 3

Introduces various evaluative and supervisory techniques which are designed to improve teaching effectiveness and student learning. Emphasis will be placed on utilizing various strategies of evaluation in instructional settings.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5018 - Psychology of Teaching Physical Education

Credits: 3

Weaves together theory, research, and practical information related to the psychological aspects of teaching physical education. It shows how you can use psychological principles and strategies to manage behavior, motivate students, achieve program goals, and establish a positive learning environment.

Prerequisite: graduate standing in KIN or permission of instructor.

- KIN 5019 - Instructional Models for Physical Education Credits: 3

KIN5090 - Foundations of Coaching

Credits: 3

Coaches must be effective teachers, trainers, fund-raisers, recruiters, motivators, administrators, and counselors. The major purpose of this course is to provide future coaches with current information about the eight domains of essential coaching skills identified in the NSSC. These domains include philosophy and ethics, safety and injury prevention, physical conditioning, growth and development, teaching and communication, sport skills and tactics, organization and administration, and evaluation.

Dual Listed KIN 4090.

Prerequisite: graduate standing in KIN or permission of instructor.

Elective Courses (6 Credits)

Students are encouraged to complete at least one course from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Investigation in Kinesiology and Health: Maximum of 3 credit hours of Investigation in Kinesiology and Health (KIN 5080) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Thesis Research: No credit hours of Thesis Research (KIN 5960) may contribute to the Plan B Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097 /KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Practicum/Internship Coursework: Maximum of 3-credit hours of Practicum in College Teaching (HLED 5900 /KIN 5900) or KIN 5990 - Internship may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, Exercise and Sport Science Emphasis, M.S.

Master of Science with Emphasis in Exercise and Sport Science is designed for students who want to pursue doctoral degrees and careers in exercise physiology, biomechanics, exercise and sport psychology, motor learning and control, physical activity and lifespan development, etc.

Plan A (Thesis)

The Plan A option of the Master of Science degree in ESS is designed to prepare students for careers in one of the subdisciplines (e.g., exercise physiology, biomechanics, exercise and sport psychology, motor learning and control, physical activity and lifespan development, etc.).

All students complete a series of general required courses and a concentration of courses in their specific ESS subdiscipline. The ESS area of emphasis involves a minimum of thirty (30) total credit hours of coursework, a thesis,

and a final oral examination. At least twenty-five (25) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the ten (10) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070, STAT 5080; or EDRE 5600 or EDRE 5640. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Specialized Required Courses (9-15 Credits)

Area of specialization will include three to five courses (9-15 hours) within the student's chosen ESS subdiscipline. Your advisor will identify courses to be taken specific to the selected area of emphasis.

Elective Courses (Minimum 6 Credits)

Students are encouraged to complete at least one of their elective course selections from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

1. Thesis Research: Maximum of 4 credit hours of Thesis Research (KIN 5960) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
2. Investigations in Kinesiology and Health: No credit hours of Investigations in Kinesiology and Health (KIN 5080) may contribute to the Plan A (Thesis) Degree Program.
3. Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097/KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
4. Practicum/Internship Coursework: Maximum of 3-credit hours of Practicum in College Teaching (KIN 5900) or Internship (KIN 5990) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
5. 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, Health Emphasis, M.S.

Master of Science with Emphasis in Health is designed to prepare students for careers in public and community health settings.

Plan A (Thesis)

The Plan A option of the Master of Science degree in the area of HLED is designed to prepare students for careers in public and community health settings. All students complete a series of general required courses and a concentration of courses in the area of HLED.

The HLED area of emphasis involves a minimum of thirty (30) total credit hours of coursework, a thesis, and a final oral examination. At least twenty-one (21) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the ten (10) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070 or STAT 5080 ,EDRE 5640 or EDRE 5660. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Specialized Required Courses (9-15 Credits)

Coursework will include three to five courses (9-15 hours). Your advisor will identify courses to be taken.

Elective Courses (Minimum 6 Credits)

Students are encouraged to complete at least one of their elective course selections from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Thesis Research: Maximum of 4 credit hours of Thesis Research (KIN 5960) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Investigations in Kinesiology and Health: No credit hours of Investigations in Kinesiology and Health (KIN 5080) may contribute to the Plan A (Thesis) Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097/KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Practicum Coursework: Maximum of 3-credit hours of Practicum in College Teaching (HLED 5900) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, M.S.

Master of Science, Plan B, is designed for students who are seeking a terminal degree in Kinesiology and Health. This option is not designed for students seeking to pursue a doctoral degree at the completion of the Master of Science degree.

Plan B (Paper and Experiential Learning Option)

The Plan B option of the Master of Science degree in Kinesiology and Health is designed to prepare students who are seeking a terminal degree. This option is not designed for students seeking to pursue a doctoral degree at the completion of the Master of Science degree in Kinesiology and Health.

This program involves a minimum of thirty (30) total credit hours of coursework and a culminating paper or case study presentation (experiential learning option) that is developed on a topic selected by the student in conjunction with her or his graduate faculty advisor. The process for composing the culminating paper or case study includes the development of a prospectus and final presentation of the paper or case study. Students who elect the experiential learning option will also be required to complete three (3) credits of KIN 5990 - Internship . At least twenty-four (24) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the nine (9) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070, STAT 5080 , EDRE 5600 or EDRE 5640. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5080 - Investigations in Kinesiology and Health

Credits: 1-3
Max Credit (Max. 3)

Designed to develop Master of Science level graduate students into critical consumers of research. An additional purpose is to develop research skills to the level necessary to complete a master of science Plan B paper.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5085 - Research Methods

Credits: 3
Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Elective Kinesiology and Health Courses (Minimum of 15 Credits)

Elective Courses (Minimum of 6 Credits)

Students are encouraged to complete at least one course from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Investigation in Kinesiology and Health: Maximum of 3 credit hours of Investigation in Kinesiology and Health (KIN 5080) may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Thesis Research: No credit hours of Thesis Research (KIN 5960) may contribute to the Plan B Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097 /KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Practicum/Internship Coursework: Maximum of 3-credit hours of Practicum in College Teaching (HLED 5900 /KIN 5900) or KIN 5990 - Internship may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, Physical Education Teacher Education Emphasis, M.S.

Master of Science with Emphasis in Physical Education Teacher Education is designed for teachers who have attained their licensure for teaching physical education and want to pursue an advanced degree to further develop their professional knowledge of teaching.

Plan A (Thesis)

The Plan A option of the Master of Science degree in the area of PETE is for teachers who have attained their licensure for teaching physical education and want to pursue an advanced degree to further develop their professional knowledge of teaching.

The PETE program of studies involves a minimum of thirty (30) total credit hours of coursework, a thesis, and a final oral examination. At least twenty-five (25) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the ten (10) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070, STAT 5080; or EDRE 5600 or EDRE 5640. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Specialized Required Courses

(12 Credits Selected from The Following KIN Courses)

KIN5011 - Teacher Socialization in PE

Credits: 3
Max Credit 3

This course provides students with understanding of how physical educators are recruited into, professionally trained, and function in the workplace. Students will have the opportunity to analyze, critique, and evaluate empirical evidence related to socialization in physical education, as well as conduct research on given topics from the socialization literature.

Prerequisite: Graduate standing or permission from instructor

KIN5014 - Teaching Tactics in Sport-Based Physical Education

Credits: 3

Introduces students to the instructional strategy of the Tactical Games Approach (Mitchell, Oslin, & Griffin, 2006) of teaching sport-based activities in physical education. Emphasis is on planning, implementing, assessing and evaluating the tactical approach within the K-12 physical education context.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5016 - Analysis and Supervision of Teaching in Physical and Health Education

Credits: 3

Introduces various evaluative and supervisory techniques which are designed to improve teaching effectiveness and student learning. Emphasis will be placed on utilizing various strategies of evaluation in instructional settings.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5018 - Psychology of Teaching Physical Education

Credits: 3

Weaves together theory, research, and practical information related to the psychological aspects of teaching physical education. It shows how you can use psychological principles and strategies to manage behavior, motivate students, achieve program goals, and establish a positive learning environment.

Prerequisite: graduate standing in KIN or permission of instructor.

- KIN 5019 - Instructional Models for Physical Education Credits: 3

KIN5090 - Foundations of Coaching

Credits: 3

Coaches must be effective teachers, trainers, fund-raisers, recruiters, motivators, administrators, and counselors. The major purpose of this course is to provide future coaches with current information about the eight domains of essential coaching skills identified in the NSSC. These domains include philosophy and ethics, safety and injury prevention, physical conditioning, growth and development, teaching and communication, sport skills and tactics, organization and administration, and evaluation.

Dual Listed KIN 4090.

Prerequisite: graduate standing in KIN or permission of instructor.

Elective Courses (Minimum 8 Credits)

Students are encouraged to complete at least one course from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Thesis Research: Maximum of 4 credit hours of Thesis Research (KIN 5960) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Investigations in Kinesiology and Health: No credit hours of Investigations in Kinesiology and Health (KIN 5080) may contribute to the Plan A (Thesis) Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097/KIN 5097) or Special Problems (HLED 5587/HLED 5587) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Practicum/Internship Coursework: Maximum of 3-credit hours of KIN 5900 - Practicum in College Teaching or KIN 5990 - Internship may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Nursing, D.N.P., Family Nurse Practitioner Concentration

The Family Nurse Practitioner (FNP) concentration prepares advanced practice nurses to provide primary health care to diverse individuals and their families in a variety of outpatient settings, especially rural settings.

DNP Core Courses

NURS5140 - Pharmacotherapy for Primary Care

Credits: 4

Prepares primary care practitioners in drug therapy management for a variety of client populations with an emphasis on rural practice.

Prerequisite: NURS 5601, NURS 5602, NURS 5603, NURS 5604, NURS 5605, and NURS 5830.

NURS5165 - DNP: Adv Pathophysiology

Credits: 2

A system-based approach is used to explore selected pathophysiological states encountered across the lifespan in primary care. The developmental physiology, etiology, pathogenesis, clinical manifestations, and physiological responses to illness and treatment regimens are examined, providing a basis for the foundation of clinical decisions.

Prerequisite: NURS 5603 , NURS 5604 , NURS 5605 , and NURS 5830

NURS5601 - Theoretical Foundations Advanced Practice Nursing

Credits: 3

An introduction to the discipline of nursing for graduate nursing students

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5602 - Advanced Nursing Leadership

Credits: 3

Focus on developing advanced nursing leadership skills and attributes for interprofessional collaboration to create viability of the profession and health-related practice environments

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5603 - Evidence-Based Practice for Advanced Nursing

Credits: 3

Focuses on the use of EBP to solve clinical, educational, and administrative problems in advanced nursing practice.

Prerequisite: Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5604 - Population and Health Policies

Credits: 3

Emphasis on population health, epidemiology, and health policy related to rural and global health issues.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5605 - Informatics and Quality Improvement for Advanced Nursing Practice

Credits: 3

Emphasis on theoretical and scientific foundations for quality improvement, safety, and informatics in health care.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5820 - Health Behavior Change I: Primary Prevention and Wellness

Credits: 3

This course will cover the application of theories and techniques of health behavior change and principles of epidemiology to health issues from the individual to the community level.

Prerequisite: Admission to the DNP program.

NURS5824 - Advanced Health Assessment and Clinical Decision-Making for Nurse Practitioners

Credits: 2

Builds upon basic nursing assessment skills; includes a human cadaver lab experience to enhance learners' understanding of anatomy, physiology, and pathophysiology, progressing to didactic, hands-on practice, and check-offs of student ability to perform client interviewing and advanced physical assessment techniques. Prepares learners for the clinical decision-making required of nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2022** - **Credits:** 3 credits; **Description:** *Advanced health assessment and diagnostic decision-making for nurse practitioners. Builds on previous nursing assessment skills. Emphasizes person-centered communication skills and a systematic diagnostic-reasoning approach that leads to accurate clinical decision-making. Clinical correlation amongst anatomy, physiology, pathophysiology, and physical examination.* **Prerequisite:** NURS 5140 and NURS 5165.

Prerequisite: NURS 5165, NURS 5800, NURS 5805, NURS 5810, and NURS 5865

NURS5830 - Health Behavior Change II: Behavioral Skills for Secondary and Tertiary Prevention

Credits: 3

This course will cover the application of health behavior change skills in advanced nursing practice, including theories/models and techniques, with a focus on chronic illness.

Prerequisite: NURS 5820 and NURS 5865.

NURS5865 - DNP Seminar

Credits: 1

Max Credit (Max. 6)

Instructor and student-led discussions designed to facilitate role transition of the doctorally-prepared nurse practitioner. Seminars include topics related to integration and application of nursing and other health-related theories and models in rural nurse practitioner-delivered care.

Prerequisite: Admission to the DNP program.

NURS5866 - DNP Seminar II

Credits: 1

Instructor and students lead discussions designed to facilitate role transition of the doctorally prepared nurse practitioner. Seminars include topics related to transitioning from nurse practitioner students into practicing nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891, NURS 5862 and NURS 5883 OR NURS 5891, NURS 5875 and NURS 5876.

NURS5891 - DNP Project I

Credits: 3

In collaboration with a facility, learners will examine clinically relevant data to target a practice and/or patient outcome for improvement. Learners will collect and critically appraise related evidence and develop an intervention, including an outcome evaluation plan.

A&S College Core 2015 **Course changes effective Summer 2023** - Credits: 1 credit; Description: In collaboration with a health-related organization, learners will identify a problem, concern, or question that can be addressed through a rapid cycle quality improvement project for a Doctor of Nursing Practice project. Prerequisite: NURS 5873, NURS 5877 and NURS 5827 or NURS 5882, NURS 5883 and NURS 5828.

Prerequisite: NURS 5850.

NURS5892 - DNP Project II

Credits: 3

Continuation of NURS 5891, DNP Project I. In collaboration with facility, learners will implement the proposed clinical intervention, evaluate the outcome, and professionally disseminate the results.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: Continuation of NURS 5891, DNP Project I. In collaboration with a health-related organization, learners will plan and begin to implement a quality improvement project. Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891 AND NURS 5875, NURS 5876 OR NURS 5862, NURS 5883.

NURS5893 - DNP Project III

Credits: 1

Continuation of NURS 5892, DNP Project II. In collaboration with a health-related organization, learners will continue to implement their scholarly quality improvement project.

Prerequisite: NURS 5874, NURS 5892 and NURS 5866 or NURS 5863, NURS 5892, NURS 5866.

NURS5894 - DNP Project IV

Credits: 2

Continuation of NURS 5893, DNP Project III. In collaboration with a health-related organization, learners will finalize their scholarly quality improvement project and disseminate the findings.

Prerequisite: NURS 5893.

Family Nurse Practitioner Specialty Courses

NURS5825 - Advanced Health Assessment and Clinical Decision-Making for Family Nurse Practitioners

Credits: 4

Advanced health assessment and diagnostic decision-making for family nurse practitioners. Builds on previous assessment skills and covers specialty exams used in primary care. Emphasizes a systematic diagnostic reasoning approach that leads to accurate clinical decision-making. Additionally, course focuses on sociocultural influences, growth and development, and gender concepts.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: *Advanced Health Assessment for Family NPs*; Credits: 2 credits; Description: *Advanced primary care assessment skills for family nurse practitioners. Focusing on specialty examination techniques for all body system.* Prerequisite: NURS 5140 and NURS 5165.
Prerequisite: NURS 5166, NURS 5815, NURS 5820, and NURS 5824.

NURS5827 - Skills for Family NP

Credits: 3

Developing skills for advanced practice nursing and practice management for the family nurse practitioner.

Prerequisite: NURS 5824, NURS 5825, NURS 5871, and NURS 5875.

NURS5871 - Wellness for Adults in Primary Care

Credits: 3

Provision of wellness primary care for adults across the lifespan, including primary and secondary prevention.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 5165 and NURS 5140.*
Prerequisite: NURS 5140 and NURS 5825.

NURS5872 - Practicum for Wellness in Primary Care

Credits: 3

Clinical practicum for NURS 5871, Wellness for Adults in Primary Care.

A&S College Core 2015 **Course changes effective Summer 2023** - Name: *Practicum: Diagnosis and Management of the Primary Care Client for the FNP I*; Credits: 5 credits; Description: *Clinical practicum focused on beginning level diagnostic and clinical management competencies for the FNP.* Prerequisite: *NURS 5873, NURS 5877, and NURS 5827.*

Prerequisite: NURS 5140 and NURS 5825.

NURS5873 - Primary Care for Children, Adolescents, and Families

Credits: 3

Provision of primary care for children, adolescents, and families across the lifespan, including primary and secondary prevention.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 5871, NURS 5875, NURS 5824, and NURS 5825.

Prerequisite: NURS 5440, NURS 5830, NURS 5871 and NURS 5872.

NURS5874 - Practicum for Primary Care for Children, Adolescents, and Families

Credits: 3

Clinical practicum for NURS 5873, Primary Care for Children, Adolescents, and Families.

A&S College Core 2015 **Course changes effective Fall 2023** - Name: *Diagnosis and Management of the Primary Care Client for the FNP II*; Credits: 5 credits; Description: *Clinical practicum that allows students to continue to practice and refine competencies in the FNP role.* Prerequisite: NURS 5872 and NURS 5891.

Prerequisite: NURS 5440, NURS 5830, NURS 5871 and NURS 5872.

NURS5875 - Primary Care for Acute & Chronically Ill Adults

Credits: 3

Diagnosis and management of select acute and chronic illnesses experienced by adults across the lifespan. Primary focus is on those physical and behavioral illnesses with high prevalence in rural primary care.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 5165 and NURS 5140.

Prerequisite: NURS 5850.

NURS5876 - Practicum for Primary Care for Acute & Chronically Ill Adults

Credits: 3

Clinical practicum for NURS 5875, Primary Care for Acute & Chronically Ill Adults I.

A&S College Core 2015 **Course changes effective Fall 2023** - Name: *Final FNP Practicum*; Credits: 6 credits; Description: *This final clinical experience provides learners with the opportunity to integrate previous learning from the FNP program in the provision of evidence-based health care.* Prerequisite: NURS 5866, NURS 5874, NURS 5892, and NURS 5893.

Prerequisite: NURS 5850.

NURS5877 - Primary Care for Acute & Chronically Ill Adults II

Credits: 3

Continuation of NURS 5875. Diagnosis and management of select acute and chronic illnesses experienced by adults across the lifespan. Primary focus is on those physical and behavioral illnesses with high prevalence in rural primary care.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 5871, NURS 5875, NURS 5824, and NURS 5825.

Prerequisite: NURS 5875, NURS 5876 and NURS 5891.

Additional Requirements

Expected Student Learning Outcomes

Graduates will:

1. engage in evidence-based practice to optimize health outcomes; and
2. engage in leadership activities to promote excellence in rural health care.

Core Concepts:

- Transformation:

Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.

- Rurality/Frontier

Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.

- Service

Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.

- Comprehensive Global healthcare system perspective

An interconnected and comprehensive global health care system perspective incorporating the following attributes: advocacy, altruism, creativity, ethical conduct, effective communication skills, leadership, problem-solving skills, professionalism, and scholarship.

- Clinical Scholarship

Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Admission

The University of Wyoming must receive complete application materials for the DNP Program by the application deadline to be considered for fall admission (*the entire DNP application process is completed online*). The applicant is responsible to make certain that UW is in receipt of all application materials/ fees. The number of students admitted is limited. Admission is a competitive process and applicants meeting minimum requirements are not guaranteed admission to the program. Admission to the university does not guarantee admission to the DNP program in the School of Nursing.

Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, Admission Criteria & Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for the DNP Program. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP Program Student Handbook - section 6 Scholastic Requirements*).

Curriculum

All DNP students, regardless of concentration will take a set of core courses. In addition to the core courses a group of specialty courses are required for each NP concentration. Students earning the DNP degree will complete a final scholarly project which is integrated into the FMY and PSH curricula.

The DNP core and clinical courses will be delivered using a combination of online courses; synchronous video web-conferencing, and hybrid courses with periodic intensive on-campus experiences. Clinical placements will be arranged at health care facilities in Wyoming, north central Colorado, or southern Montana.

Program of Study

A detailed, semester sequenced DNP-FMY Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP-FMY Program of Study*).

Nursing, D.N.P., Psychiatric Mental Health Nurse Practitioner Concentration

The Psychiatric Mental Health Nurse Practitioner (PSH) concentration prepares advanced practice nurses to provide a full range of psychiatric care. Graduates are prepared to assess, diagnose, and manage, to include prescribing psychotropic medications, for people with chronic and acute psychiatric disorders.

DNP Core Courses

NURS5140 - Pharmacotherapy for Primary Care

Credits: 4

Prepares primary care practitioners in drug therapy management for a variety of client populations with an emphasis on rural practice.

Prerequisite: NURS 5601, NURS 5602, NURS 5603, NURS 5604, NURS 5605, and NURS 5830.

NURS5165 - DNP: Adv Pathophysiology

Credits: 2

A system-based approach is used to explore selected pathophysiological states encountered across the lifespan in primary care. The developmental physiology, etiology, pathogenesis, clinical manifestations, and physiological responses to illness and treatment regimens are examined, providing a basis for the foundation of clinical decisions.

Prerequisite: NURS 5603 , NURS 5604 , NURS 5605 , and NURS 5830

NURS5601 - Theoretical Foundations Advanced Practice Nursing

Credits: 3

An introduction to the discipline of nursing for graduate nursing students

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5602 - Advanced Nursing Leadership

Credits: 3

Focus on developing advanced nursing leadership skills and attributes for interprofessional collaboration to create viability of the profession and health-related practice environments

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5603 - Evidence-Based Practice for Advanced Nursing

Credits: 3

Focuses on the use of EBP to solve clinical, educational, and administrative problems in advanced nursing practice.

Prerequisite: Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5604 - Population and Health Policies

Credits: 3

Emphasis on population health, epidemiology, and health policy related to rural and global health issues.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5605 - Informatics and Quality Improvement for Advanced Nursing Practice

Credits: 3

Emphasis on theoretical and scientific foundations for quality improvement, safety, and informatics in health care.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5820 - Health Behavior Change I: Primary Prevention and Wellness

Credits: 3

This course will cover the application of theories and techniques of health behavior change and principles of epidemiology to health issues from the individual to the community level.

Prerequisite: Admission to the DNP program.

NURS5824 - Advanced Health Assessment and Clinical Decision-Making for Nurse Practitioners

Credits: 2

Builds upon basic nursing assessment skills; includes a human cadaver lab experience to enhance learners' understanding of anatomy, physiology, and pathophysiology, progressing to didactic, hands-on practice, and check-offs of student ability to perform client interviewing and advanced physical assessment techniques. Prepares learners for the clinical decision-making required of nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: 3 credits; Description: *Advanced health assessment and diagnostic decision-making for nurse practitioners. Builds on previous nursing assessment skills. Emphasizes person-centered communication skills and a systematic diagnostic-reasoning approach that leads to accurate clinical decision-making. Clinical correlation amongst anatomy, physiology, pathophysiology, and physical examination.* Prerequisite: NURS 5140 and NURS 5165.

Prerequisite: NURS 5165, NURS 5800, NURS 5805, NURS 5810, and NURS 5865

NURS5830 - Health Behavior Change II: Behavioral Skills for Secondary and Tertiary Prevention

Credits: 3

This course will cover the application of health behavior change skills in advanced nursing practice, including theories/models and techniques, with a focus on chronic illness.

Prerequisite: NURS 5820 and NURS 5865.

NURS5865 - DNP Seminar

Credits: 1

Max Credit (Max. 6)

Instructor and student-led discussions designed to facilitate role transition of the doctorally-prepared nurse practitioner. Seminars include topics related to integration and application of nursing and other health-related theories and models in rural nurse practitioner-delivered care.

Prerequisite: Admission to the DNP program.

NURS5866 - DNP Seminar II

Credits: 1

Instructor and students lead discussions designed to facilitate role transition of the doctorally prepared nurse practitioner. Seminars include topics related to transitioning from nurse practitioner students into practicing nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891, NURS 5862 and NURS 5883 OR NURS 5891, NURS 5875 and NURS 5876.

NURS5891 - DNP Project I

Credits: 3

In collaboration with a facility, learners will examine clinically relevant data to target a practice and/or patient outcome

for improvement. Learners will collect and critically appraise related evidence and develop an intervention, including an outcome evaluation plan.

A&S College Core 2015 **Course changes effective Summer 2023** - Credits: 1 credit; Description: In collaboration with a health-related organization, learners will identify a problem, concern, or question that can be addressed through a rapid cycle quality improvement project for a Doctor of Nursing Practice project. Prerequisite: NURS 5873, NURS 5877 and NURS 5827 or NURS 5882, NURS 5883 and NURS 5828.

Prerequisite: NURS 5850.

NURS5892 - DNP Project II

Credits: 3

Continuation of NURS 5891, DNP Project I. In collaboration with facility, learners will implement the proposed clinical intervention, evaluate the outcome, and professionally disseminate the results.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: Continuation of NURS 5891, DNP Project I. In collaboration with a health-related organization, learners will plan and begin to implement a quality improvement project. Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891 AND NURS 5875, NURS 5876 OR NURS 5862, NURS 5883.

NURS5893 - DNP Project III

Credits: 1

Continuation of NURS 5892, DNP Project II. In collaboration with a health-related organization, learners will continue to implement their scholarly quality improvement project.

Prerequisite: NURS 5874, NURS 5892 and NURS 5866 or NURS 5863, NURS 5892, NURS 5866.

NURS5894 - DNP Project IV

Credits: 2

Continuation of NURS 5893, DNP Project III. In collaboration with a health-related organization, learners will finalize their scholarly quality improvement project and disseminate the findings.

Prerequisite: NURS 5893.

Psychiatric Mental Health Nurse Practitioner Specialty Courses

NURS5826 - Advanced Health Assessment for Psych NPs

Credits: 2

Advanced assessment skills for psychiatric mental health nurse practitioners. Focusing on specialty examination techniques in the mental health setting.

Prerequisite: NURS 5165 and NURS 5140.

NURS5828 - Skills for Psych NP

Credits: 2

Developing skills for advanced practice nursing and practice management for the psychiatric mental health nurse practitioner.

Prerequisite: NURS 5824, NURS 5826, NURS 5880, and NURS 5881.

NURS5862 - Practicum: Diagnosis and Management of the Psychiatric Client for the PMHNP I

Credits: 5

Clinical practicum that allows students to continue to practice and refine competencies in the PMHNP role with multiple and complex psychiatric populations.

A&S College Core 2015 **Course changes effective Summer 2023** - Prerequisite: *NURS 5828, NURS 5882, and NURS 5883.*

Prerequisite: NURS 5850.

NURS5863 - Practicum: Diagnosis and Management of the Psychiatric Client for the PMHNP II

Credits: 5

Clinical practicum that allows students to continue to practice and refine competencies in the PMHNP role with multiple and complex psychiatric populations.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: *NURS 5862 and NURS 5891.*

Prerequisite: NURS 5862, NURS 5883 and NURS 5891.

NURS5864 - Final PSH Practicum

Credits: 6

This final clinical experience provides learners with the opportunity to integrate previous learning from the PMHNP program in the provision of evidence-based health care.

Prerequisite: NURS 5863, NURS 5866, NURS 5892, and NURS 5893.

NURS5880 - Neurobiology & Psychopharm

Credits: 3

The advanced study of neurobiology and psychopharmacology in the treatment of psychiatric disorders across the lifespan. In depth exploration of how the advanced practice psychiatric nurse can utilize pharmacodynamics and pharmacogenetics to inform the clinical decision making in the treatment complex mental illnesses and addiction.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: *Neurobiology and Psychopharmacology;*

Credits: 4 credits; Prerequisite: NURS 5140 and NURS 5165.

Prerequisite: NURS 5140.

NURS5881 - Psychotherapy Models and Theories for Advanced Practice Mental Health Nursing

Credits: 3

Utilization of psychotherapy frameworks in the care of individuals, families, and groups. Emphasizing the counseling role and skill development of the advanced practice mental health nurse in the assessment, intervention and evaluation of diverse populations across the lifespan. Issues of ethics, rural practice, and diversity are addressed throughout the course.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 5140 and NURS 5165.

Prerequisite: NURS 5140.

NURS5882 - Advanced Psychiatric Mental Health Nursing Diagnosis and Management for the Adult, Older Adult, and Vulnerable Populations

Credits: 4

Advanced knowledge of evidence based assessment, diagnosis, treatment, management, and health promotion of adults and aging adults with mental illness. Explore culturally sensitive care among vulnerable populations. Examine the professional, ethical, policy, and practice issues influencing the role of the advanced practice psychiatric nurse.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 5824, NURS 5826, NURS 5880, and NURS 5881.

Prerequisite: NURS 5440, NURS 5830, NURS 5880 and NURS 5881.

NURS5883 - Advanced Psychiatric Mental Health Nursing Diagnosis and Management for the Child and Adolescent

Credits: 4

Evidenced based assessment, diagnosis, treatment and management of mental health disorders in children and adolescence at the individual, family and community level. Theories of family development including behavioral patterns will be assessed using a culturally sensitive lens. Review of psychotherapy, psychopharmacology, psychoeducation, and health promotion as is developmentally appropriate.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 5824, NURS 5826, NURS 5880, and NURS 5881.

Prerequisite: NURS 5850.

Additional Requirements

Expected Student Learning Outcomes

Graduates will:

1. engage in evidence-based practice to optimize health outcomes;

- engage in leadership activities to promote excellence in rural health care.

Core Concepts:

- Transformation:

Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.

- Rurality/Frontier

Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.

- Service

Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.

- Comprehensive Global healthcare system perspective

An interconnected and comprehensive global health care system perspective incorporating the following attributes: advocacy, altruism, creativity, ethical conduct, effective communication skills, leadership, problem-solving skills, professionalism, and scholarship.

- Clinical Scholarship

Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Admission

The University of Wyoming must receive complete application materials for the DNP Program by the application deadline to be considered for fall admission (*the entire DNP application process is completed online*). The applicant is responsible to make certain that UW is in receipt of all application materials/ fees. The number of students admitted is limited. Admission is a competitive process and applicants meeting minimum requirements are not guaranteed admission to the program. Admission to the university does not guarantee admission to the DNP program in the School of Nursing.

Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, Admission Criteria & Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for the DNP Program. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP Program Student Handbook - section 6 Scholastic Requirements*).

Curriculum

All DNP students, regardless of concentration will take a set of core courses. In addition to the core courses a group of specialty courses are required for each NP concentration. Students earning the DNP degree will complete a final scholarly project which is integrated into the FMY and PSH curricula.

The DNP core and clinical courses will be delivered using a combination of online courses; synchronous video web-conferencing, and hybrid courses with periodic intensive on-campus experiences. Clinical placements will be arranged at health care facilities in Wyoming, north central Colorado, or southern Montana.

Program of Study

A detailed, semester sequenced DNP-PSH Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP-PSH Program of Study*).

Nursing, M.S., Nurse Educator/Nurse Leader Concentrations

The MS program is a part-time, online degree open to registered nurses with a minimum of a baccalaureate degree in nursing from a program nationally accredited by CCNE or NLNAC. The MS program has two concentrations: 1) Nurse Educator (NE) and 2) Nurse Leader (NL).

MS Core Courses

NURS5472 - Integrated Advanced Pathophysiology, Pharmacology, and Assessment

Credits: 3

Emphasis on the integration of advanced pathophysiology, pharmacology, and assessment in relation to chronic conditions.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5602 , NURS 5604 ; Co-requisite NURS 5605

NURS5473 - Advancing Healthcare Transform

Credits: 2

Max Credit 2

Emphasis on academic/practice partnerships as avenues for addressing population health and related workforce development.

Prerequisite: Admission to the NURS MS program, NURS 5405, NURS 5410

NURS5483 - Practicum: Rural Healthcare Leadership

Credits: 3

Emphasis on the integration of learning through a practicum experience in educational or healthcare leadership.

Prerequisite: Completion of all required MS courses, corequisite NURS 5473.

NURS5601 - Theoretical Foundations Advanced Practice Nursing

Credits: 3

An introduction to the discipline of nursing for graduate nursing students

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5602 - Advanced Nursing Leadership

Credits: 3

Focus on developing advanced nursing leadership skills and attributes for interprofessional collaboration to create viability of the profession and health-related practice environments

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5603 - Evidence-Based Practice for Advanced Nursing

Credits: 3

Focuses on the use of EBP to solve clinical, educational, and administrative problems in advanced nursing practice.

Prerequisite: Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5604 - Population and Health Policies

Credits: 3

Emphasis on population health, epidemiology, and health policy related to rural and global health issues.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5605 - Informatics and Quality Improvement for Advanced Nursing Practice

Credits: 3

Emphasis on theoretical and scientific foundations for quality improvement, safety, and informatics in health care.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

Nurse Educator Specialty Courses

NURS5452 - Curriculum Development

Credits: 3

Emphasis on the process of developing curricula in nursing educational or healthcare setting to include evaluation of program outcomes.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5605 , NURS 5472 ; Co-requisite of NURS 5462.

NURS5462 - Teaching Methodologies and Evaluation

Credits: 3

Emphasis on evidence-based teaching methodologies, development of course materials, and evaluation of students learning outcomes.

Prerequisite: Admission to MS; NURS 5405; NURS 5410.

Nurse Leader Specialty Courses

NURS5420 - Leadership Within Health Care Systems

Credits: 3

Emphasis on strategic use of systems and outcomes as a foundation for professional leadership development.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5606, NURS 5472.

NURS5461 - Business of Healthcare

Credits: 3

Emphasis on leading and managing entrepreneurial healthcare opportunities.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5605 , NURS 5472

Additional Requirements

Expected Student Learning Outcomes

M.S. Graduate are prepared to ensure better care, better health, and lower costs through their knowledge, skills, and abilities to:

- Demonstrate competence and caring in the advanced professional nurse role to serve Wyoming, the region, and the world in urban, rural, and frontier health care settings as a provider, leader, and/or educator in the health care system.
- Transform rural health through leadership, service, and clinical scholarship that reflects an interconnected and comprehensive global health perspective.
- Demonstrate an advanced understanding of nursing and other sciences and humanities and integrates this knowledge to manage and improve health care across settings
- Synthesize broad organizational, financial, economic, client-centered, and culturally appropriate concepts from nursing and other sciences to address population health.
- Engage in scholarly inquiry and evidence-based practice to lead change for quality outcomes and implement safe health care to diverse populations in a variety of settings.

Core Concepts:

- Transformation:

Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.

- Rurality/Frontier

Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.

- Service

Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.

- Comprehensive Global healthcare system perspective

An interconnected and comprehensive global health care system perspective incorporating the following attributes: advocacy, altruism, creativity, ethical conduct, effective communication skills, leadership, problem-solving skills, professionalism, and scholarship.

- Clinical Scholarship

Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Admission

The University of Wyoming must receive complete application materials for the MS Program by the application deadline to be considered for fall admission (*the entire MS application process is completed online*). The applicant is responsible to make certain that UW is in receipt of all application materials/fees.

Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, MS, Admission Criteria/Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for the MS Program. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, MS, MS Program Student Handbook - section 6 Scholastic Requirements*).

Curriculum

All MS students, regardless of concentration will take a set of core courses. In addition to the core courses, a group of specialty courses are required for each MS concentration.

Program of Study

A detailed, semester sequenced MS Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, MS, MS Program of Study*).

Pharmacy, Pharm.D.

The School of Pharmacy offers only the four-year curriculum leading to the Doctor of Pharmacy (Pharm.D.) degree. Students admitted to the professional pharmacy program follow a four year program of study leading to the Doctor of Pharmacy Degree. Students complete a total of 146 hours.

In order to keep abreast with changes in pharmaceutical education, the following curriculum is subject to change or modification as required by the accrediting agency. Students should be aware that changes must be expected and they will be included in their academic program. The School of Pharmacy does not plan to change graduation requirements inadvertently, but does reserve the right to change any provisions or requirement deemed necessary at any time within the student's term of residence.

Required Curriculum

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

PHCY6100 - Dose Form Design

Credits: 4

Extensively introduces various types of dosage forms, discusses advantages and disadvantages of each. Pharmaceutical calculations are a major component of the course, as well as physicochemical principles involved in dose form stability.

Prerequisite: CHEM 2420 and CHEM 2440.

PHCY6106 - Pharmaceutical Calculations

Credits: 2

Application of basic mathematics and quantitative reasoning to pharmaceutical calculations, emphasizing calculations of doses, dosage requirements, compounding of formulations and parenterals.

Former Course Number [6105]

Prerequisite: MATH 1000 or MATH 1400.

PHCY6110 - Medicinal and Natural Products Chemistry I

Credits: 3

Three-semester series that studies the physicochemical, biochemical and pharmacological properties of substances of natural and synthetic origin that are used as medicinal agents.

Prerequisite: CHEM 2440 and MOLB 3610.

PHCY6140 - Introduction to Social Administrative Pharmacy

Credits: 2

Provides an introduction to socio-cultural, behavioral and administrative principles of pharmacy with a focus on pharmacist roles and their historical evolution, health disparities, health behavior theory and practice philosophy, and a survey of the U. S. health care system.

Prerequisite: Enrollment in the professional program or consent of instructor.

PHCY6160 - Pharmacist Skills I

Credits: 1

Preparation and evaluation of dosage forms is main thrust of course. Laboratory emphasizes manipulative and mathematical skills, prescription formats, packaging and storage as they apply to pharmaceuticals.

Former Course Number [6101]

Prerequisite: concurrent enrollment in PHCY 6100; MATH 2100.

PHCY6102 - Biopharmaceutics and Pharmacokinetics

Credits: 4

Discusses biopharmaceutic and pharmacokinetic aspects of dosage form design. Basic pharmacokinetics and biopharmaceutics are interrelated to clinical applications. Also covers classical kinetics and dissolution.

USP 2015 Code U5C3

Prerequisite: MATH 2200 and PHCY 6100.

PHCY6111 - Medicinal and Natural Products Chemistry II

Credits: 3

Continuation of Medicinal and Natural Products Chemistry I.

Former Course Number [6210]

Prerequisite: Ph1 status in PharmD program or consent of instructor.

PHCY6120 - Advanced Pathophysiology

Credits: 3

Advanced course covering the molecular, cellular, genetic and clinical principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for Doctor of Pharmacy students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 3450 for interprofessional education revolving around student-led case study presentations.

Former Course Number [6220]

Prerequisite: LIFE 1010, LIFE 1020, CHEM 1020, CHEM 1030, CHEM 2420, CHEM 2440, MOLB 2240, MOLB 3610, ZOO 3115, ZOO 4125.

PHCY6151 - Pharmacy Practice

Credits: 2

Provides didactic content that enables students to accurately prepare and dispense prescription medications.

Former Course Number [6354]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6152 - Therapeutics I

Credits: 3

Emphasizes the role of the pharmacist in pharmaceutical self care, appropriate triage and referral involving prescription, non-prescription pharmaceuticals, complimentary, alternative therapies and devices in community dwelling patients with both acute and chronic self-care conditions.

Former Course Number [6352]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6161 - Pharmacist Skills II

Credits: 1

Provides laboratory and other related experiences that enable students to accurately prepare and dispense prescription medications.

Prerequisite: P1 status in PharmD program or consent of instructor.

PHCY6170 - Introductory Pharmacy Practice Experience-IPPE1

Credits: 1

Provides an early curricular exposure to the roles and functions of pharmacists in their work environment through a shadow experience.

Prerequisite: satisfactory completion of PHCY 6185.

PHCY6480 - Introduction to Community Pharmacy Practice

Credits: 4

Four-week rotation in community pharmacy practice completed under the guidance of a licensed pharmacist. Patient care activities will include, but not be limited to, basic patient and drug therapy assessment, performing medication histories and prospective drug utilization reviews, basic patient counseling and active participation in the medication distribution process.

Prerequisite: grade of C or higher in PHCY 6352 and 6354 and satisfactory completion of all courses within the P1 curriculum (i. e. P2 standing).

PHCY6482 - Introduction to Hospital Pharmacy Practice

Credits: 4

Four-week rotation in hospital pharmacy practice completed under the guidance of a licensed pharmacist. Patient-care activities will include basic drug therapy and patient assessment, prospective drug utilization reviews, participating in the hospital's medication distribution process, performing calculations, compounding preparations and understanding pharmacy's role within the health-system through interdisciplinary interactions.

Prerequisite: grade of C or higher in PHCY 6352 and 6354 and satisfactory completion of all courses within the P1 curriculum (i. e. P2 standing).

PHCY6215 - Medicinal and Natural Products Chemistry III

Credits: 3

Continuation of Medicinal and Natural Products Chemistry II.

Former Course Number [6211]

Prerequisite: PHCY 6111.

PHCY6230 - Pharmacology I

Credits: 4

First semester of a one-year series. Studies action of chemical agents on living systems to include pharmacodynamics, toxicology, and clinical therapeutics. Concepts are emphasized through case presentations and discussion.

Prerequisite: PHCY 4450.

- PHCY 6230 - Pharmacology I Discussion Credits: 0

PHCY6240 - Research and Evaluation Methods in Pharmacy

Credits: 3

The course focuses on research design and statistical analyses, as well as pharmaco-economic, pharmacoepidemiology and public health concepts and methods for evidence-based practice applications and health care policy development.

Prerequisite: MATH 2200 and PharmD program P2 status.

PHCY6245 - Patient/Professional Interactions

Credits: 3

Focuses on psychosocial and communication concepts pertaining to human interactions, with application to professional practice environments and clinical counseling situations.

USP 2015 Code U5C3

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6260 - Pharmacist Skills III

Credits: 1

This course is the third in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in the different subdisciplines represented in the SOP curriculum.

Prerequisite: P2 status in PharmD program or consent of instructor.

PHCY6231 - Pharmacology II

Credits: 4

Second semester of a one-year series. Continuation of PHCY 6230. Lecture with separately scheduled discussion section.

Prerequisite: PHCY 6230.

- PHCY 6231 - Pharmacology II Discussion Credits: 0

PHCY6246 - Pharmacy Management, Marketing and Finance

Credits: 3

Examines management functions and leadership in various types of contemporary pharmacy practice including pharmacy services, drug distribution, technology, human resources, marketing, finance and accounting.

Prerequisite: P2 status.

PHCY6251 - Therapeutics II

Credits: 3

Introduces pharmacotherapeutic principles employed in the patient care process for managing select disease states and specific patient populations. The course emphasizes the role of evidence-based medicine in developing pharmaceutical care plans (e. g. recommending therapy, evaluating and monitoring the efficacy and safety of medications).

Prerequisite: PHCY 6120, PHCY 6230.

PHCY6261 - Pharmacist Skills IV

Credits: 2

This course is the fourth in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P2 status in PharmD program or consent of instructor.

PHCY6270 - Intermediate Pharmacy Practice Experience-IPPE2

Credits: 1

An advanced exposure to the practice of pharmacy in health care environments.

USP 2015 Code U5C3

Prerequisite: satisfactory completion of PHCY 6170.

PHCY6312 - Clinical Toxicology

Credits: 3

Focuses on biological and pharmacological effects of environmental, chemicals, OTC and prescription drug poisoning cases. Emphasis will be placed on the use of historical, laboratory and clinical data to diagnose and develop clinical management approaches for both acute and chronic poisoning cases.

Prerequisite: PHCY 6230, MOLB 3610.

PHCY6341 - Pharmacy Practice Law

Credits: 3

Coverage of state, federal and local laws and regulations which relate directly to the practice of pharmacy. The Wyoming Pharmacy Act serves as a model for analogous laws in other states. Case law at the federal and state levels affecting pharmacy practice is analyzed and discussed.

Prerequisite: PH3 or consent of instructor.

PHCY6344 - Pharmacy Ethics

Credits: 1

Focuses on ethical issues confronting pharmacists in practice, pharmacy as a profession, the health care delivery system and society.

Former Course Number [6280, 6385]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6350 - Therapeutics III

Credits: 4

Provides an overview of the treatment of selected disease states. Students will develop skills in providing patient-centered care as a medication expert, interpreting evidence, and formulating, monitoring, and adjusting care plans. Course will build upon skills learned in PHCY 6251.

Prerequisite: grade of C or higher in PHCY 6251.

PHCY6357 - Clinical Pharmacokinetics

Credits: 2

Course will provide the student with an overview of the clinical application of pharmacokinetic concepts as used in providing quality patient care. Principles of pharmacokinetics may be applied to the therapeutic use of all medications, including those inherently discussed during this course.

Prerequisite: PHCY 6102.

PHCY6360 - Pharmacist Skills V

Credits: 1

This course is the fifth in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6300 - Sterile Products

Credits: 2

An introduction to the preparation and clinical application of sterile dosage forms in accordance with USP 797 and other related standards. Emphasizes basic principles related to preparation, dispensing and administration of parenteral medications in health care settings.

Former Course Number [6103]

Prerequisite: PHCY 6100, PHCY 6160, PHCY 6106, and concurrent enrollment in PHCY 6301.

PHCY6301 - Sterile Products Laboratory

Credits: 1

A hands-on training in techniques used to prepare, dispense and administer parenteral admixtures, parenteral nutrition, chemotherapy and ophthalmics forms in accordance with USP 797 and other related standards.

Former Course Number [6104]

Prerequisite: PHCY 6100, PHCY 6160, PHCY 6106 and concurrent enrollment in PHCY 6300.

PHCY6340 - Health Care Policy and Advocacy

Credits: 2

Prepares the future pharmacist leader to analyze and engage in professional advocacy and the healthcare policy process at the local, state and national level. Content will include details of the U. S. healthcare system, health policy, the policy-making process, key stakeholders' roles, sociocultural influences and current issues.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6351 - Therapeutics IV

Credits: 4

Provides the student with an overview of the treatment of complex disease states. Students will build on their patient-centered skills from PHCY 6350 by interpreting evidence, prioritizing patient needs, and formulating and monitoring evidence-based care plans. These skills will be essential as students begin advanced pharmacy practice experiences.

Prerequisite: grade of C or higher in PHCY 6350.

PHCY6353 - Drug Literature Application

Credits: 2

This course is designed to provide students with the fundamental knowledge and skills to practice evidence-based pharmacotherapy. Topics include: evaluation of drug information requests, informatics, understanding drug information resources, development and execution of search strategies, primary literature and research design analysis, and writing and presentation skills.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6361 - Pharmacist Skills VI

Credits: 2

This course is the sixth and final course in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6370 - Advanced Pharmacy Practice Experience-IPPE3

Credits: 2

Designed to prepare the student for 4th year advanced pharmacy practice experience (APPE) activities by discussion of

logistics, professionalism, regulatory issues, portfolio requirements and assessment tools. In addition, students will continue building their clinical skills through a patient care practice experience.

USP 2015 Code U5C3

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6485 - Reflective Learning in Pharmacy

Credits: 1

Max Credit (Max. 4)

Designed to help prepare P4 pharmacy students to be knowledgeable and well-rounded practitioners. Provides an opportunity to reflect on rotation experiences, give professional level presentations, and exposure to content not covered elsewhere in curriculum. Course includes guest speakers, Pharm. D. seminars, assessment activities, job/residency fairs, P4 portfolio, and reflective writing.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.
Students complete 3 sections of PHCY 6485, 1 credit each.

PHCY6470 - Internal Medicine I

Credits: 4

An advanced practice experience to develop skills as a medication expert within an inpatient internal medicine or family medicine experiential setting. Students will coordinate, collaborate, and communicate among themselves, their preceptor, and other members of the interprofessional healthcare team to provide patient-centered care.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6473 - Ambulatory Pharmaceutical Care

Credits: 4

An experiential course focusing on the pharmacist as the drug expert in a multidisciplinary health care team. Students will provide direct patient care to patients in an outpatient setting.

USP 2015 Code U5C3

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.
(Students complete a second semester of either Internal Medicine or Ambulatory Care)

PHCY6471 - Internal Medicine II

Credits: 4

Course is a continuation of PHCY 6470 in which students take on increasing responsibility and/or more complex patient cases to develop skills as a medication expert in the acute care setting. Students will continue providing patient-centered care by collaborating with their preceptor and other members of the interprofessional healthcare team.

USP 2015 Code U5C3

Prerequisite: PHCY 6470.

PHCY6474 - Ambulatory Pharmacy Care II

Credits: 4

Course is a continuation of PHCY 6473 in which students will take on increasing responsibilities, develop an expanded understanding for systems management, and further advance their clinical skills as medication experts in the outpatient setting.

USP 2003-2014 Code [COM3]

Prerequisite: PHCY 6473.

PHCY6481 - Advanced Community Pharmacy

Credits: 4

An advanced practice experience in community pharmacy designed to build upon introductory experiences and promote active participation in caring for patients in this practice setting. Students will spend 25-30 of their time in non-dispensing activities (e. g. screenings, in-depth counseling, MTM, immunizations, self-care treatment, community presentations, etc.).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6483 - Advanced Institutional Pharmacy

Credits: 4

An advanced practice experience in institutional/hospital pharmacy designed to build upon introductory experiences and promote active participation within the health-system through interdisciplinary interactions, projects, presentations, and patient care activities. Students will devote at least 50 of their time to nondispensing activities (e. g. monitoring meds, consults, discharge counseling, medication reconciliation, inservices).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6465 - Elective Rotation In:

Credits: 4

Max Credit (Max. 16)

Elective advanced pharmacy practice experience that is available in a variety of practice environments (e. g. direct patient care settings, management, research, and other pharmacy-related locations). Rotation requires active participation and application of knowledge, skills, values, and attitudes.

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

Students complete 4 sections of PHCY 6465, 4 credits each.

- Students complete 7 hours of electives during the P1-P3 year.

Total Hours 146

Fourth Year [PH4]:

Consists of nine experiential rotations of four credit hours each and three reflective learning weeks. Rotations are considered full-time. Students may not enroll in any other coursework concurrent with rotations. Consequently, all other coursework (107 credits) must be satisfactorily completed before enrollment in P4 coursework. Note: Students will be required to live in locations other than Laramie when enrolled in experiential rotations. Responsibility for living cost and travel arrangements associated with experimental rotations rests with the student. Students participating in all experimental activities will be required to have a vehicle or an acceptable approved alternative.

Students must complete the following Core or Required Experiential Rotations (subject to change):

PHCY6470 - Internal Medicine I

Credits: 4

An advanced practice experience to develop skills as a medication expert within an inpatient internal medicine or family medicine experiential setting. Students will coordinate, collaborate, and communicate among themselves, their preceptor, and other members of the interprofessional healthcare team to provide patient-centered care.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6473 - Ambulatory Pharmaceutical Care

Credits: 4

An experiential course focusing on the pharmacist as the drug expert in a multidisciplinary health care team. Students will provide direct patient care to patients in an outpatient setting.

USP 2015 Code U5C3

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6471 - Internal Medicine II

Credits: 4

Course is a continuation of PHCY 6470 in which students take on increasing responsibility and/or more complex patient cases to develop skills as a medication expert in the acute care setting. Students will continue providing patient-centered care by collaborating with their preceptor and other members of the interprofessional healthcare team.

USP 2015 Code U5C3

Prerequisite: PHCY 6470.

or

PHCY6474 - Ambulatory Pharmacy Care II

Credits: 4

Course is a continuation of PHCY 6473 in which students will take on increasing responsibilities, develop an expanded understanding for systems management, and further advance their clinical skills as medication experts in the outpatient setting.

USP 2003-2014 Code [COM3]

Prerequisite: PHCY 6473.

PHCY6481 - Advanced Community Pharmacy

Credits: 4

An advanced practice experience in community pharmacy designed to build upon introductory experiences and promote active participation in caring for patients in this practice setting. Students will spend 25-30 of their time in non-dispensing activities (e. g. screenings, in-depth counseling, MTM, immunizations, self-care treatment, community presentations, etc.).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6483 - Advanced Institutional Pharmacy

Credits: 4

An advanced practice experience in institutional/hospital pharmacy designed to build upon introductory experiences and promote active participation within the health-system through interdisciplinary interactions, projects, presentations, and patient care activities. Students will devote at least 50 of their time to nondispensing activities (e. g. monitoring meds, consults, discharge counseling, medication reconciliation, inservices).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

- Plus 4 Elective Rotations (PHCY 6465)

Social Work, M.S.W.

Want to make a difference in the world? Join our MSW program and accelerate into bold thinking and professional leadership via multiple paths in human services. Our MSW's advocate for change for a better world! Join us.

Admission Requirements for the Standard MSW Program

- A baccalaureate degree from a nationally accredited college or university that reflects a broad liberal arts preparation. This consists of having completed at least 21 credit hours in social and behavioral sciences and 6 credit hours each in natural sciences, humanities, visual and performing arts, and quantitative reasoning;
- A human biology course (beyond introductory biology), receiving a grade of C or better;
- A statistics course, receiving a grade of C or better;
- An undergraduate cumulative grade point average (GPA) of 3.000 or above on a 4-point scale.

Admission Requirements for the Advanced Standing MSW Program

- A bachelor's degree in Social Work from a Council on Social Work Education accredited social work program;
- An undergraduate social work GPA of 3.250 or above;
- An overall undergraduate GPA of 3.000 or above;
- Received a B or better and/or a satisfactory grade in BSW Field Education Practicum.

*International students have special requirements for admission to UW. All are encouraged to contact the International Students and Scholars Office for details before applying.

All Applicants

All applicants will be evaluated on:

- Intellectual and personal qualities essential to the successful practice of social work, such as sensitivity and responsiveness in relationships, concern for the needs of others, adaptability, good judgment, creativity and integrity;
- Commitment to social justice and equality;
- Written and verbal communication skills;
- Professional references; and
- Compatibility of career goals with the MSW program's advanced generalist perspective.

All applicants meeting minimum criteria will be considered for admission. Admitted applicants will be required to complete a criminal background check through the College of Health Sciences.

Program Specific Degree Requirements

All incoming students enter the MSW program in the summer semester of their first year, completing introductory and/or bridge courses as needed for their specific program phase. The MSW program is divided into two levels: generalist and advanced generalist. The generalist year of the MSW program prepares students without a BSW degree for the advanced generalist curriculum in the second year. Students who have already obtained their BSW degree may apply for Advanced Generalist in the MSW program. These students complete only the second-year courses.

Master of Social Work Field Practicum

All students, regardless of status, participate in a field practicum experience, starting in their first fall semester. New students submit an initial application upon formal admission to the program.

Foundation students will complete 900 hours in practicum over the course of their two years of study, 400 and 500 hours respectively. Advanced Standing students will complete 500 hours in their one year of study. All students in practicum will take a corresponding field seminar class each semester.

Grading is done as Satisfactory/Unsatisfactory. Receiving a grade of U is considered a failing grade and can result in termination from the practicum. If the practicum is terminated, the student may be offered a remediation plan to retake the required hours. This opportunity is only offered one time. The student may also be referred to the DOSW faculty for review according to the Student Academic and Professional Performance policy.

Specific information and procedures relating to all aspects of the field practicum experience can be found in the Field Practicum Manual located on the Division of Social Work's website.

Master of Social Work

- Students complete all SOWK required courses.
- Students complete either the SOWK 5755 Capstone course or the optional SOWK 5960 - Thesis Research.

For students who complete the Capstone course:

- Complete SOWK 5755. The SOWK 5755 portfolio project requires a minimum of 2 credit hours, usually taken as 1 credit in the fall semester and 1 credit in the spring of the advanced year.
- A final written paper with oral defense is required.
- Thesis is NOT required.

For students who choose the optional thesis:

- Complete SOWK 5960 - Thesis Research. SOWK 5960 requires a minimum of 4 credit hours, usually take as 2 in the fall semester and 2 in the spring semester.
- Students who choose to produce a thesis are required to carry out original research.
- Thesis proposal defense, thesis implementation, and final defense are required per university regulations for a thesis project.

Speech-Language Pathology, M.S.

Earn a Master of Science (M.S.) in speech-language pathology, our program is accredited by ASHA's CAA and includes 3 semesters of on-campus coursework and clinic work followed by 3 semesters of distance education and external clinical placements.

Accreditation

The Master of Science in Speech-Language Pathology is a professional degree program that includes 61-64 semester credit hours of enrollment (see typical programs below). Students may pursue either a thesis or non-thesis track during their graduate studies. Both tracks lead to eligibility for the Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP), granted by the Council for Clinical Certification in Audiology and Speech-Language-Pathology (CFCC), which is a council serving the American Speech-Language Hearing Association. Graduates are also eligible for the Wyoming license in speech-language pathology. A supervised Clinical Fellowship Year (CFY) is required beyond the graduate degree for certification.

Accreditation. The Master's of Science (MS) education program in speech-language pathology {residential} at the University of Wyoming is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association, 2200 Research Boulevard, #310, Rockville, MD 20850, 800-498-2071 or 301-296-5700.

Typical Programs of Study

There are two programs of study for the MS SLP program. The Plan A is the thesis option (64-credit hour program), and Plan B is the non-thesis option (61-credit hour program). The Plan A (thesis) option requires and 38 credits of graduate academic work (including 4 credits of SPPA 5960 Thesis Research) and 26 credits of graduate clinical practicum. The Plan B (non-thesis) option requires 35 credits of graduate academic work (including 1 credit of SPPA 5961 Graduate Projects/Oral Comprehensive Exam) and 26 credits of graduate clinical practicum.

35-38 Hours of Graduate Academic Work Usually Includes:

SPPA5020 - Phonological Assessment and Intervention

Credits: 3

Emphasis on normal phonetic and phonologic development, diagnosis and clinical management of articulatory and phonological disorders.

Prerequisite: SPPA 3210.

SPPA5140 - EBP and Evaluation Procedures in Communication Disorders

Credits: 4

Focuses on research and evaluation procedures in speech-language pathology. Topics include evidence-based practice, evaluating research, an overview of models of disability across applied settings, assessment and evaluation processes including interviewing, understanding tool psychometrics, and using norm-based referenced tools, criterion-based measurements, and dynamic assessment.

Prerequisite: Acceptance to the University of Wyoming's graduate SLP program.

SPPA5280 - Early Language Intervention

Credits: 3

Principles and techniques of language assessment and intervention for preschoolers, infants, and low-functioning individuals.

Prerequisite: SPPA 3160.

SPPA5220 - Voice Disorders

Credits: 3

Study of the etiology, assessment, and remediation of voice disorders. Includes a discussion of preventing disorders, maintaining a healthy voice, and normal changes in voice. Presentation of rehabilitation options for laryngectomized speaker.

Prerequisite: SPPA 3265.

SPPA5130 - Adult Neurogenic Disorders

Credits: 4

This course will cover acquired neurogenic communication disorders. Topics include language disorders (focusing on Aphasia) as well as cognitive-communication disorders (i. e. , traumatic brain injury, Right Hemisphere Dysfunction, and Neurocognitive disorder). This graduate course provides 1) a basic understanding of the neuroanatomical/physiological basis and 2) instruction regarding evaluation and treatment methods.

Prerequisite: SPPA 4380.

SPPA5330 - School-Age Language Intervention

Credits: 3

Principles and techniques of language assessment and intervention for school-age children and adolescents with particular attention to service delivery issues in schools.

Prerequisite: SPPA 3160.

SPPA5120 - Stuttering

Credits: 2

Theories of etiology, symptoms of the problem, diagnosis and treatment of childhood non-fluency and various approaches to therapy for the adult stutterer.

Prerequisite: graduate level standing.

SPPA5110 - Craniofacial Disorders

Credits: 2

Studies communication disorders related to cleft lip and palate disorders and associated craniofacial sequences and syndromes. Assessment and treatment of these communication disorders is presented in the context of interdisciplinary management. Surgical and nonsurgical treatment procedures employed to manage speech problems associated with velopharyngeal insufficiency are included.

Prerequisite: SPPA 3265, SPPA 2210.

SPPA5230 - Dysphagia

Credits: 3

Provides information regarding the anatomy and physiology of the adult and pediatric swallowing mechanisms, the diagnosis of dysphagia and feeding disorders using clinical and instrumental approaches, the medical diagnoses for which dysphagia is a common symptom, and methods that are commonly used to treat dysphagia and feeding disorders.

Prerequisite: SPPA 3265.

SPPA5100 - Motor Speech Disorders

Credits: 2

Evaluation and treatment of motor speech disorders. Topics will include characteristics of disordered speech associated with neurological impairments/diseases; methods for evaluating communication disorders associated with dysarthria, apraxia of speech, and other neurological and acquired conditions, and treatment approaches.

Prerequisite: SPPA 4380 or a course covering neuroanatomy/physiology of normal and disordered communication.

SPPA5210 - Augmentative and Alternative Communication

Credits: 2

Selection, design, and application of augmentive and alternative communication (AAC) systems to enhance communication, education, and quality of life for individuals with development and acquired disorders.

SPPA5380 - Professional Practice

Credits: 3

Max Credit (Max. 9)

Emphasizes issues related to professional practice of speech-language pathology, such as professional ethics, scope of practice, professional standards, and techniques of counseling clients. This course applies to speech-language pathologists working in either the medical or school setting. This course prepares the speech-language pathologist to collaborate with other professional in the workplace through discussion and activities of inter-professional practice and education (IPP and IPE).

Prerequisite: graduate standing in Communication Disorders and consent of instructor.

SPPA5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

SPPA5961 - Graduate Projects

Credits: 1-4

Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have departmental approval.

26 Hours of Graduate Clinical Practicum Include:

SPPA5030 - Clinical Practicum

Credits: 1-4

Max Credit (Max. 12)

Supervised clinical experience with speech, language, and hearing disordered children and adults under supervision of University of Wyoming Speech and Hearing Clinic faculty.

Prerequisite: matriculating graduate students only.
(14 credits total required)

SPPA5270 - Educational Practicum

Credits: 1-12
Max Credit (Max. 12)

Under supervision, the student is given increased responsibility for performing speech and language assessments, hearing screenings, and treatment of children in an educational setting. Students will relate to other educational personnel and counsel teachers and families about communication disorders.

Prerequisite: completion of at least two semesters (including summer) of approved graduate coursework and clinical practicum (SPPA 5030); and approval of faculty.
(6 credits total required)

SPPA5290 - Medical Practicum

Credits: 1-12
Max Credit (Max. 12)

Under supervision, the student is given increased responsibility for performing speech and language assessments, hearing screenings and treatment of children and adults in a medical setting. Students relate to other medical and clinical personnel and counsel professionals and families about communication disorders.

Prerequisite: Completion of at least two semesters (including summer) of approved graduate coursework and clinical practicum; and approval of faculty.
(6 credits total required)

Note:

Note: Specific degree requirements (course name and content), may change based on departmental decisions or requirement changes from accreditation and licensure bodies.

Additional Information

Admissions to the M.S. Degree Program in Speech-Language Pathology

Admission to the master's program in speech-language pathology is made on a competitive basis. We accept students to start in the fall of each year. For application, admission, and a description of the program, see the division website. Applicants must have completed a bachelor's degree or equivalent from a regionally accredited institution. All applicants should have at least a 3.000 cumulative GPA (scale of 4.000).

Additional required undergraduate coursework and discipline specific coursework.

Admitted students must also have taken required coursework in the 4 Foundational Areas (Biological Sciences, Physical Sciences, Social/Behavioral Sciences, and Statistics). For the UW M.S. SLP program, admitted students must also have completed coursework in phonetics; speech & language development; anatomy and physiology of speech, hearing, and swallowing; audiology; neural basis of communication; and aural rehabilitation. Coursework in each of these areas is needed in order to meet the requirements of the Council for Clinical Certification in Audiology and Speech-Language-Pathology (CFCC) certification requirements and/or in order to graduate from the UW MS SLP program. Students missing any of these courses must complete requirements in order to be considered eligible for the M.S. in SLP degree.

Application Procedure

Applications to our master's program must be made through an electronic, centralized application service: the Communication Sciences and Disorders Centralized Application Service for Clinical Education in Audiology and Speech Language Pathology (CSDCAS). Instructions and application procedures are available at <https://csdcas.liasoncas.org/>. Check the division web site in September for instructions.

Applicants will be notified of the division's decision on acceptance, alternate, or denial by mid-March. Applicants must respond to the offer by April 15. Alternates may be offered positions that become available after April 15.

International Students

For all International students, the university must determine whether financial resources are sufficient for study here.

International students from non-English speaking countries need a TOEFL score of 600 to show English proficiency. Additional sources of evidence may be requested by the division to make a final decision. English proficiency must be sufficient for success in graduate school and certification as a speech-language pathologist in the United States, even if the applicant intends to return to the native country.

Conditional Status

An applicant may be admitted conditionally if he or she does not meet the GPA requirements for full admission, and the Division determines that there are sufficient areas of strength for success in graduate school in comparison to other applicants. Conditions will be placed on admission such as graduate grade point average, performance criteria, or completion of certain courses.

Requirements Following Offer of Admission

Students who accept an offer of admission to the program must then provide numerous pieces of required documentation for admission to UW and program, and will also need to be responsive to emails from the Division and faculty throughout onboarding.

Criminal Background Check

Admission to the graduate program in speech-language pathology is contingent upon passing a criminal background check. Each student recommended for admission into program will be required to obtain, pay, and pass a criminal background check. Additional background checks are routinely required by schools, hospitals, and other agencies that participate in the clinical education of our students. The results of the background checks may determine admission and/or ability to complete the UW M.S. SLP program. Please see the College of Health Sciences web site for the policy and procedures document.

Vaccination Requirements

Students' admission to our program is contingent on verification of vaccinations, including COVID-19 vaccination. Other medical information (TB test) will also be requested. Admitted students can request a COVID-19 vaccination exemption from the University, but keep in mind that external clinical placements have their own processes and are not bound to accept University of Wyoming determinations. Students who are not vaccinated may be at risk for extended programs of study and/or inability to complete the degree by completing required and approved externships.

Graduate Student Outcome Data

As of September 2021, 98.04% of MS SLP students completed the program "on-time" over the last three years, 100% obtained employment, and reported Praxis Exam pass rate was 100%.

Program Specific Graduate Assistantships

Financial help for graduate students is available each year through the department with assistantships and other funding. Typically, graduate assistantships include one-half tuition support and a monthly stipend. These assistantships require the student to spend 10 hours per week assisting faculty members in teaching and research. Graduate Assistantships and scholarship awards are competitive and based on past academic performance, evidence of professional promise, and letters of recommendation.

Differential Tuition

The graduate program in speech-language pathology has a differential tuition rate. See the Division website and/or fee book for details.

WWAMI Medical Education

The WWAMI Medical Education Program is Wyoming's medical school. Our students are admitted into the University of Washington School of Medicine, complete their foundation phase in Laramie at UW, and finish their medical education in the WWAMI region.

Required Courses

HM6710 - Fund. Medical Sci. & Research

Credits: 1
Max Credit 9

Comprehensive introduction to foundational basic science and research concepts in medicine. Topics covered include

molecular and cell biology; human physiology, genetics and biochemistry; community health and disease; clinical epidemiology, research study design and data analysis. Incorporates fundamental principles of anatomy, pathology, and pharmacology, and medicine in society.

Restricted Restricted to WWAMI medical students

HM6603 - Clinical Studies

Credits: 2

Instruction in communication skills, interviewing techniques, physical examination, documentation and clinical reasoning. The course will include hospital based patient encounters and developing comfort and introduction to the physical role.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6720 - Infection & Immunity

Credits: 1

Max Credit 7

Comprehensive introduction to the fundamentals of the immune system; microbiology; infectious diseases; inflammation and repair. Topics covered include the pathogenesis and immunity of infectious disease, immunodeficiencies, hypersensitivity, autoimmunity, and the basis of immunologic diagnostics. Integrates relevant principles of anatomy, pathology, and pharmacology and medicine in society.

Restricted Restricted to WWAMI medical students

HM6730 - Cancer, Hormones & Blood1

Credits: 1

Max Credit 7

Comprehensive introduction to the fundamentals of endocrinology, hematology, and oncology. Topics covered include endocrine regulation of metabolism; normal physiology and pathophysiologic mechanisms responsible for clinically important endocrine disorders; disturbances in red cell, white cell and platelet production; abnormalities of hemostasis; and malignant neoplasia. Integrates relevant principles of anatomy, pathology and pharmacology, and medicine in society.

Restricted Restricted to WWAMI medical students
(7 credits required)

HM6602 - Introductory Primary and Continuity Care Clerkship

Credits: 2

Introduces medical students to continuity of care by working with practicing physicians. The course demonstrates how to work with an individual to help them achieve optimal health, and includes topics in primary and preventative care, geriatrics, rehabilitation, palliative care, behavioral health and pain management.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

- HM 6740 (5 credits required)

HM6750 - Cardiovascular System

Credits: 5

Max Credit 5

Provides an interdisciplinary approach to cardiovascular medicine, including anatomy, physiology, radiology, pathology, medicine, and surgery. Topics include thoracic anatomy, cardiac electrophysiology, cardiac muscle mechanics, myocardial infarction, and cardiac repair.

Restricted Restricted to WWAMI medical students.

HM6755 - Medicine, Health, & Society 1

Credits: 1

Max Credit 1

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Restricted WWAMI medical students only.

HM6760 - Respiration and Regulation

Credits: 6

Max Credit 6

Provides an interdisciplinary approach to respiratory and renal-urinary medicine, including anatomy, physiology, radiology, pathology, medicine, and surgery. Topics include ventilatory mechanics, gas exchange, renal function, and common renal & pulmonary-vascular diseases.

Restricted Restricted to WWAMI medical students.

HM6770 - Head, Neck, & Gut

Credits: 5

Max Credit 5

Integrates discussions of head/neck anatomy, metabolism, and gastrointestinal/liver physiology including physiology and pathophysiology of digestion and hepatic function. Relevant anatomy, pathology, and pharmacology of the gastrointestinal systems will be covered.

Restricted Restricted to WWAMI medical students.

HM6775 - Medicine, Health, & Society 2

Credits: 3

Max Credit 3

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Restricted WWAMI medical students only.

HM6800 - Mind, Brain, Behavior

Credits: 9

Explains the foundational principles of the organization and function of the head, neck, and central nervous system with a focus on clinical application of this knowledge to systematically approach the differential diagnosis and management of major neurologic, psychiatric, and behavioral disorders. Covers current therapeutic approaches to disease including pharmacological, behavioral, surgical, and other therapies.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6900 - Life Cycles and Reproduction

Credits: 5

Covers normal and abnormal human development reproductive functions including formation and maturation of ova and sperm, menstruation, normal pregnancy, and labor and delivery. Provides information concerning infertility, family planning techniques, urinary disorders, and reproductive aging and demography of human population. Includes relevant fundamental scientific principles in pelvic anatomy, pathology, histology, imaging, and pharmacology.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

Total Hrs. 70

Certificate

American Sign Language Studies Certificate

Gain basic foundational skills in American Sign Language (ASL), understand sociocultural aspects of Deaf communities, teach other students the basics of ASL.

The American Sign Language Studies (ASL Studies) certificate provides a basic or beginning understanding of ASL and an introduction to Deaf sociocultural issues. The ASL Studies certificate may be helpful to anyone in the health and education fields in learning to communicate with and understand individuals who are Deaf. The certificate is a nominal recognition for students who wish to pursue more education in the fields of speech-language pathology, sign language interpreter, teacher of the deaf, preschool and K-12 education, audiology, nursing, counseling and other areas. The ASL Studies Certificate is not designed or adequate to meet educational requirements for any specific professional license or certification. The ASL Studies certificate from UW is a nominal recognition of basic or beginning ASL skills and Deaf

culture. It does not prepare or entitle a student or recipient for any certification or licensure from any state or national associates, agencies or governmental bodies. For more information on the ASL Studies learning objectives, see the website: <http://www.uwyo.edu/comdis/american-sign-language/index.html>.

ASL Studies Certificate Requirements:

Students must have earned a grade of A for all three language courses (SPPA 2110, SPPA 2120, and SPPA 4130) in order to be eligible for the certificate. ASL coursework needs to have been completed within the last 5 years in order to pursue the ASL Studies Certificate, exceptions can be granted if the student demonstrated adequate skills during a structured interview with a UW ASL instructor.

Course sequence for the certificate, 16 credits total:

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

SPPA4070 - Deaf Studies

Credits: 3

Studies deaf culture and deaf history in the United States. Culture topics will include deaf community dynamics, humor, behavior, emotional and social interaction, besides issues involving deaf children as a linguistic minority. History will be discussed from the 1700s to the present in the U. S.

USP 2003-2014 Code U3CS,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: SPPA 2110.

SPPA4130 - Advanced ASL

Credits: 4

Third level of ASL comprehension and expression. Addresses increased fluency in ASL; register variation for different conversational participants; and specialized vocabulary, including sexuality and religion. Translation from English to ASL is addressed.

Prerequisite: SPPA 2120.

SPPA4140 - Undergraduate Teaching Assistant

Credits: 1

Max Credit (Max. 2)

Students assist instructor in major courses that they have successfully completed, including assisting with lab or practice sessions, providing individual student assistance, and participating in other student outreach activities on behalf of the Division. One semester credit hour requires 4 hours of work per week.

Prerequisite: consent of instructor/department and junior standing.

Community and Public Health

This certificate covers foundational public health concepts, use of epidemiological data, designing evidence-based projects and community collaborations, and building public, political and financial support for public health.

Required Courses

Students must earn a B or better (an A or a B) in all four classes to earn the certificate.

HLED5021 - Creating Conditions for Community Health

Credits: 3

In this course we will analyze and discuss how local, national and international environments impact individual and community health and how to improve health through changes in policy, economic, social, cultural and physical environments. The focus is primarily in the U. S. , though students can choose to focus assignments in other contexts.

Dual Listed HLED 4021.

Prerequisite: graduate standing.

HLED5022 - Unlocking the Potential of Public Health

Credits: 3

Introduces core concepts in community and public health. Using practical exercises and problem based learning, students will investigate how social structures shape our health and how to alter them to improve community.

Prerequisite: Graduate standing or permission of the instructor.

HLED5023 - Using Epidemiology to Build Health

Credits: 3

Focusing on epidemiological questions generated by the student, this course introduces concepts essential to understanding epidemiology, the foundational science of public health. It is focused on using existing epidemiologic data to inform your work.

Prerequisite: Graduate standing or permission from the instructor.

HLED5024 - Increasing Support for PH

Credits: 3

Students learn how to effectively build support for improving the health of their communities. Support includes funding, coalition and partnership building, effective communications with the public and policy makers, and participatory project planning with community stakeholders. In addition, this course will cover how to establish project evaluation frameworks.

Prerequisite: Graduate standing or permission from instructor.

Students may either earn a 12-credit *University Graduate Certificate in Community & Public Health* or a 15-credit *University Graduate Certificate in Community & Public Health, Specializing in [Specialization Name]*.

Approved specialization courses include:

HLED5020 - Food, Health, and Justice

Credits: 3

Maps ways our dominant national and global food systems affect health and equity in health, largely though not only negatively. Students will critically assess practiced and potential strategies for creating alternative food systems that support health and equity, particularly at the U. S. community level.

Dual Listed HLED 4020.

Prerequisite: graduate standing or permission of the instructor.

HLED5026 - Rural Community Health

Credits: 3

Max Credit 3

This course invites students to apply principles of community and public health in rural and frontier United States settings. It outlines challenges and assets that a rural or frontier setting brings to improving community health. It is designed to assist students to bridge gaps that rural settings face and create a plan for improvement within their chosen community or state.

Prerequisite: Graduate standing or permission from instructor.

HLED5027 - Emergency Prep and Response

Credits: 3

Max Credit 3

This class provides an overview of emergency management. It teaches students skills that will help them prepare themselves, their families, and their community for natural and human made disasters. The class emphasis will be on active learning via role-playing assignments, communication planning, and personal preparedness plans.

Prerequisite: HLED 3020, OR Senior Standing, OR permission of the instructor

Additional specialization courses may be approved by Community & Public Health faculty.

Endorsement

Adapted Physical Education K-12 Endorsement

In addition to completing the Bachelor of Science degree in physical education teacher education from the University of Wyoming, students can qualify for K-12 endorsements in adapted physical education and/or health education by completing the following course requirements:

Course Requirements

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

KIN4055 - Adapted Physical Education

Credits: 2

Presents skills necessary to plan, implement and evaluate individualized physical education programs in the least restrictive environment. Acquaints students with current laws, characteristics, assessment instruments and nationally validated programs in physical education for the disabled child.

When Offered (Offered spring semester)

Former Course Number [PEPR 4055]

Prerequisite: KIN 3012.

KIN4065 - Resources in Adapted Physical Education

Credits: 2-3

Max Credit (Max. 3)

Offers flexible credit for students interested in pursuing intensive study of resources for adapted physical education. Required for state endorsement in Adapted Physical Education.

Former Course Number [PEPR 4065]

Prerequisite: grade of C or better in KIN 4055.

KIN4075 - Assessment in Adapted Physical Education

Credits: 3

Designed to provide an overview of the assessment process in adapted physical education. Developmentally and disability appropriate psychomotor assessments and procedures for administering them are examined.

Prerequisite: grade of C or better in KIN 4055 and KIN 4080.

Athletic Coaching Endorsement/Permit

Students who wish to qualify for an athletic coaching permit to coach in Wyoming public schools must complete four courses. Note: Endorsements are for current teachers. Permits are for those who are not a licensed educator.

Course Requirements

- CPR Certification

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

- Foundations of Coaching KIN 4090 /KIN 5090 Credits: 3
- Students completing the Physical Education Teacher Education undergraduate degree are exempt from the KIN 4090/5090 requirement.
- Coaching in... Experience (completed at a community college or complete a coaching experience in a specific sport for one season or more with a letter written by your supervising coach to submit with your PTSEB endorsement application form).

School Health Education K-12 Endorsement (For non-Physical Education Teacher Education Majors)

In addition to completing a bachelor's degree in teaching at the secondary level from an approved university program, 21 credit hours are required to be endorsed to teach health education K-12 in the public schools of Wyoming.

Course Requirements

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

- CPR Certification

HLED4120 - Assessment in Health

Credits: 3

Provide students with an understanding of components of a balanced assessment system in school health education. Students review the basics of standards-based health education and explore innovations in assessment that provide teachers and students with a more complete and authentic picture of student learning.

Prerequisite: Minimum 2.500 GPA; concurrent enrollment in KIN 4099 or certified K-12 teacher.

HLED4025 - Teaching Sensitive Issues In Human Sexuality

Credits: 3

Prepares educators and other helping professionals whose work involves promoting healthy sexuality in children, young people, and adults. It also provides detailed investigation into important aspects of teaching sensitive issues related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 5025.

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4110 - Teaching Health in Schools K-12

Credits: 3

Presented appropriate knowledge and skills to become health literate. Explore ways to teach health skills and knowledge and use assessment strategies for health education.

When Offered (Offered fall semester)

Prerequisite: Grade C or better in KIN 3015 or certified K-12 teacher.

HLED4130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 5130.

When Offered (Offered fall semester)

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

HLED4030 - Teaching About Alcohol and Substance Abuse

Credits: 3

Introduces students to the issues of societal and personal attitudes towards alcohol and substance use, misuse and abuse. Prepares an educator to teach about alcohol and substance abuse in the classroom and out of the school setting.

Prerequisite: Sophomore standing; minimum 2.750 GPA; or permission of instructor.

School Health Education K-12 Endorsement (For Physical Education Teacher Education Majors)

In addition to completing the Bachelor of Science degree in physical education teacher education from the University of Wyoming, students can qualify for K-12 endorsements in adapted physical education and/or health education by completing the following course requirements:

Course Requirements

HLED4025 - Teaching Sensitive Issues In Human Sexuality

Credits: 3

Prepares educators and other helping professionals whose work involves promoting healthy sexuality in children, young people, and adults. It also provides detailed investigation into important aspects of teaching sensitive issues

related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 5025.

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4110 - Teaching Health in Schools K-12

Credits: 3

Presented appropriate knowledge and skills to become health literate. Explore ways to teach health skills and knowledge and use assessment strategies for health education.

When Offered (Offered fall semester)

Prerequisite: Grade C or better in KIN 3015 or certified K-12 teacher.

HLED4120 - Assessment in Health

Credits: 3

Provide students with an understanding of components of a balanced assessment system in school health education. Students review the basics of standards-based health education and explore innovations in assessment that provide teachers and students with a more complete and authentic picture of student learning.

Prerequisite: Minimum 2.500 GPA; concurrent enrollment in KIN 4099 or certified K-12 teacher.

HLED4130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 5130.

When Offered (Offered fall semester)

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

HLED4030 - Teaching About Alcohol and Substance Abuse

Credits: 3

Introduces students to the issues of societal and personal attitudes towards alcohol and substance use, misuse and abuse. Prepares an educator to teach about alcohol and substance abuse in the classroom and out of the school setting.

Prerequisite: Sophomore standing; minimum 2.750 GPA; or permission of instructor.

Preprofessional Program

Preprofessional Pharmacy Program (PPCY)

Students will not receive a degree in prepharmacy. The prepharmacy curriculum guides students as they fulfill requirements for admission to the professional pharmacy degree program.

Required Curriculum

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get

duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

- General Electives (6 credits total)

USP Requirement

The USP-COM 3 requirement is fulfilled in the professional doctoral program.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Interdisciplinary Programs

Biomedical Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website <http://www.uwyo.edu/biomedphd/>
Email: bms@uwyo.edu

Program Director: Sreejayan Nair, Ph.D.

Degree Offered

Ph.D. in Biomedical Sciences

Biomedical sciences is the study of human biological processes; the complex interactions between physiological, genetic and environmental factors that influence disease and health. It spans the spectrum from fundamental discovery to innovation and application.

Areas of focus may include but not limited to cardiac health, nutrition, reproductive biology, toxicology, diagnostic & imaging and medical engineering.

The PhD program in biomedical sciences is designed to position graduates for long-term competitive success in the rapidly changing and multifaceted health-related arena in the 21st century. It is a comprehensive, interdisciplinary program, making connections between various disciplines to gain new insights, discover and apply new knowledge, and promote self-directed, life-long learning.

Biomedical Sciences is a research & discovery focused program balancing depth and breadth of content knowledge with "enabling" skills including problem solving, innovation, entrepreneurship, communication and leadership.

Program Specific Admission Requirements

1. Minimum requirements. Applicants who do not meet the minimum requirements may be conditionally accepted at the discretion of the BMS Admission Committee. Please submit the application packet comprising the following documents for pre-admission screening:

a. Faculty sponsor. Contact potential biomedical sciences graduate program faculty sponsor in your area of interest prior to submitting an application. NOTE: a letter indicating the sponsorship by a faculty is strongly recommended as the program does not have sufficient number of graduate assistantships to support all students.

b. Official academic transcripts. Successful completion of a bachelor's degree from an accredited institution with one or more semesters of biology, physics, anatomy, physiology, chemistry, biochemistry/molecular biology, math are recommended. All applicants should have at least a 3.0 cumulative GPA (scale of 4.0). While a master's degree is not required for admissions into the biomedical sciences Ph.D. program, a master's degree with a strong background in the research area of focus is a plus.

c. TOEFL/IELTS/Duolingo: The minimum acceptable scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries may be exempt from providing

additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/ cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency, until further notice.

d. GRE: A composite minimum score of 291 on the verbal and quantitative sections of the GRE is recommended. The GRE may be waived at the discretion of the admission committee if the applicant already possesses a master's degree, and/or documented research accomplishment in the chosen discipline.

e. Three letters of recommendation.

f. Statement of research interests and career objectives. A letter stating research & career interests and goals, prior research experience and outcomes, reasons for interest in BMS program. Include your contact information in the letter.

g. Current professional resume

2. Application Process. The BMS admissions committee reviews the completed application.

a. Contact faculty in your area of interest and obtain their endorsement. Faculty may choose to interview the candidate on-campus or via zoom.

b. Submit your application materials (pdf files of cover letter/statement of purpose, letter of sponsorship from the faculty, three letters of reference, transcripts, TOEFL/GRE scores to the admissions office via the University's admission portal.

c. To ensure full application review for fall semester admission, applications should be received by **February 15**.

d. Review by BMS Admissions Committee.

e. Forward application packet with BMS recommendation to the faculty and host department.

f. Notification of decision to applicant by **May 1**.

Program of Study

Rationale: The program of study is designed according to student learning goals and research opportunities. It blends depth and breadth of preparation by providing broad core requirements with electives promoting specialization in a "parent" discipline. This is recognized on program documentation by a Doctorate in Biomedical Sciences/"specialization" area. For example, Doctorate in Biomedical Sciences/Reproductive Biology.

Student Learning Outcomes: The BMS program provides unique array of formal courses and informal discovery experiences focused on ensuring aptitudes, behaviors, and skills necessary for leadership and competitive success in the biomedical science arena.

Although the foundation enabling innovative, independent thinking and knowledge discovery is deep discipline knowledge, the BMS program is also designed to promote student competency in information assessment, synthesis and integration, communication and translation to the broader community, teamwork, leadership, and project management.

The BMS program trains graduates to be competent, skilled experimentalists, problem solvers, critical and independent thinkers, expert in their field, with both depth and breadth of knowledge.

In addition, the program aims to instill characteristics that are essential to long-term professional success, preparing scientists who are effective and dedicated mentors and teachers, organized administrators, exemplars of high ethical standards, and effective collaborators.

Upon completion of the program, graduates will demonstrate:

- Independent, critical thinking skills
- Ability to identify appropriate biographical resources
- Knowledge of recent advances in discipline and related areas
- Understanding of a broad spectrum of research methodologies and their applications
- Ability to critically analyze research findings
- Ability to design and independently execute research
- Ability to use appropriate information technology to record, manage, and disseminate information
- Understanding of issues related to researcher and subject rights
- Motivation and aptitude needed to acquire knowledge
- Communication skills that are appropriate for a range of audiences and purposes
- Ability to construct and articulate arguments to a wide range of audiences
- Ability to effectively support the acquisition of knowledge by others when teaching or mentoring students
- Willingness to assume responsibility for their work
- Ability to design and teach undergraduate or graduate courses
- Ability to publish single/first authored papers in peer-reviewed journals.

Program in Ecology, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/pie/>
Email: ecology@uwyo.edu

Program Director: Melanie Murphy, Ph.D.

Degree Offered

Ph.D. in Ecology

The Program in Ecology prepares doctoral students to lead the discipline of ecology during the coming decades. The program is grounded in the natural history of organisms in their environment, but incorporates tools and perspectives from across the biological, physical, mathematical, computational, and earth sciences. Students develop conceptual, historical, and philosophical perspectives spanning the entire range of subdisciplines in ecology, while receiving advanced training in the subdiscipline of their individual interest.

The program fosters long-term career development by exploring the linkages of ecology with other disciplines, and by scanning the ecological horizon for emerging questions, concepts, and approaches that will shape the field in years to come.

Faculty members from 11 departments and 3 colleges participate in the Program in Ecology. Their interests span the full range of topics covered in the field of ecology, and students in the program reflect this diversity.

Program Specific Admission Requirements

The Program in Ecology (PiE) is an interdisciplinary graduate program leading to the Doctor of Philosophy degree in Ecology. Students and faculty from multiple departments and colleges at the University of Wyoming participate in the Program. Graduate students admitted to the Program will have a home department, which will typically be the home department of the respective committee chair or co-chair. Those interested in graduate study in this program, are encouraged to contact individual faculty members in the potential student's area of interest (http://www.uwyo.edu/pie/who_we_are/faculty.html) and the Program in Ecology (307-766-4128; ecology@uwyo.edu) for more information and guidance regarding applying.

In order to apply: 1) **Contact:** Identify a faculty advisor (all PiE students **must** be sponsored by a faculty advisor (http://www.uwyo.edu/pie/who_we_are/faculty.html)). These contacts are generally made in the fall the year before submission, but successful contacts may be made later. 2) **Admission to home department:** Apply to the University of Wyoming via the online application system (<http://www.uwyo.edu/admissions/apply.html>): letter of intent, CV, transcripts, and three letters of recommendation. For department, please select the department of the potential advisor. A minimum of three letters of recommendation are required and up to two additional letters may be submitted. A suggested deadline for application is January 31 to be considered for fall admission, but applications will be continued to be considered. A minimum of a 3.0 undergraduate cumulative GPA is required for admission or MS degree. International applicants, who are not native English-speakers, must submit TOEFL (recommended minimum 525) or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements. 3) **Admission to PiE:** Submit a letter of interest to the Program in Ecology (ecology@uwyo.edu), stating explicitly why you would wish to be considered for PiE and identifying the faculty advisor immediately after completing your online application. Admission to PiE requires admission is predicated on admission to home department. All applications to the Program will be reviewed by the Graduate Affairs Committee, which has authority on admissions. Students applying to the Program who lack a Master's degree must show exceptional promise and commitment (e.g., through undergraduate or post-graduate research experiences, peer-reviewed publications, and/or success in competing for research fellowships). Such students are encouraged to consult with their prospective advisor on whether to apply directly to PiE or to Master's programs in individual home departments of PiE faculty.

Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the Program. Students who wish to transfer into the Program from department-based doctoral programs must submit a formal application and must satisfy all the admission requirements specified above. Such application will consist of copies of all the application materials originally submitted to the program in which the student is currently enrolled, as well as a letter of recommendation from their prospective PiE advisor. In addition, they must submit a letter stating their reasons for seeking this transfer. All applications will be reviewed by the Graduate Affairs Committee. In addition, the following apply to transfer students:

- Students enrolled in departmental programs who have not yet taken their preliminary examinations may pursue the PhD in Ecology provided they (a) appoint an Advisory Committee under Program rules before they take their preliminary examinations, and (b) fulfill the curricular requirements.
- Students who have been admitted to departmental programs, and who have already taken their preliminary examinations, may pursue the PhD in Ecology provided they (a) appoint an Advisory Committee under Program rules within one month of admission to the Program, and (b) fulfill the curricular requirements. The student's Advisory Committee has the option of requiring a new preliminary examination.

Program Specific Degree Requirements

Advisory Committee

Before the end of the second semester of study, the student should nominate a (minimum) five-member advisory committee to the Office of the Registrar. At least three members of the committee, including the committee chair (usually the student's adviser), will be members of the PiE faculty. One other member, who will serve as Graduate Faculty representative, must be from outside the home department of the major adviser, although (s)he can be a faculty member in a department that participates in the program and/or a faculty member of PiE. The committee will advise the student on his/her program of graduate study, execute and evaluate the student's preliminary examination, evaluate the student's dissertation proposal and dissertation, and conduct the student's dissertation defense.

Program of Study

All students are required to take ECOL 5100 or equivalent. This course should be taken during the first year of residency. Exceptions or substitutions of these requirements are subject to approval by the graduate affairs committee.

The program of study must include at least 6 credit hours aimed at developing a tool skill, which except for rare cases shall be in the quantitative/analytical domain (e.g., statistics, modeling, GIS, remote sensing, bioinformatics). Courses relating to research tools should be taken early in the student's residency to ensure that they can be used in thesis research and advanced studies. Specific coursework and tool-skill development for the student's program of study will be developed in consultation with and subject to approval by the student's advisory committee.

Admission to Candidacy

Admission to candidacy for the Ph.D. requires two steps: 1) providing evidence that the student is prepared to identify a research question, design an approach for investigating that question, and a plan for executing the approach, all in the format of an NSF-style research proposal, and 2) illustrating adequate proficiency in the subject matter of ecology through a process involving both written and oral exams.

Proposal

Students must submit a NSF-style proposal to their committee outlining their project, typically by the end of the fourth semester. Each committee member will provide feedback to the student on the proposed research and indicate approval of the proposal or request revision. The proposal must be approved by all committee members prior to starting the preliminary exams.

While this proposal should be a plan for actual dissertation research, unforeseen circumstances may require altering the student's dissertation work after the proposal has been approved by the committee. In the case of a major alteration, the student should reformulate a research plan and submit it to the committee in writing for committee approval.

Preliminary Exam

Passing the preliminary exam is the official admission to candidacy.

Written Portion of the Preliminary Exam. The student will take the written exam portion of the preliminary exam no fewer than two weeks following approval of the research proposal. The goal of this exam is to test breadth of knowledge in ecology. The design of this exam will be coordinated by the graduate committee under the leadership of the adviser. Each written exam will cover the following topics:

Ecological topics ranging from organismal/evolutionary to ecosystem-level perspectives, integrating concepts and perspectives from across the discipline, over a wide range of spatial and temporal scales.

The philosophical and historical development of ecology.

The conceptual background of the student's area of specialization.

The exam will consist of four to six questions developed collectively by the committee and organized by the student's major professor. The exam will be open book; however, the answers will be solely the work of the student. Answers should be fully cited and collectively should be no longer than 30 pages double-spaced exclusive of references cited. Students will have one full week (seven days) to complete the exam. Committee members will indicate pass/fail within one week following completion of written exams. Four of five passing votes are required.

Oral Portion of the Preliminary Exam. No sooner than two weeks after successfully passing the written exam, the student may proceed to an oral exam administered by his/her graduate committee. Oral exams center around three goals from which questions will be derived:

To verify that the student is prepared, conceptually and methodologically, to carry out successful dissertation research.

To evaluate the student's ability to conceptualize specific questions in a broad, integrative context.

To evaluate the student's ability to think spontaneously and creatively and to articulate responses about unexpected or novel questions.

The advisory committee will discuss and organize specific questions based on these goals in a short session at the beginning of the exam period before admitting the student to the examination room and starting the exam. Following the exam each committee member will provide non-binding paper votes of pass/ fail for each of the three goals of the oral exam. Following discussion of the student's performance, committee members will each assign a grade of pass/fail for the overall exam. Four of five committee members must vote for passing the overall oral exam.

Students whose performance is unsatisfactory will be given one opportunity for retaking the oral examination. This retake will occur no later than the academic-year semester following the first examination.

Public Seminars

Students are required to give two oral presentations on their research. The purposes of these presentations are to provide the student with practice in oral presentations and to keep the PiE community informed of the student's progress. The first will describe the student's dissertation research proposal. This presentation will be given before the student submits his/her thesis proposal. The second presentation will summarize the student's completed dissertation research, and will normally be given the same semester as the student's dissertation defense. Under extraordinary circumstances (subject to approval by the Graduate Affairs Committee), this presentation may be given at an earlier time. These presentations must be open to the public, and may comprise part of a departmental or Program in Ecology seminar or brown-bag series.

Hydrologic Sciences (WRESE), Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/wrese>
E-mail: wrese@uwyo.edu

Program Director: Andrew D. Parsekian, Ph.D.

Degree Offered

Ph.D. in Hydrologic Sciences

The Water Resources/Environmental Science and Engineering (WRESE) program facilitates Ph.D. level course offerings in water-related disciplines, and coordinates offerings of these courses. Furthermore, the WRESE program serves as a focal-point for water-related graduate research and education at the University of Wyoming.

This interdisciplinary degree program encourages cross-department and inter-college coordination for research and education in hydrology and water resources.

The WRESE Program grants a PhD in Hydrological Sciences.

Program Specific Admission Requirements

Ph.D. in Hydrologic Sciences

The WRESE Program only admits students seeking a doctoral degree.

Those interested in graduate study in this program, are encouraged to contact the WRESE program (wrese@uwyo.edu) for more information and guidance regarding applying. In order to apply, please submit an application to the program via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>). Prospective students applying to the WRESE program must satisfy the minimum criteria for admission of their advisor's home department (i.e., number of reference letters required; minimum GRE scores, if requested; other supporting documents, if requested; etc.). Similarly, applicants should adhere to the submission deadline indicated by their advisor's home department.

Minimum criteria for admission to the WRESE Program are:

- Minimum undergraduate GPA of 3.000
- Agreement by a faculty member affiliated with the WRESE program to sponsor the student
- Admission to a home department at the University of Wyoming

Typically, students admitted into the program will have previously obtained a Masters-level degree. Under certain circumstance, students may be admitted directly after an undergraduate degree if they show exceptional promise and commitment. Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the WRESE program.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Program Specific Degree Requirements

Students in the WRESE Program are expected to create their graduate committee within the first year of study. The committee should be composed of three faculty members within the PhD program in Hydrology and 2 should be from the student's departmental home. A committee shall be composed of no fewer than 5 members, of which only one may be from outside the University. Additional committee members may be added to support the student's learning and objectives on the discretion of the committee and WRESE Program chair.

Program of Study

Students enrolled in the Program should complete their Program of Study within the first 3 semesters. The student shall work with his/her research advisor and committee to determine the appropriate course of study relative to the student's research agenda. Students are expected to complete a rigorous course of study in quantitative hydrological sciences. Minimum requirements for the PhD include:

- Coursework credits: 42 hours (26 can be from an MS)
- Total credits: 72 hours
- Math expectations: students are encouraged to pursue a high level of math proficiency, with typical students progressing through differential equations. Individual math expectations will be determined by the committee and program chair.

A dissertation proposal should be approved by the end of the 4th semester. Students shall submit their proposal to their committee for review two weeks prior to a holding a committee meeting where the student (a) presents their proposal in a public presentation and (b) defends the proposal to the committee in a closed meeting. After the meeting, the student shall amend the proposal as required by the committee within a timely manner.

Admission to Candidacy / Preliminary Examination

Advance to candidacy is attained by passing preliminary exams within 3 years of initiating a degree program. Students should complete their preliminary exams as close to the end of their primary coursework as possible. Preliminary exams consist of two parts. The first part is a written examination wherein committee members shall submit written questions to the student. Once the student has passed their written exams, they will be administered an oral examination.

The written exam shall be administered by the student's research adviser, who will coordinate the questions so as to obtain a comprehensive review of the student's knowledge of the materials the student has learned in the classroom and needs to complete his/her research topic. Written questions should cover both conceptual and theoretical underpinnings in hydrological sciences and technical questions related to the student's research area.

The written exam will consist of a series of questions as decided upon by the committee and should take no more than two weeks to complete.

Each committee member shall grade their portion of the exam as pass/fail. The student shall be viewed as passing the written exam if no more than one person grades their portion of the exam as failing.

The oral examination will be held no sooner than two weeks after the written exams, and only after the student has passed their written examinations. The oral exam should be no less than 90 minutes long and no longer than 3 hours.

Following the exam, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Dissertation

The student will prepare a dissertation and make the document available to the committee at least two weeks in advance of an oral defense of the document. The oral defense must be at least 15 weeks after the student has been advanced to candidacy. Students shall present a public defense to the university community that is expected to be approximately 45 minutes long, with a public question-and-answer period after the presentation. If the committee determines that the student has presented a suitable oral presentation of his/her research findings, a closed session meeting will be held in which the student defends their research to the committee. At the conclusion of the defense, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Other information:

Students in the WRESE Program may participate from any college, with the expectation that their program of study and dissertation will focus on quantitative issues of hydrology and water resources. The Program welcomes academic diversity, and students in WRESE have entered into the Program from a wide range of academic backgrounds and have hailed from numerous home departments, including Ecosystem Science and Management, Civil and Architectural Engineering, Botany, Zoology and Physiology, and Geology and Geophysics.

Molecular and Cellular Life Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/mcls/>
Email: mcls@uwyo.edu

Program Director: Daniel Levy, Ph.D.

Degree Offered

Ph.D. in Molecular and Cellular Life Sciences

This interdisciplinary program with more than 30 faculty participants spans a wide range of research topics, such as:

Biotechnology-bioengineering, biomaterials, pharmacology, cell biology and signaling, genetics and development, genomics, proteomics, computational biology, microbiology and infectious disease, structural biology, and biophysics.

Coursework focuses on core courses in biochemistry and molecular biology, with electives that include such diverse courses as:

Topics in Genomics, Biophysics, Microbial Physiology and Metabolism, Cell and Developmental Genetics, Mass Spectrometry and Analytical Chemistry, Biomedical Engineering, Mammalian Endocrinology, Cell Culture and Virology, Introduction to Bioinformatics, Protein Structure and Function, Microbial Genetics, Computational Biology, and Quantitative Microscopy.

Program Specific Admission Requirements

1. Applicants should apply through the online graduate application link. This process requires uploading a statement of purpose, a CV, academic transcripts, and test scores. The statement of purpose should include a brief narrative that describes the applicant's motivation to pursue graduate studies in the life sciences, relevant experiences, and specific reasons for applying to the MCLS program at the University of Wyoming. The program does not adhere to strict test score minimums, however, for international applicants minimum suggested scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS, respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries will be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency until further notice. More information for international applicants can be found on the University of Wyoming graduate admissions website. The application also requests that three reference letters be submitted in support of the candidate's application. Completed applications are due on January 1.

2. The MCLS admissions committee reviews completed applications starting in early January of each application cycle. Promising applications are selected based on research experience, grades, test scores, and reference letters. The most compelling statements of purpose convincingly describe why the applicant is interested in pursuing graduate studies in the life sciences, detailing relevant past research experience and how it has prepared the student for PhD studies. Reference letters that include specific details and anecdotes about the applicant are most useful. The committee generally looks for grades of B or better in life science and chemistry courses, although lower grades can be balanced by a sufficiently strong research background. Successful applicants will be notified of admission decisions by May 1 at the latest, although the majority of decisions will be made by March 15.

3. Following the initial reviews, selected applicants are invited for a Zoom interview. Applicants will be provided with a primary research paper that they should read in preparation for the interview.

4. Zoom interviews are conducted with at least two members of the admissions committee. Applicants are asked a variety of questions, including why they are interested in the MCLS program, how their previous research experience has prepared them for PhD studies, their perceived strengths and weaknesses as a scientist, and future career goals. The interviewers also ask questions about the research paper and more general molecular biology questions to determine if the applicants have a sufficiently strong background to succeed in the MCLS program.

5. Shortly after the interview sessions, the MCLS admissions committee discusses the results of the Zoom interviews and ranks applicants for offers of admission, conditional upon approval by the Office of Admissions.

Program Specific Degree Requirements

MCLS doctoral students must fulfill the minimum requirements outlined by the university. In addition, students must obtain a high level of proficiency in the core foundations of the molecular and cellular life sciences through required courses in biochemistry/ molecular biology, scientific literature analysis proficiency, and the MCLS cornerstone course. Because of the broad range of research interests pursued by MCLS faculty and students, considerable flexibility will be exercised regarding the specific nature of the graduate level elective courses that students may take. Students must successfully complete four eight-week rotations in MCLS laboratories of their choice during the first year. Additionally, students must pass a comprehensive assessment exam at the end of the first year. Near the end of their second year in the program, students will undertake a qualifying examination in order to be formally admitted to graduate degree candidacy. This exam will have both written and oral components and will cover areas of science that are relevant to the students' proposed research. Annual meetings with a research-specific dissertation committee will facilitate and evaluate the research progress of MCLS students beginning in the second year. Students must also attend weekly outside seminars on topics in the molecular life sciences for the durations of their studies. For more information, please see the program's Website at: <http://www.uwyo.edu/MCLS/>.

Neuroscience, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/neuroscience/>
Email: neuroscience@uwyo.edu

Program Director: Kara Pratt, Ph.D.

Degree Offered

Ph.D. in Neuroscience

The Graduate Neuroscience Program offers training leading to the Ph.D. degree in Neuroscience. The Neuroscience Program emphasizes systems and integrative approaches, and our goal is to provide the students with the necessary background to be broadly trained research neuroscientists and to carry out independent research in neuroscience. The Neuroscience Program emphasizes continuing interaction with faculty from several departments and we have a low student to faculty ratio. Advisors spend considerable time supervising and training each doctoral student. The educational philosophy of the Neuroscience Program is to encourage a problem-oriented rather than a strict discipline-bound approach to research. You will emerge from this program with the scientific and experimental training needed to comprehensively address a very wide range of research questions using a variety of techniques and analytic tools.

The Graduate Neuroscience Program is designed to enable graduate students to acquire competence in the various disciplines necessary for research and teaching careers in neuroscience. The current interests of the Neuroscience faculty include sensory neurophysiology, behavioral neuropharmacology, neurodevelopment, neurodegeneration, and synaptic plasticity.

Students and faculty have access to outstanding resources established by NIH Neuroscience and Sensory Biology Core grants. The Microscopy Core houses both light (Zeiss laser scanning, fluorescent) and electron (Transmission and Scanning) microscopes. Resources needed to conduct research ranging from molecular, cellular circuit level to behavior are readily available within the Neuroscience Center.

Program Specific Admission Requirements

Steps for applying to the Program in Neuroscience:

Step 1: Contact faculty whose research is of interest.

Although not mandatory, applicants are encouraged to read through the faculty research summaries to identify faculty that they are interested in training with. It is strongly recommended that prospective students contact individual faculty for more information regarding their research programs and openings in their laboratories before submitting an application. This initial step is recommended because, due to the limited availability of Graduate Assistantships (GA's), graduate students are oftentimes recruited directly into a laboratory and supported straight away by the advisor's NIH or NSF funding.

Step 2: Submit the online application packet via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>).

For full consideration for fall and spring admissions, applications should be submitted by January 1 and June 30, respectively. The application packet is comprised of the following items:

- **Application form**
- **Official academic transcripts:** Applicants should have at least a 3.0 cumulative GPA (scale of 4.0), and a bachelor's degree in a discipline that is related to neuroscience such as biology, psychology, physiology, chemistry, physics, or chemical or bioengineering. We encourage motivated applicants from degrees in diverse areas that are interested in transitioning to neuroscience. Students with an MS degree in neuroscience or related fields are also encouraged to apply.
- **GRE scores:** Accepted but not required
- **Three letters of recommendation**
- **TOEFL/IELTS:** For international students whose native language is not English. The minimum acceptable scores are 550 (79 iBT) and 6.5 for TOEFL and IELTS, respectively. (The University of Wyoming's school code for TOEFL = 4855.)

- **Personal statement:** A 1-3 page personal statement describing the student's motivation for pursuing a PhD in the field of neuroscience. Please describe areas of interest and any specific research topics or techniques with which you have experience. If your interests are still broad, indicate your general interests and graduate training goals.
- We are also interested in learning about your long-term career goals. What do you aspire to do after graduation? What are you specifically interested in the University of Wyoming? Finally, if you have established a potential faculty advisor (step 1), this should be clearly stated here in the personal statement.

Step 3: The interview

The graduate advisory committee reviews submitted application packets. Only complete packets are reviewed. Applicants deemed strong by the committee will be invited to participate in either an in-person or virtual (via zoom or phone) interview. The interview allows for the committee to learn more about the applicant, and, likewise, for the applicant to interview the committee.

Step 4: Verification of admittance by UW Admissions Office. Applicants that are chosen for admission to the Program in Neuroscience will then be requested to complete the application process through the University of Wyoming Admissions Department. Eligibility for enrollment will be verified by the UW Admissions Office, including the receipt of official transcripts and documents.

Program Specific Degree Requirements

Doctoral Program

All doctoral Neuroscience students are required to complete a program of core classwork that includes the following required courses: Introduction to Neuroscience, Structure and Function of the Nervous System and Neurophysiology. Students are required to take one course in Statistics (e.g. STAT 5050, STAT 5210) and the course that meets this requirement will be arranged with the student's committee. The statistics requirement must be met by the end of the second year. The Neuroscience Program is a research-oriented program and students are expected to take a minimum of 2 to 3 credit hours of research per semester. Students are also expected to enroll in an on-going Seminar in Neuroscience. The Neuroscience Seminar, which meets weekly and is attended by students and faculty members, provides an opportunity for intellectual and social exchange, as well as for the development of professional skills in critical thinking. The topic for seminar and the faculty member directing the seminar changes each semester. The remainder of the coursework for the doctor of philosophy degree is selected from designated courses in Neuroscience, physiology, pharmacology, and molecular biology. A grade of B or better is required for all Neuroscience courses.

A student is expected to have a graduate adviser at all times. The faculty adviser must be a participating member of the Neuroscience faculty. The adviser is responsible for directing the student's research and academic coursework. During the second year, the student will have an advisory committee. The advisory committee will consist of at least three neuroscience faculty members and an outside member. Normally, the student's adviser will chair the committee and help identify members of the committee who best match the student's area of interest. The role of the advisory committee is to oversee all aspects of the student's education after the first year.

In the student's second or third year, the advisory committee will set and evaluate the student's qualifying examination. After successful completion of the preliminary examination the student will profess to Ph.D. candidate status.

The dissertation is the single most important component of the graduate program. It reports the results and significance of the student's research. In addition to the written dissertation, the doctoral candidate will deliver a formal seminar based on their research. The seminar will be followed by an examination by the student's advisory committee.

Science and Mathematics Teaching Center Master's Degrees

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/smtc/>
Email: smtc@uwyo.edu

Program Director: Sylvia Parker

The Science and Mathematics Teaching Center (SMTC) was established in 1970 and is committed to excellence in science, mathematics, technology and STEM education. As part of the Office of Graduate Education in Academic Affairs, the SMTC, in cooperation with the Wyoming Department of Education (WDE) and the Professional Teaching Standards Board (PTSB), serves as a resource and professional development center for the state. The SMTC offers transdisciplinary graduate degree programs with multiple degree concentrations, certification options, and endorsement options. All of the programs emphasize both strong content knowledge and instructional practices. The affiliate faculty for the SMTC includes faculty from the Colleges of Agriculture and Natural Resources, Arts and Science, Education, and Engineering and Applied Science, and the Haub School of Environment and Natural Sciences.

The SMTC provides extensive off-campus professional development that serves teachers, students, administrators, school districts and communities throughout Wyoming and the region. SMTC in-service and extension courses, workshops, institutes, and conferences are designed collaboratively to improve science and mathematics teaching in Wyoming.

The SMTC administers and supports five master's degree programs:

- (1) the Master of Science degrees in Natural Science with concentrations in Middle Level Math (MMA) and
- (2) Middle Level Science (MSC); these programs are designed for Wyoming's in-service elementary, middle, and high school teachers. They focus on general science and mathematics content with an emphasis on teaching middle school level learners. The course work leads to middle level endorsement provided by the Wyoming PTSB. Teachers must have two years of teaching experience to participate in these programs.
- (3) Master of Science in Teaching - Natural Science (MST - Natural Science). This is a self-directed master's degree program working with the SMTC, SER, and the Haub School as well as other colleges. The program is developed individually with the guidance of a graduate committee based on the interests of the graduate student. This program may be used by teachers to take the 18 graduate-level credits often needed to teach Advanced Placement and community college courses.
- (4) Master of Science - Natural Science (MS - Natural Science). This is a self-directed master's degree program working with the SMTC, the College of Arts and Sciences, SER, and the Haub School and other colleges. The program is developed individually based on the interests of the graduate student and may emphasize formal or informal learning settings. Interdisciplinary study is encouraged.
- (5) Master of Science in Natural Science with a concentration in Natural Science Education (NED). This Master's degree program is designed for students pursuing careers as environmental and natural science educators in non-public school or non-formal education settings. These students spend one year at the Teton Science Schools (TSS) in Jackson. A long-standing MOU between the SMTC and TSS allows students to use 15 graduate credit hours earned at TSS towards a master's degree if they are accepted into the second year at UW within the SMTC.

SMTC Student Learner Outcomes

Upon successful completion of the MS degree program in Natural Science, a student will be able to:

- Engage in teacher research to transform STEM instruction:
 - Design and implement a research project that asks and answers a question using appropriate materials, concepts and methods, and ethical practices, and
 - Effectively communicate all aspects of the research project in both oral and written forms.
- Use professional and academic standards to ensure high-quality interdisciplinary instruction (i.e., place-based, culturally relevant, and/or social justice pedagogy) to maximize learning for all students.
- Engage in mathematical and/or scientific discourse and scientific thinking as active participants in communities of practice.
- Use emerging technology and science investigations as tools to engage students.

Program Specific Admission Requirements

For the MSC, MMA, MST and MS-Natural Science Master's Degrees:

Two years of teaching experience and a valid teaching license (required for MSC and MMA; may be waived for MST and MS-Natural Science)

Application Fee, unless a UW Graduate

Official Transcripts from all Institutions attended and Bachelor Degree conferring institution

3.0 undergraduate grade point average; provisional admission with a lesser GPA only with consent from Academic Affairs

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence (These items are not required of applicants who hold a prior master's degree)

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from the teacher's principal and two other colleagues.

The NED Degree - First Year Application:

Official Transcripts from all institutions attended and Bachelor Degree conferring institution Application Fee, unless a UW Graduate

Acceptance and admission by the Graduate Program at the Teton Science Schools in Jackson, WY

The NED Degree - Second Year Application:

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from a TSS Graduate Program Faculty Member, one from another TSS employee such as a Classroom Instructor or Field Instructor, and one from the first year application

Applicants complete a UW graduate application and upload all of the information on the Admissions Office website (<http://www.uwyo.edu/admissions/apply.html>). Application packets are reviewed by SMTC Admissions Committees and recommendations for admissions are submitted to the University of Wyoming Admissions Office. Any of the above requirements plus the university's minimum 3.00 grade point average may be waived if proper documentation and reasoning are given by the SMTC and approved by the Associate Vice Provost of Graduate Education.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) for more information.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Application Due Dates for Master of Science - Natural Science with Concentrations in the following areas:

Middle-level Science (MSC): applications are accepted on an ongoing basis; new students may begin only in summer each year; final due date for admission in summer is April 1.

Middle-level Mathematics (MMA): applications are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Natural Science Education (NED): applications deadlines for Year 1 are established by Teton Science Schools (<https://www.tetonscience.org/programs/graduate-program/admissions/>); due date for admission to begin Year 2 in the fall at UW is February 1.

MST and the MS- Natural Science Masters Degree: applications for these self-designed programs are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Graduate Assistantships and Scholarships

The SMTC often has scholarships and graduate assistantships available for graduates accepted for the above Master's degree programs. More information upon admission and acceptance.

Graduate

Biomedical Sciences, Ph.D.

The Biomedical Sciences graduate program seeks to provide the students with a unique research training environment to integrate a variety of scientific approaches to address complex health-related challenges.

Additional Information

Biomedical Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website <http://www.uwyo.edu/biomedphd/>
Email: bms@uwyo.edu

Program Director: Sreejayan Nair, Ph.D.

Degree Offered

Ph.D. in Biomedical Sciences

Biomedical sciences is the study of human biological processes; the complex interactions between physiological, genetic and environmental factors that influence disease and health. It spans the spectrum from fundamental discovery to innovation and application.

Areas of focus may include but not limited to cardiac health, nutrition, reproductive biology, toxicology, diagnostic & imaging and medical engineering.

The PhD program in biomedical sciences is designed to position graduates for long-term competitive success in the rapidly changing and multifaceted health-related arena in the 21st century. It is a comprehensive, interdisciplinary program, making connections between various disciplines to gain new insights, discover and apply new knowledge, and promote self-directed, life-long learning.

Biomedical Sciences is a research & discovery focused program balancing depth and breadth of content knowledge with "enabling" skills including problem solving, innovation, entrepreneurship, communication and leadership.

Admission to the Biomedical Sciences PhD Program

1. Minimum requirements. Applicants who do not meet the minimum requirements may be conditionally accepted at the discretion of the BMS Admission Committee. Please submit the application packet comprising the following documents for pre-admission screening:

a. Faculty sponsor. Contact potential biomedical sciences graduate program faculty sponsor in your area of interest prior to submitting an application. NOTE: a letter indicating the sponsorship by a faculty is strongly recommended as the program does not have sufficient number of graduate assistantships to support all students.

b. Official academic transcripts. Successful completion of a bachelor's degree from an accredited institution with one or more semesters of biology, physics, anatomy, physiology, chemistry, biochemistry/molecular biology, math are recommended. All applicants should have at least a 3.0 cumulative GPA (scale of 4.0). While a master's degree is not required for admissions into the biomedical sciences Ph.D. program, a master's degree with a strong background in the research area of focus is a plus.

c. TOEFL/IELTS/Duoling: The minimum acceptable scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all

provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/ cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency, until further notice.

d. GRE: A composite minimum score of 291 on the verbal and quantitative sections of the GRE is recommended. The GRE may be waived at the discretion of the admission committee if the applicant already possesses a master's degree, and/or documented research accomplishment in the chosen discipline.

e. Three letters of recommendation.

f. Statement of research interests and career objectives. A letter stating research & career interests and goals, prior research experience and outcomes, reasons for interest in BMS program. Include your contact information in the letter.

g. Current professional resume

2. Application Process. The BMS admissions committee reviews the completed application.

a. Contact faculty in your area of interest and obtain their endorsement. Faculty may choose to interview the candidate on-campus or via zoom.

b. Submit your application materials (pdf files of cover letter/statement of purpose, letter of sponsorship from the faculty, three letters of reference, transcripts, TOEFL/GRE scores to the admissions office via the University's admission portal.

c. To ensure full application review for fall semester admission, applications should be received by **February 15**.

d. Review by BMS Admissions Committee.

e. Forward application packet with BMS recommendation to the faculty and host department.

f. Notification of decision to applicant by **May 1**.

Program of Study

Rationale: The program of study is designed according to student learning goals and research opportunities. It blends depth and breadth of preparation by providing broad core requirements with electives promoting specialization in a "parent" discipline. This is recognized on program documentation by a Doctorate in Biomedical Sciences/"specialization" area. For example, Doctorate in Biomedical Sciences/Reproductive Biology.

Student Learning Outcomes: The BMS program provides unique array of formal courses and informal discovery experiences focused on ensuring aptitudes, behaviors and skills necessary for leadership and competitive success in the biomedical science arena.

Although the foundation enabling innovative, independent thinking and knowledge discovery is deep discipline knowledge, the BMS program is also designed to promote student competency in information assessment, synthesis and integration, communication and translation to the broader community, teamwork, leadership and project management.

The BMS program trains graduates to be competent, skilled experimentalists, problem solvers, critical and independent thinkers, expert in their field, with both depth and breadth of knowledge.

In addition, the program aims to instill characteristics that are essential to long-term professional success, preparing scientists who are effective and dedicated mentors and teachers, organized administrators, exemplars of high ethical standards, and effective collaborators. Upon completion of the program, graduates will demonstrate:

- Independent, critical thinking skills
- Ability to identify appropriate biographical resources
- Knowledge of recent advances in discipline and related areas
- Understanding of a broad spectrum of research methodologies and their applications
- Ability to critically analyze research findings
- Ability to design and independently execute research
- Ability to use appropriate information technology to record, manage, and disseminate information
- Understanding of issues related to researcher and subject rights
- Motivation and aptitude needed to acquire knowledge
- Communication skills that are appropriate for a range of audiences and purposes
- Ability to construct and articulate arguments to a wide range of audiences
- Ability to effectively support the acquisition of knowledge by others when teaching or mentoring students
- Willingness to assume responsibility for their work
- Ability to design and teach undergraduate or graduate courses
- Ability to publish single/first authored papers in peer-reviewed journals

Additional Course Information:

The BMS Ph.D. program requires a minimum of 72 hours of credit from UW or another approved university. At least 42 hours of the 72 hours minimum must be earned in formal classroom courses. Twelve hours of credit at 4000-level coursework are permitted towards this. This 72-hour requirement may include graduate credits earned while working toward the M.S. degree in the same area but in that case, at least 42 hours of the 72 must be earned through formal course work. Additional credits toward the 72-hour requirement will comprise mainly or entirely of Dissertation Research (BMS 5980) credits. As indicated above, to be considered a full-time graduate student at the University of Wyoming students must be signed up for 9 credit hours each semester.

Required course work (12 credits):

Biomedical Sciences Research ethics (2 credits)

Graduate-level Physiology course (3 credits)

Epidemiology (3 credits)

Interdisciplinary Seminar in Biomedical Science (1 credit)

Beyond the Bench: Fundamental Skill Sets for Biomed. Researchers (3 Credits)

Three courses from the following list (9 credits):

STAT 5050 (or other statistics course; 3 credits)

MOLB 5600, General Biochemistry (3 credits)

BIOL 4600, Cell Biology (4 credits)

MOLB 5670, Develop. & Molecular Cell Biology (3 credits)

PHCY 6230, Pharmacology I (4 credits)

Recommended Program Electives (9 Credits)

KIN 5025, Exercise Physiology (3 credits)

KIN 5047, Research Biomechanics (3 credits)

FCSC 5145 Advanced Nutrition (4 credits)

FCSC 5147 Nutrition and Weight Control (3 credits)

KIN 5062, Applied Concepts in Human Aging (3 credits)

CHE 5100, Biomedical Engineering (3 credits)

PATB 5510, Introduction to Virology (3 credits)

HLSC 4700, Health Informatics (3 credits)

HLSC/MOLB 4520, Public Health Issues in Developing Countries (3 credits)

HLSC/MOLB 4530 Global Experience in Public Health (2 credits)

HLSC/MOLB 4310 Foundations of Scholarship and Discovery (1 credit)

Concentration Area (12 credits)

Research/Dissertation (remaining): Students are expected to conduct research leading to a publishable dissertation. While publication expectations are determined largely by the major advisor, it is required that one manuscript be submitted to a peer-reviewed journal prior to the defense. Students will need to demonstrate lead authorship on articles published in their dissertation.

Courses

BMS5880 - Biomedical Sciences Research Ethics

Credits: 2

Introduction to the field of bioethics, including major ethical theories and principles, with an emphasis on understanding the ethical issues that may arise while conducting biomedical research and potential strategies for properly addressing these ethical issues.

BMS5920 - Continuing Registration: On Campus,

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

BMS5940 - Continuing Registration: Off Campus,

Credits: 1-24
Max Credit (Max. 24)

Prerequisite: graduate standing.

BMS5980 - Dissertation Research,

Credits: 1-24
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

BMS5985 - Seminar

Credits: 1
Max Credit (Max. 3)

A series of weekly seminars presented by faculty from other universities, private or public sector health industries or by Biomedical Science Program faculty and students. Examines current topics and research in biomedical sciences through oral presentations and discussion.

Prerequisite: graduate standing and consent of instructor.

Ecology, Ph.D.

The Program in Ecology (PiE) provides you with long-term career development by exploring the linkages of ecology and evolution with other disciplines, and by reaching for emerging questions, concepts, and approaches that will shape the future of the field.

Additional Information

Program in Ecology, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128

Website: <http://www.uwyo.edu/pie/>
Email: ecology@uwyo.edu

Program Director: Melanie Murphy, Ph.D.

Degree Offered

Ph.D. in Ecology

The Program in Ecology prepares doctoral students to lead the discipline of ecology during the coming decades. The program is grounded in the natural history of organisms in their environment, but incorporates tools and perspectives from across the biological, physical, mathematical, computational, and earth sciences. Students develop conceptual, historical, and philosophical perspectives spanning the entire range of subdisciplines in ecology, while receiving advanced training in the subdiscipline of their individual interest.

The program fosters long-term career development by exploring the linkages of ecology with other disciplines, and by scanning the ecological horizon for emerging questions, concepts, and approaches that will shape the field in years to come.

Faculty members from several departments and colleges participate in the Program in Ecology. Their interests span the full range of topics covered in the field of ecology, and students in the program reflect this diversity.

Program Specific Admission Requirements

Only students seeking a doctoral degree will be admitted into the program. Minimum criteria for admission to the Program in Ecology are:

- Minimum undergraduate GPA of 3.000
- Agreement by a member of the PiE faculty to sponsor the student, or to co-sponsor the student together with a PiE affiliate
- Admission to a home department at the University of Wyoming

All applications to the program will be reviewed by the Graduate Affairs Committee, which has authority on admissions. Students applying to the program who lack a master's degree must show exceptional promise and commitment (e.g., through undergraduate or post-graduate research experiences, peer-reviewed publications, and/or success in competing for research fellowships). Such students are encouraged to consult with their prospective adviser on whether to apply directly to PiE or to master's programs in individual home departments of PiE faculty.

Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the program. Transfer is not pro forma. Transfer applications are subject to the same criteria as for entering students, and admission to the program for transfer students must be approved by the Graduate Affairs Committee.

Program Specific Degree Requirements

Advisory Committee

Before the end of the second semester of study, the student should nominate a five-member advisory committee to the Office of the Registrar. At least three members of the committee, including the committee chair (usually the student's adviser), will be members of the PiE faculty. One other member, who will serve as Graduate Faculty representative, must be from outside the home department of the major adviser, although (s)he can be a faculty member in a department that participates in the program. The committee will advise the student on his/her program of graduate study, execute and evaluate the student's preliminary examination, evaluate the student's dissertation proposal and dissertation, and conduct the student's dissertation defense.

Program of Study

All students are required to take ECOL 5100 or equivalent. This course should be taken during the first year of residency. Exceptions or substitutions of these requirements are subject to approval by the graduate affairs committee.

The program of study must include at least 6 credit hours aimed at developing a tool skill, which except for rare cases shall be in the quantitative/analytical domain (e.g., statistics, modeling, GIS, remote sensing, bioinformatics). Courses relating to research tools should be taken early in the student's residency to ensure that they can be used in thesis research and advanced studies. Specific coursework and tool-skill development for the student's program of study will be developed in consultation with and subject to approval by the student's advisory committee.

Admission to Candidacy

Admission to candidacy for the Ph.D. requires two steps: 1) providing evidence that the student is prepared to identify a research question, design an approach for investigating that question, and a plan for executing the approach, all in the format of an NSF-style research proposal, and 2) illustrating adequate proficiency in the subject matter of ecology through a process involving both written and oral exams.

Proposal

Students must submit a NSF-style proposal to their committee outlining their project, typically by the end of the fourth semester. Each committee member will provide feedback to the student on the proposed research and indicate approval of the proposal or request revision. The proposal must be approved by all committee members prior to starting the preliminary exams.

While this proposal should be a plan for actual dissertation research, unforeseen circumstances may require altering the student's dissertation work after the proposal has been approved by the committee. In the case of a major alteration, the student should reformulate a research plan and submit it to the committee in writing for committee approval.

Preliminary Exam

Passing the preliminary exam is the official admission to candidacy.

Written portion of the preliminary exam. The student will take the written exam portion of the preliminary exam no fewer than two weeks following approval of the research proposal. The goal of this exam is to test breadth of knowledge in ecology. The design of this exam will be coordinated by the graduate committee under the leadership of the adviser. Each written exam will cover the following topics:

- Ecological topics ranging from organismal/evolutionary to ecosystem-level perspectives, integrating concepts and perspectives from across the discipline, over a wide range of spatial and temporal scales.
- The philosophical and historical development of ecology.
- The conceptual background of the student's area of specialization.

The exam will consist of four to six questions developed collectively by the committee and organized by the student's major professor. The exam will be open book; however, the answers will be solely the work of the student. Answers should be fully cited and collectively should be no longer than 30 pages double-spaced exclusive of references cited. Students will have one full week (seven days) to complete the exam. Committee members will indicate pass/fail within one week following completion of written exams. Four of five passing votes are required.

Oral Portion of the Preliminary Exam. No sooner than two weeks after successfully passing the written exam, the student may proceed to an oral exam administered by his/her graduate committee. Oral exams center around three goals from which questions will be derived:

- To verify that the student is prepared, conceptually and methodologically, to carry out successful dissertation research.
- To evaluate the student's ability to conceptualize specific questions in a broad, integrative context.
- To evaluate the student's ability to think spontaneously and creatively and to articulate responses about unexpected or novel questions.

The advisory committee will discuss and organize specific questions based on these goals in a short session at the beginning of the exam period before admitting the student to the examination room and starting the exam. Following the exam each committee member will provide non-binding paper votes of pass/ fail for each of the three goals of the oral exam. Following discussion of the student's performance, committee members will each assign a grade of pass/fail for the overall exam. Four of five committee members must vote for passing the overall oral exam.

Students whose performance is unsatisfactory will be given one opportunity for retaking the oral examination. This retake will occur no later than the academic-year semester following the first examination.

Public Seminars

Students are required to give two oral presentations on their research. The purposes of these presentations are to provide the student with practice in oral presentations and to keep the PiE community informed of the student's progress. The first will describe the student's dissertation research proposal. This presentation will be given before the student submits his/her thesis proposal. The second presentation will summarize the student's completed dissertation research, and will normally be given the same semester as the student's dissertation defense. Under extraordinary circumstances (subject to approval by the Graduate Affairs Committee), this presentation may be given at an earlier time. These presentations must be open to the public, and may comprise part of a departmental or Program in Ecology seminar or brown-bag series.

Courses

ECOL5050 - Techniques in Environmental Data Management

Credits: 4

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e. g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Cross Listed ENR 5050/GEOG 5050.

Prerequisite: graduate standing.

ECOL5060 - Advanced Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed BOT 5060/ZOO 5060.

When Offered (Offered every other year)

Prerequisite: graduate student in good standing.

ECOL5100 - Ecology as a Discipline

Credits: 3

Covers the range of ecological questions, processes, scales, and research approaches, in context of the history and philosophy of science in general and of ecology in particular. Aimed at first-year students in the doctoral program in Ecology, although students in other graduate programs are welcome.

Prerequisite: graduate standing.

ECOL5400 - Community Ecology

Credits: 3

Community ecology is the study of interactions within and among groups of species. This course focuses on (1) the major classical concepts and theories in community ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

Cross Listed REWM 5400.

Prerequisite: LIFE 3410 or equivalent.

ECOL5500 - Quantitative Analyses of Field Data

Credits: 4

A practical guide to the analysis of messy field data, including data exploration, generalized linear and additive models, mixed models, autocorrelation, and model selection using Program R. Students will have bootcamp to learn methods and spend the rest of the semester analyzing their own data.

Prerequisite: graduate standing.

ECOL5520 - Habitat Selection

Credits: 2

In this course we will cover theory and behavioral/evolutionary concepts related to the process of habitat selection, the contexts under which habitat choices are adaptive or maladaptive, and different types of anthropogenic habitat change and the consequences for animals in the wild. **Prerequisite:** Graduate students in good standing.

Cross Listed ZOO 5520

Prerequisite: Graduate students in good standing.

ECOL5540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540/SOIL 4540.

Dual Listed MOLB 5540/SOIL 5540.

Prerequisite: MOLB 2210.

ECOL5550 - Ecology as a Scientific Profession

Credits: 2

A capstone that prepares doctoral students for success and leadership in their careers as professional ecologists. Intended for students enrolled in the doctoral Program in Ecology in their final year.

Prerequisite: graduate standing.

ECOL5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed REWM 5580.

ECOL5610 - Quantitative Modeling in Landscape Ecology

Credits: 3

Emphasis on quantitative, spatial analysis of landscapes and application of these quantitative tools to making sound management decisions. Work with real data, acquire high-level quantitative skills, develop problem-solving skills, and discuss management application of model results. Analysis will encompass abiotic, biotic (plant and animal), and human use of ecological systems in a spatial context.

Cross Listed REWM 5610.

When Offered (Offered during even-year fall semesters)

Prerequisite: upper division stats course (e. g. , STAT 4015 or STAT 4025) and graduate standing.

ECOL5620 - Advanced Topics in Ecology

Credits: 1-4

Max Credit (Max. 12)

Provides advanced treatment of specific topics in ecology that are not covered in regular courses.

Prerequisite: graduate standing and consent of instructor.

ECOL5650 - Tropical Field Ecology Ecuador

Credits: 4

Course comprises 10 days in Ecuador in January (before spring semester), followed by one lecture per week during spring semester. Focus will be ecology, biodiversity and conservation of tropical forests and behavioral ecology of birds and mammals. Field site is at 1100m on west slope of the Andes.

Cross Listed ECOL 5650.

Prerequisite: graduate standing.

ECOL5680 - Landscape Genetics

Credits: 3-4

Provides a unique opportunity for interdisciplinary training and international collaboration uniting some of the most active landscape genetics groups in North America and Europe. A key objective of landscape genetics is to study how landscape modification and habitat fragmentation affect organism dispersal and gene flow across the landscape. Meeting this and other landscape genetic objectives requires highly interdisciplinary specialized skills making intensive use of technical population genetic skills and spatial analysis tools (spatial statistics, GIS tools and remote sensing). To bring these diverse topics and skills together effectively, we are using a distributed model of teaching. Population genetics, spatial analysis/ statistics, and previous experience in Rare all extremely useful but not required.

Cross Listed Cross listed with: REWM 5680.

ECOL5775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 5775 and BOT 5775.

When Offered (Offered during even-year fall semesters)

Prerequisite: LIFE 3400.

ECOL5780 - Research in Ecology

Credits: 1-6

Max Credit (Max. 12)

Designed for doctoral students pursuing exploratory research before they have determined a dissertation project, and for students to pursue independent research that will not comprise part of their dissertation. Research must be conducted under supervision of an Ecology Faculty member or Affiliate.

Prerequisite: admission to doctoral Program in Ecology.

ECOL5920 - Continuing Registration: On Campus,

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: graduate standing.

ECOL5940 - Continuing Registration: Off Campus,

Credits: 1-12

Max Credit (Max. 16)

Prerequisite: graduate standing.

ECOL5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Hydrologic Sciences, Ph.D. (WRESE)

The Water Resources/Environmental Science and Engineering (WRESE) program facilitates Ph.D.-level course offerings in water-related disciplines, and coordinates offerings of these courses. Furthermore, the WRESE program serves as a focal-point for water-related graduate research and education at the University of Wyoming.

This interdisciplinary degree program encourages cross-department and inter-college coordination for research and education in hydrology and water resources.

Additional Requirements

Program Specific Admission Requirements

The WRESE Program only admits students seeking a doctoral degree.

Minimum criteria for admission to the Program are:

- Minimum undergraduate GPA of 3.000
- Agreement by a faculty member affiliated with the WRESE program to sponsor the student
- Admission to a home department at the University of Wyoming

Typically, students admitted into the program will have previously obtained a Masters-level degree. Under exceptional circumstance, students may be admitted directly after an undergraduate degree if they show exceptional promise and commitment. Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the program.

Program Specific Degree Requirements

Students in the WRESE Program are expected to create their graduate committee within the first year of study. The committee should be composed of three faculty members within the PhD program in Hydrology and 2 should be from the student's departmental home. A committee shall be composed of no fewer than 5 members, of which only one may be from outside the University. Additional committee members may be added to support the student's learning and objectives on the discretion of the committee and WRESE Program chair.

Program of Study

Students enrolled in the Program should complete their Program of Study within the first 3 semesters. The student shall work with his/her research advisor and committee to determine the appropriate course of study relative to the student's research agenda. Students are expected to complete a rigorous course of study in quantitative hydrological sciences. Minimum requirements for the PhD include:

- Coursework credits: 42 hours (26 can be from an MS)
- Total credits: 72 hours
- Math expectations: students are encouraged to pursue a high level of math proficiency, with typical students progressing through differential equations. Individual math expectations will be determined by the committee and program chair.

A dissertation proposal should be approved by the end of the 4th semester. Students shall submit their proposal to their committee for review two weeks prior to a holding a committee meeting where the student (a) presents their proposal in a public presentation and (b) defends the proposal to the committee in a closed meeting. After the meeting, the student shall amend the proposal as required by the committee within a timely manner.

Admission to Candidacy / Preliminary Examination

Advance to candidacy is attained by passing preliminary exams within 3 years of initiating a degree program. Students should complete their preliminary exams as close to the end of their primary coursework as possible. Preliminary exams consist of two parts. The first part is a written examination wherein committee members shall submit written questions to the student. Once the student has passed their written exams, they will be administered an oral examination.

The written exam shall be administered by the student's research adviser, who will coordinate the questions so as to obtain a comprehensive review of the student's knowledge of the materials the student has learned in the classroom and needs to complete his/her research topic. Written questions should cover both conceptual and theoretical underpinnings in hydrological sciences and technical questions related to the student's research area.

Molecular and Cellular Life Sciences, Ph.D.

The Molecular and Cellular Life Sciences (MCLS) program serves as an inclusive and integrative graduate program for students being trained in basic biological and biomedical research at the molecular and cellular levels.

Additional Information

Molecular and Cellular Life Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/mcls/>
Email: mcls@uwyo.edu

Program Director: Daniel Levy, Ph.D.

Degree Offered

Ph.D. in Molecular and Cellular Life Sciences

This interdisciplinary program with more than 30 faculty participants spans a wide range of research topics, such as: Biotechnology, bioengineering, biomaterials, and pharmacology, Cell biology and signaling, Genetics and development, Genomics, proteomics, and computational biology, Microbiology and infectious disease, and Structural biology and biophysics.

Coursework focuses on core courses in biochemistry and molecular biology, with electives that include such diverse courses as: Topics in Genomics, Biophysics, Microbial Physiology and Metabolism, Cell and Developmental Genetics, Mass Spectrometry and Analytical Chemistry, Biomedical Engineering, Mammalian Endocrinology, Cell Culture and Virology, Introduction to Bioinformatics, Protein Structure and Function, Microbial Genetics, Computational Biology, and Quantitative Microscopy.

Program Specific Admission Requirements

Admission to MCLS is a two-step process. The first level of evaluation is carried out by the MCLS admissions committee. This step does not require any fee but does require that all requested materials be submitted as described on our website. After an initial review of all complete applications, a subset of qualified applicants will be selected for video conference interviews with members of the MCLS admissions committee. Applicants who are chosen for admission to the MCLS program will then complete the final application step through the University of Wyoming Admissions office. This latter step requires the completion of several additional forms. Students are then officially notified by the university of their acceptance into the MCLS program.

We encourage students to submit their completed applications at the very latest by January 15 of each calendar year. However, because our review of applications will begin in the late fall, early submissions are encouraged and may stand a greater likelihood of success. Also note that we will continue to review new applications received after January 15 in the event that additional slots are available.

Program Specific Degree Requirements

MCLS doctoral students must fulfill the minimum requirements outlined by the university. In addition, students must obtain a high level of proficiency in the core foundations of the molecular and cellular life sciences through required courses in biochemistry/ molecular biology, scientific literature analysis proficiency, and the MCLS cornerstone course. Because of the broad range of research interests pursued by MCLS faculty and students, considerable flexibility will be exercised regarding the specific nature of the graduate-level elective courses that students may take.

Students must successfully complete four eight-week rotations in MCLS laboratories of their choice during the first year.

Students must pass a comprehensive assessment exam at the end of the first year. Towards the end of the second year, students will undertake a qualifying examination in order to be formally admitted to graduate degree candidacy. This exam will have both written and oral components and will cover areas of science that are relevant to the students' research.

The research and coursework progress of MCLS students will also be monitored and evaluated every year by the MCLS curriculum committee. In addition, an annual meeting with a research-specific dissertation committee will facilitate and evaluate the research progress of MCLS students beginning in the second year.

Students must attend weekly outside seminars on topics in the molecular life sciences for the durations of their studies.

For more information, please see the program's Web site at: www.uwyo.edu/MCLS/.

Neuroscience, Ph.D.

The Graduate Program in Neuroscience is interdisciplinary. Students receive broad and integrative training in neuroscience with emphasis on core concepts, skills, and methodologies.

Additional Information

Neuroscience, Ph.D. Program

Office of Graduate Education

Old Main 310

Phone: (307) 766-4128

Website: <http://www.uwyo.edu/neuroscience/>

Email: neuroscience@uwyo.edu

Program Director: Kara Pratt, Ph.D.

Degree Offered

Ph.D. in Neuroscience

The Graduate Neuroscience Program offers training leading to the Ph.D. degree in Neuroscience. The Neuroscience Program emphasizes systems and integrative approaches, and our goal is to provide the students with the necessary background to be broadly trained research neuroscientists and to carry out independent research in neuroscience. The Neuroscience Program emphasizes continuing interaction with faculty from several departments and we have a low student to faculty ratio. Advisors spend considerable time supervising and training each doctoral student. The educational philosophy of the Neuroscience Program is to encourage a problem-oriented rather than a strict discipline-bound approach to research. You will emerge from this program with the scientific and experimental training needed to comprehensively address a very wide range of research questions using a variety of techniques and analytic tools.

The Graduate Neuroscience Program is designed to enable graduate students to acquire competence in the various disciplines necessary for research and teaching careers in neuroscience. The current interests of the Neuroscience faculty include sensory neurophysiology, behavioral neuropharmacology, neurodevelopment, neurodegeneration, and synaptic plasticity.

Students and faculty have access to outstanding resources established by NIH Neuroscience and Sensory Biology Core grants. The Microscopy Core houses both light (Zeiss laser scanning, fluorescent) and electron (Transmission and Scanning) microscopes. Resources needed to conduct research ranging from molecular, cellular circuit level to behavior are readily available within the Neuroscience Center.

Doctoral Program Admission Minimum Requirements

- GRE: Accepted but not required;
- GPA: 3.000 (4.000 scale);
- Three favorable letters of recommendation;
- Bachelor's degree in a biological science from an accredited institution;
- Statement of research interests and career objectives. We recommend that students study the Neuroscience faculty web sites and contact faculty regarding openings and shared research interests.

You will be best prepared for our program if you have successfully completed courses in neuroscience, chemistry, biology, physiology, and cell/molecular biology. Students may be admitted with deficiencies in some of the areas if they are strong in many or all others. If so, the student's advisory committee will determine what additional work is necessary during the first year to correct any deficiency.

Program Specific Degree Requirements

All doctoral Neuroscience students are required to complete a program of core classwork that includes the following required courses: Introduction to Neuroscience, Structure and Function of the Nervous System and Neurophysiology. Students are required to take one course in Statistics (e.g. STAT 5050, STAT 5210) and the course that meets this requirement will be arranged with the student's committee. The statistics requirement must be met by the end of the second year. The Neuroscience Program is a research-oriented program and students are expected to take a minimum of 2 to 3 credit hours of research per semester. Students are also expected to enroll in an on-going Seminar in Neuroscience. The Neuroscience Seminar, which meets weekly and is attended by students and faculty members, provides an opportunity for intellectual and social exchange, as well as for the development of professional skills in critical thinking. The topic for seminar and the faculty member directing the seminar changes each semester. The remainder of the coursework for the doctor of philosophy degree is selected from designated courses in Neuroscience, physiology, pharmacology, and molecular biology. A grade of B or better is required for all Neuroscience courses.

A student is expected to have a graduate adviser at all times. The faculty adviser must be a participating member of the Neuroscience faculty. The adviser is responsible for directing the student's research and academic coursework. During the second year, the student will have an advisory committee. The advisory committee will consist of at least three neuroscience faculty members and an outside member. Normally, the student's adviser will chair the committee and help identify members of the committee who best match the student's area of interest. The role of the advisory committee is to oversee all aspects of the student's education after the first year.

In the student's second or third year, the advisory committee will set and evaluate the student's qualifying examination. After successful completion of the preliminary examination the student will profess to Ph.D. candidate status.

The dissertation is the single most important component of the graduate program. It reports the results and significance of the student's research. In addition to the written dissertation, the doctoral candidate will deliver a formal seminar based on their research. The seminar will be followed by an examination by the student's advisory committee.

Courses

NEUR4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed ZOO 4295.

Dual Listed NEUR 5295.

Prerequisite: ZOO 4280.

NEUR4720 - Neuroscience Speaker Seminar

Credits: 2

Max Credit (Max. 6)

The purpose of this course is to use the Neuroscience/sensory biology visiting speaker series to build student knowledge in neuroscience, as well as skills in critical evaluation of the research literature, and oral/ written communication. This will maximize student learning from the speaker series. The course may be taken up to three times.

Dual Listed NEUR 5720.

Prerequisite: Graduate level standing in neuroscience, biomedical sciences, zoology/physiology, or other life science programs. Undergraduates: concurrent or prior ZOO 4280.

NEUR5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed ZOO 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5280 - Introduction to Neuroscience

Credits: 3

Examines the basic properties of neurons and from there identifies determinants of brain development and how neuronal circuits are formed. How neuronal circuits underlie processing sensory information, coordinated movement, complex functions (e. g. sleep, learning) and homeostasis are discussed.

Cross Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

NEUR5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 5295.

Dual Listed NEUR 4295.

NEUR5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms will be covered in addition to the basic neurophysiology of nerve cells.

Cross Listed ZOO 5685.

Prerequisite: one course in physiology, chemistry, physics.

NEUR5715 - Seminar in Neuroscience

Credits: 1-2
Max Credit (Max. 20)

A continuing seminar. All students in the graduate neuroscience program are expected to register for this seminar each semester. The interdisciplinary approach to the nervous system is used employing work from physiology, neuroanatomy and neurochemistry, psychology, pharmacology and biochemistry.

Cross Listed ZOO 5715.

Prerequisite: admission to the graduate neuroscience program or graduate standing.

NEUR5720 - Neuroscience Speaker Seminar

Credits: 2
Max Credit (Max. 6)

The purpose of this course is to use the Neuroscience/sensory biology visiting speaker series to build student knowledge in neuroscience, as well as skills in critical evaluation of the research literature, and oral/ written communication. This will maximize student learning from the speaker series. The course maybe taken up to three times.

Dual Listed NEUR 4720.

Prerequisite: Graduate level standing in neuroscience, biomedical sciences, zoology/physiology, or other life science programs. Undergraduates: concurrent or prior ZOO 4280.

NEUR5800 - Research in Neuroscience

Credits: 1-16
Max Credit (Max. 16)

The research must be conducted under the supervision of one of the neuroscience program faculty. Laboratory opportunities for research include neuroendocrinology, behavioral neuroscience, sensory neurophysiology, neuroanatomy, neuropharmacology, neurotoxicology, neural cell biology, and neurochemistry.

Prerequisite: admission to the graduate neuroscience program or graduate standing.

NEUR5887 - Molecular Neuropharmacology

Credits: 3
Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

NEUR5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NEUR5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NEUR5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

First-Year Seminar.

Prerequisite: advanced degree candidacy.

Science & Mathematics Teaching Center Master's Degrees

30 graduate-level semester hours, B or better grades in all required courses and overall GPA of 3.0 required for majors. Required courses taken 6 or more years ago must be petitioned and approved to be used to satisfy degree requirements.

Additional Information

Science and Mathematics Teaching Center

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/smtc/>
Email: smtc@uwyo.edu

Program Director: Sylvia Parker

The Science and Mathematics Teaching Center (SMTC) was established in 1970 and is committed to excellence in science, mathematics, technology and STEM education. As part of the Office of Graduate Education in Academic Affairs, the SMTC, in cooperation with the Wyoming Department of Education (WDE) and the Professional Teaching Standards Board (PTSB), serves as a resource and professional development center for the state. The SMTC offers transdisciplinary graduate degree programs with multiple degree concentrations, certification options, and endorsement options. All of the programs emphasize both strong content knowledge and instructional practices. Faculty from

throughout the university collaborate with the SMTC by teaching classes, reviewing applications, serving on committees, advising students, and working on externally funded research projects.

The SMTC provides extensive off-campus professional development that serves teachers, students, administrators, school districts and communities throughout Wyoming and the region. SMTC in-service and extension courses, workshops, institutes, and conferences are designed collaboratively to improve science and mathematics teaching in Wyoming.

The SMTC administers and supports five master's degree programs:

- (1) the Master of Science degrees in Natural Science with concentrations in Middle Level Math (MMA) and
- (2) Middle Level Science (MSC); these programs are designed for Wyoming's in-service elementary, middle, and high school teachers. They focus on general science and mathematics content with an emphasis on teaching middle school level learners. The course work leads to middle level endorsements provided by the Wyoming PTSB. Teachers must have two years of teaching experience to participate in these programs.
- (3) Master of Science in Teaching - Natural Science (MST - Natural Science). This is a self-directed master's degree program working with the SMTC, SER, and the Haub School as well as other colleges. The program is developed individually with the guidance of a graduate committee based on the interests of the graduate student. This program is primarily intended for individuals teaching at the secondary level and may be used take the 18 graduate-level credits in a specific teaching area often needed to teach Advanced Placement and community college courses.
- (4) Master of Science - Natural Science (MS - Natural Science). This is a self-directed master's degree program working with the SMTC, the College of Arts and Sciences, SER, and the Haub School and other colleges. The program is developed individually based on the interests of the graduate student and may emphasize formal or informal learning settings. Interdisciplinary study is encouraged.
- (5) Master of Science in Natural Science with a concentration in Natural Science Education (NED). This Master's degree program is designed for students pursuing careers as environmental and natural science educators in non-public school or non-formal education settings. These students spend one year at the Teton Science Schools (TSS) in Jackson. A long-standing MOU between the SMTC and TSS allows students to use 15 graduate credit hours earned at TSS towards a master's degree if they are accepted into the second year at UW within the SMTC.

SMTC Student Learner Outcomes

Upon successful completion of the MS degree program in Natural Science, a student will be able to:

- Engage in teacher research to transform STEM instruction:
 - Design and implement a research project that asks and answers a question using appropriate materials, concepts and methods, and ethical practices, and
 - Effectively communicate all aspects of the research project in both oral and written forms.
- Use professional and academic standards to ensure high-quality interdisciplinary instruction (i.e., place-based, culturally relevant, and/or social justice pedagogy) to maximize learning for all students.
- Engage in mathematical and/or scientific discourse and scientific thinking as active participants in communities of practice.
- Use emerging technology and science investigations as tools to engage students.

Program Specific Admission Requirements

For the MS-Natural Science Master's Degrees (with concentrations in MSC and MMA) and the MST:

Two years of teaching experience and a valid teaching license (required for MSC and MMA; may be waived for MST and MS-Natural Science)

Application Fee

Official Transcripts from all Institutions attended and Bachelor Degree conferring institution

3.0 undergraduate grade point average; provisional admission with a lesser GPA only with consent from Academic Affairs

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence (These items are not required of applicants who hold a prior master's degree)

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from the teacher's principal or an employers and two other colleagues.

For the MS-Natural Science Master's Degrees (with concentration in NED) - First Year Application:

Official Transcripts from all institutions attended and Bachelor Degree conferring institution Application Fee

Acceptance and admission by the Graduate Program at the Teton Science Schools in Jackson, WY

For the MS-Natural Science Master's Degrees (with concentration in NED) - Second Year Application:

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from a TSS Graduate Program Faculty Member, one from another TSS employee such as a Classroom Instructor or Field Instructor, and one from the first year application

Applicants complete a UW graduate application and upload all of the information on the Admissions Office website (<http://www.uwyo.edu/admissions/apply.html>). Application packets are reviewed by SMTC Admissions Committees and recommendations for admissions are submitted to the University of Wyoming Admissions Office. Any of the above requirements plus the university's minimum 3.00 grade point average may be waived if proper documentation and reasoning are given by the SMTC and approved by the Associate Vice Provost of Graduate Education.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) for more information.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Application Due Dates for Master of Science - Natural Science with Concentrations in the following areas:

Middle-level Science (MSC): applications are accepted on an ongoing basis; new students may begin only in summer each year; final due date for admission in summer is April 1.

Middle-level Mathematics (MMA): applications are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Natural Science Education (NED): applications deadlines for Year 1 are established by Teton Science Schools (<https://www.tetonscience.org/programs/graduate-program/admissions/>); due date for admission to begin Year 2 in the fall at UW is February 1.

MST and the MS- Natural Science Masters Degree: applications for these self-designed programs are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Graduate Assistantships and Scholarships

The SMTC often has scholarships and graduate assistantships available for graduates accepted for the above Master's degree programs. More information upon admission and acceptance.

For the Master of Science in Natural Science Master's Degrees

Plan B (non-thesis)

- 30 Credit Hours of graduate-level coursework is required in all of the programs. This includes 24 credit hours in required coursework depending on the program plus 6 credit hours of additional coursework that may include a research class, Plan B independent research and an elective.
- The Middle Level Science (MSC) concentration is a 3-year program, for the required coursework, in the summers only on UW's main campus. Courses are offered on a 3-year rotation cycle; students may enter the program in any year.
- The Middle Level Math (MMA) concentration is a 2-year program with classes offered virtually in the fall and spring and in-person on the main campus in the summer, for the required courses. Students may enter the program in any semester.
- The Natural Science Education (NED) concentration is a 2-year program with classes offered in the graduate program at the Teton Science Schools in Jackson, WY, in year 1, and additional classes offered at the UW main campus in year 2.
- The MST (Master's of Science in Teaching) and the MS- Natural Science Master's Degrees are Main campus degrees. They are self-directed master's degree programs designed individually based on the student's interests and needs.
- All students must complete and defend a Plan B research project.
- A Plan A (thesis) may be completed with an extra year of research.

NOTE: Middle-Level Science & Middle-Level Mathematics; 24 credit hours in the core courses are required for institutional recommendation for WY middle-level endorsement from the Professional Teaching Standards Board, PTSB.

NOTE: *NASC 5810 Middle-Level Science and Mathematics 3 credit hour course Practica (required course for teachers without previous coursework or experience teaching middle-level students. Offered spring semester in even years only).

Other Degrees and their Requirements

The MST in Natural Science and the MS - Natural Science programs are self-directed master's degree programs designed individually based on the student's interests and needs. The programs require 30 graduate level credits plus a Plan B research project that is defended publicly. Requirements are based on the university minimum requirements.

For the NED Concentration - Year 1 (at Teton Science Schools)

These students spend their first year at the Teton Science Schools in Jackson, Wyoming. Students earn 15 credits that may be used towards the master's degree at the University of Wyoming in Year 2.

For the NED Concentration - Year 2 (at the University of Wyoming)

Plan B (non-thesis)

- This is a one-year program on the main campus.
- 30 credit hours of coursework is required for the master's degree, of which 15 credit hours of agreed upon courses are earned at TSS in year 1. The other 15 credit hours include two required courses: NASC 5650 (3 credits) and a graduate level research class (minimum 3 credits). Additional courses in environmental science and science pedagogy classes are chosen by the graduate student and their advisor.
- A concurrent major in Environmental and Natural Resources is an option with this Master's program.
- Students must complete and defend a Plan B research project.
- A Plan A (thesis) may be completed with an extra year of research.

Middle-Level Science Concentration and Master's Degree

Life Science Summer Core (2023, 2026, 2029, etc...)

BOT5790 - Special Topics in Ecology

Credits: 1-3

Max Credit (Max. 6)

Designed to acquaint advanced students with various topics not covered in other courses. Emphasis is placed on recent developments appearing in the journal literature.

Dual Listed BOT 4790.

Prerequisite: two courses in ecology.

ENTO5601 - Insects for Teachers: Collection and Identification of Insects

Credits: 1

Designed for school teachers K-12. Basic concepts such as insect classification, insect habitats, insect metamorphosis, and destructive and beneficial insects are discussed with emphasis on the presentation of these concepts in the school classroom. Half of the class is devoted to field trips, laboratories, workshop activities, and films. Each student will make an insect collection, and learn how to preserve, mount, and identify specimens to order level. Course may be taken independently of ENTO 5602. Identical to NASC 4790.

Prerequisite: junior standing. Offered summer term only.

NASC4790 - Topics in Natural Science

Credits: 1-6

Presents selected science topics to acquaint teachers or prospective teachers with new concepts, materials or techniques, as introduced in various new school curricula. Topics may include earth science for the middle school, computer learning and/or elementary school environmental science. Includes laboratory.

Prerequisite: junior standing.

NASC5130 - Life Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Investigates ecosystem composition and processes, and biological responses to changes in ecosystem parameters. Examines terrestrial and aquatic communities, photosynthesis, energy flow, biogeochemical cycles, global climate change, climate warning, deforestation, population ecology, DNA/ RNA structure, function, genetic engineering and forensic applications.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science education.

NASC5660 - Standards, Pedagogy and Research

Credits: 2

This course is designed to provide Master of Science in Natural Science students with background in three areas: current science standards, pedagogical practices, and the understanding of various types of educational research as well as some of the practices related to conducting their own research projects.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

Physical Science Summer Core (2021, 2024, 2027, etc...)

EE4800 - Problems in _____

Credits: 1-6

Max Credit (Max. 6)

Section 1 is individual study. Other sections are group study by seminar or class format. Features topics not included in regularly offered courses.

Prerequisite: consent of instructor.

NASC5110 - Physical Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Examines the global dynamics of energy, hydrocarbon combustion, and the physics and chemistry of water. Investigates relationships between energy transformations and pollutants. Considers environmental limitations of fresh water availability and the buffering effect of sea and fresh water.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in Elementary, middle school or general science education.

NASC5510 - Integrated Instructional Strategies, MSC

Credits: 2

Appropriate instructional strategies are discussed and modeled for aligning standards, expectations, and experiences in an integrated science environment. Attention is given to unique characteristics of each strategy, including a review of research on the effectiveness of each strategy on student achievement and attitudes.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5600 - Mathematics and Statistics in Science Teaching, MSC

Credits: 2

Provides science teachers with the knowledge and experience necessary to help students use statistics in the scientific process. Activities emphasize a hands-on inductive approach closely related to the school science curriculum. Important statistical ideas and methods are studied as they arise naturally in the biological, physical, and earth sciences.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

Earth Science Summer Core (2022, 2025, 2028, etc...)

ASTR4000 - Astronomy for Teachers

Credits: 1-5

Specifically designed for elementary school teachers. Presents basic concepts (time, seasons, light and its properties); planetary systems of the sun; the sun and stars; the Milky Way and galaxies; and cosmology and relativity. Emphasizes presenting these concepts to elementary school children. Half the class is devoted to laboratory and workshop activities to develop techniques for presenting these concepts through visual aides, demonstrations and films. Students may receive a maximum of 5 credits in a combination of ASTR 4000 and ASTR 4100.

When Offered (Offered summer session)

Prerequisite: 6 hours of physical or biological science, junior standing in education.

NASC5120 - Earth Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Emphasizes the lithosphere and atmosphere and their interactions with the hydrosphere and biosphere. Examines the interplay between tectonic processes, earth's radiation balance, ocean processes, ozone depletion and the greenhouse effect. Includes evaluation of methods of measuring and monitoring these phenomena.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teach certification in elementary, middle school or general science education.

NASC5300 - Classroom Assessment in Middle-level Science, MSC

Credits: 2

Deals with the design, construction, and testing of curriculum materials to bring the spirit of scientific inquiry to elementary school pupils. Research to be conducted in the Science and Mathematics Teaching Center.

NASC5400 - Spatial Data Instructional Technology

Credits: 1

Teaching strategies appropriate for elementary/middle school students' conceptual level of development. Positive attitudes toward teaching children about the Earth, its physical environment and human/environment relationships will be promoted. The course content will be supported by the use of geospatial technologies, such as GPS and GIS.

Prerequisite: graduate standing.

Middle-Level Mathematics Concentration and Master's Degree (courses in this program are cross listed with other departments)

MMA Even Years (2022, 2024, 2026...)

NASC5140 - Numbers, Operations, and Patterns for the Middle-Level Learner, MMA

Credits: 3

Provides working middle-level mathematics teachers opportunities to understand and discuss numbers, their representations, and operations on them, from an abstract perspective that includes elegant proof. Also emphasized is the role of language and purpose in composing definitions.

Cross Listed MATH 5140.

Prerequisite: admission to a UW graduate program, either degree or non-degree seeking status, and acceptance into the Middle-level mathematics program.

NASC5160 - Social and Historical Issues in Mathematics and the Middle-Level Learner, MMA

Credits: 3

Empowers teachers of middle-level mathematics to design engaging experiences. Emphasizes the historical context for the development of mathematics, especially its symbols, tools, personalities, and classic problems.

Cross Listed MATH 5160.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5185 - Analysis of Data in the Media for the Middle-Level Learner, MMA

Credits: 3

Focuses on data collection, analysis, interpretation, and communication, using contexts relevant to everyday situations. Topics chosen integrate well with the concerns of middle-level teachers and connect with such curriculum areas as health, science, and social studies. This is not a research methods course.

Cross Listed STAT 5185

Prerequisite: Admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5215 - Using Technology for Middle-Level Mathematics

Credits: 3

Covers the use of technology appropriate to middle-level mathematics teaching, such as microworlds, geographic information systems, spreadsheets, and other content appropriate technologies. Cross Listed with EDCI 5215. Prerequisite: admission to the SMTC Program.

Cross Listed EDCI 5215

Prerequisite: Admission to the SMTC Program.

MMA Odd Years (2021, 2023, 2025...)

NASC5170 - Connecting Geometry with Problem- Solving for the Middle-Level Learner, MMA

Credits: 3

Showcases two aspects of 2D and 3D geometry: measurement and transformation. Emphasis reflects current State and National standards for middle-level mathematics classroom and teacher preparation, especially appropriate uses of technology, geometric tools, mathematical language, and problem-solving strategies.

Cross Listed MATH 5170.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, acceptance into the Middle-level mathematics program.

NASC5190 - Mathematics of Change and the Middle-Level Learner, MMA

Credits: 3

Students gain a solid understanding of data and functions in the service of calculus. Hands-on, project-driven, and

focuses on the essential concepts of functions and calculus and their role in middle-level mathematics. Emphasis is on writing and technology (calculators and probeware).

Cross Listed MATH 5190.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5205 - Methods of Teaching Middle-Level Mathematics, MMA

Credits: 3

Research-based pedagogy and pedagogical content knowledge for teaching middle-level mathematics. Designed for practicing teachers of middle-grades mathematics.

Cross Listed EDCI 5205.

Prerequisite: admission to the SMTC Program.

NASC5225 - Assessment for Middle-Level Mathematics, MMA

Credits: 3

Middle-level Mathematics Initiative teacher participants examine, analyze, and implement a variety of assessments that are aligned with standards and instruction appropriate to the middle level math learner.

Cross Listed EDCI 5225.

Prerequisite: admission to the SMTC Program.

Natural Science Education (NED)

Teton Science Schools Graduate Program - Year 1

EDCI5790 - Learning Theories and Instructional Principles

Credits: 3

This course focuses on making connections between theoretical perspectives on teaching and learning, empirical work, and the actual practice of teaching. As a result, learners should expect to examine multiple learning theories, read research based on those theories, explore pedagogy that grows out of these theories, and integrate theory into practice in their own classrooms.

Prerequisite: graduate standing.

NASC5610 - Field Studies in Environmental Education, NED

Credits: 4

Expands student's knowledge of ecological and physiological animal and plant adaptations to environmental conditions, the use of teaching methods and tools of naturalists, the range of resources available for designing and evaluating curriculum, and promotes an appreciation and understanding of the diversity of environments. Contains 4 modules.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5620 - Advanced Elements of Field Ecology Course Design, NED

Credits: 5
Max Credit (Max. 6)

Addresses designing field ecology courses that include research, outdoor leadership, and natural history components. Opportunities are provided to gain deeper understanding of key natural history and ecology concepts of the bioregion; practical strategies for teaching these concepts in field programs; and to formally present student work.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5625 - Place-Based Education-Teton Science School

Credits: 3
Introduces graduate students at Teton Science Schools to the theory and practice of place-based education. The design of the course exposes students to the historical, political, and eco-social underpinnings of place-based education while supporting students in developing thoughtful place-based pedagogies.

Prerequisite: graduate student status.

NASC5630 - Teaching Practicum-Teton Science School

Credits: 2-4
Max Credit (Max. 6)

To improve teaching methods and techniques and expand professional skills. Integrates the foundation of Teton Science Schools, applies coursework content understanding and develops leadership. The course is intended to challenge previously held instructional beliefs and nurture an evolving set of skills and instructional identity. Not equivalent to EDSE 4500 or EDCI 5990 or EDEL 4500.

Prerequisite: current enrollment at Teton Science School.

NASC5640 - Introduction to Field Science Teaching

Credits: 3
Designed to introduce graduate students at Teton Science Schools' to the field of environmental education and instructional concepts for teaching environmental science in the outdoors. Learn field science content, principals of connecting to place, teaching techniques, and learning theories related to environmental education and field science teaching.

Prerequisite: current enrollment at Teton Science School.

ZOO5405 - Winter Ecology of the Yellowstone Ecosystem

Credits: 2

Winter Ecology emphasizes the effects of winter abiotic conditions on organisms and organismal adaptations. Energy flux, snowpack physics, organismal adaptations, avalanche awareness, and the influence of winter on wildlife management are emphasized through lectures and field laboratories. Students will develop an independent research project and present their results.

Prerequisite: graduate standing.

ZOO5420 - Ecological Inquiry

Credits: 3

Addresses basic ecological concepts and natural resource management issues in the Greater Yellowstone Ecosystem (GYE). Emphasis will be placed on developing critical thinking skills and exploring the effects of resource management policy and actions. Course direction will involve moving from a known facts way of thinking in to realm of evaluating effects of human management of the GYE.

Prerequisite: LIFE 2022, LIFE 3400, and graduate standing.

ZOO5430 - Ecology of the Greater Yellowstone Ecosystem

Credits: 3

Covers plant and animal community ecology from both a qualitative and quantitative perspective. Topics include: community interaction of plants and animals; community dynamics, succession, and disturbance; basic data collection and statistical analysis of habitat association data; and the effect of abiotic factors on community structure.

Prerequisite: LIFE 2022, LIFE 3400, and graduate standing.

Natural Science Education (NED) - Year 2

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

Other Courses offered by SMTC available to Graduate Students in SMTC programs:

NASC5670 - Research Methodology

Credits: 4

This course provides foundational information on asking appropriate questions, researching (including IRB), writing, formatting, and defending a Plan B project. At the end of the semester students will have a committee, a preliminary

draft, and present their research. Spring semester will be used to complete projects with committee members.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5700 - Seminar in Science for Secondary School Teachers

Credits: 1-6
Max Credit (Max. 6)

A course to give graduate students in education, or in-service teachers, an in-depth view of the new materials for teaching science in secondary schools.

Prerequisite: consent of instructor.

NASC5770 - Investigation in Natural Science for Secondary Teachers

Credits: 1-5
Max Credit (Max. 10)

Deals with the design, construction, and testing of curricula materials to bring the spirit of scientific inquiry to secondary school students. Research to be conducted in the Science and Mathematics Teaching Center.

Prerequisite: consent of instructor.

NASC5890 - Directed Professional Study

Credits: 1-6
Max Credit (Max. 6)

Primarily for upper-division students who can benefit from independent study with minimal supervision. Given to allow interested students to pursue specific aspects of curriculum and instruction.

Prerequisite: consent of instructor and graduate standing.

NASC5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

NASC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

NASC5961 - Plan B Project

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have program approval.

NASC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

NASC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: graduate standing.

Courses

NASC4790 - Topics in Natural Science

Credits: 1-6
Presents selected science topics to acquaint teachers or prospective teachers with new concepts, materials or techniques, as introduced in various new school curricula. Topics may include earth science for the middle school, computer learning and/or elementary school environmental science. Includes laboratory.

Prerequisite: junior standing.

NASC4800 - Field Studies in Natural Science

Credits: 1-6

Explores topics best studied in the field, on location, or otherwise outside the traditional classroom. Topics may include grassland ecosystem, geology field trips for elementary children and/or schoolyard study areas. Includes laboratory.

Prerequisite: junior standing.

NASC5110 - Physical Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Examines the global dynamics of energy, hydrocarbon combustion, and the physics and chemistry of water. Investigates relationships between energy transformations and pollutants. Considers environmental limitations of fresh water availability and the buffering effect of sea and fresh water.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in Elementary, middle school or general science education.

NASC5120 - Earth Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Emphasizes the lithosphere and atmosphere and their interactions with the hydrosphere and biosphere. Examines the interplay between tectonic processes, earth's radiation balance, ocean processes, ozone depletion and the greenhouse effect. Includes evaluation of methods of measuring and monitoring these phenomena.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teach certification in elementary, middle school or general science education.

NASC5130 - Life Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Investigates ecosystem composition and processes, and biological responses to changes in ecosystem parameters. Examines terrestrial and aquatic communities, photosynthesis, energy flow, biogeochemical cycles, global climate change, climate warning, deforestation, population ecology, DNA/ RNA structure, function, genetic engineering and forensic applications.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science education.

NASC5140 - Numbers, Operations, and Patterns for the Middle-Level Learner, MMA

Credits: 3

Provides working middle-level mathematics teachers opportunities to understand and discuss numbers, their

representations, and operations on them, from an abstract perspective that includes elegant proof. Also emphasized is the role of language and purpose in composing definitions.

Cross Listed MATH 5140.

Prerequisite: admission to a UW graduate program, either degree or non-degree seeking status, and acceptance into the Middle-level mathematics program.

NASC5160 - Social and Historical Issues in Mathematics and the Middle-Level Learner, MMA

Credits: 3

Empowers teachers of middle-level mathematics to design engaging experiences. Emphasizes the historical context for the development of mathematics, especially its symbols, tools, personalities, and classic problems.

Cross Listed MATH 5160.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5170 - Connecting Geometry with Problem- Solving for the Middle-Level Learner, MMA

Credits: 3

Showcases two aspects of 2D and 3D geometry: measurement and transformation. Emphasis reflects current State and National standards for middle-level mathematics classroom and teacher preparation, especially appropriate uses of technology, geometric tools, mathematical language, and problem-solving strategies.

Cross Listed MATH 5170.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, acceptance into the Middle-level mathematics program.

NASC5185 - Analysis of Data in the Media for the Middle-Level Learner, MMA

Credits: 3

Focuses on data collection, analysis, interpretation, and communication, using contexts relevant to everyday situations. Topics chosen integrate well with the concerns of middle-level teachers and connect with such curriculum areas as health, science, and social studies. This is not a research methods course.

Cross Listed STAT 5185

Prerequisite: Admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5190 - Mathematics of Change and the Middle-Level Learner, MMA

Credits: 3

Students gain a solid understanding of data and functions in the service of calculus. Hands-on, project-driven, and focuses on the essential concepts of functions and calculus and their role in middle-level mathematics. Emphasis is on writing and technology (calculators and probeware).

Cross Listed MATH 5190.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5205 - Methods of Teaching Middle-Level Mathematics, MMA

Credits: 3

Research-based pedagogy and pedagogical content knowledge for teaching middle-level mathematics. Designed for practicing teachers of middle-grades mathematics.

Cross Listed EDCI 5205.

Prerequisite: admission to the SMTC Program.

NASC5215 - Using Technology for Middle-Level Mathematics

Credits: 3

Covers the use of technology appropriate to middle-level mathematics teaching, such as microworlds, geographic information systems, spreadsheets, and other content appropriate technologies. Cross Listed with EDCI 5215.

Prerequisite: admission to the SMTC Program.

Cross Listed EDCI 5215

Prerequisite: Admission to the SMTC Program.

NASC5225 - Assessment for Middle-Level Mathematics, MMA

Credits: 3

Middle-level Mathematics Initiative teacher participants examine, analyze, and implement a variety of assessments that are aligned with standards and instruction appropriate to the middle level math learner.

Cross Listed EDCI 5225.

Prerequisite: admission to the SMTC Program.

NASC5300 - Classroom Assessment in Middle-level Science, MSC

Credits: 2

Deals with the design, construction, and testing of curriculum materials to bring the spirit of scientific inquiry to elementary school pupils. Research to be conducted in the Science and Mathematics Teaching Center.

NASC5400 - Spatial Data Instructional Technology

Credits: 1

Teaching strategies appropriate for elementary/middle school students' conceptual level of development. Positive attitudes toward teaching children about the Earth, its physical environment and human/environment relationships will be promoted. The course content will be supported by the use of geospatial technologies, such as GPS and GIS.

Prerequisite: graduate standing.

NASC5510 - Integrated Instructional Strategies, MSC

Credits: 2

Appropriate instructional strategies are discussed and modeled for aligning standards, expectations, and experiences in an integrated science environment. Attention is given to unique characteristics of each strategy, including a review of research on the effectiveness of each strategy on student achievement and attitudes.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5600 - Mathematics and Statistics in Science Teaching, MSC

Credits: 2

Provides science teachers with the knowledge and experience necessary to help students use statistics in the scientific process. Activities emphasize a hands-on inductive approach closely related to the school science curriculum. Important statistical ideas and methods are studied as they arise naturally in the biological, physical, and earth sciences.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5610 - Field Studies in Environmental Education, NED

Credits: 4

Expands student's knowledge of ecological and physiological animal and plant adaptations to environmental conditions, the use of teaching methods and tools of naturalists, the range of resources available for designing and evaluating curriculum, and promotes an appreciation and understanding of the diversity of environments. Contains 4 modules.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5620 - Advanced Elements of Field Ecology Course Design, NED

Credits: 5

Max Credit (Max. 6)

Addresses designing field ecology courses that include research, outdoor leadership, and natural history components. Opportunities are provided to gain deeper understanding of key natural history and ecology concepts of the bioregion; practical strategies for teaching these concepts in field programs; and to formally present student work.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5625 - Place-Based Education-Teton Science School

Credits: 3

Introduces graduate students at Teton Science Schools to the theory and practice of place-based education. The design of the course exposes students to the historical, political, and eco-social underpinnings of place-based education while supporting students in developing thoughtful place-based pedagogies.

Prerequisite: graduate student status.

NASC5630 - Teaching Practicum-Teton Science School

Credits: 2-4

Max Credit (Max. 6)

To improve teaching methods and techniques and expand professional skills. Integrates the foundation of Teton Science Schools, applies coursework content understanding and develops leadership. The course is intended to challenge previously held instructional beliefs and nurture an evolving set of skills and instructional identity. Not equivalent to EDSE 4500 or EDCI 5990 or EDEL 4500.

Prerequisite: current enrollment at Teton Science School.

NASC5640 - Introduction to Field Science Teaching

Credits: 3

Designed to introduce graduate students at Teton Science Schools' to the field of environmental education and instructional concepts for teaching environmental science in the outdoors. Learn field science content, principals of connecting to place, teaching techniques, and learning theories related to environmental education and field science teaching.

Prerequisite: current enrollment at Teton Science School.

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

NASC5660 - Standards, Pedagogy and Research

Credits: 2

This course is designed to provide Master of Science in Natural Science students with background in three areas: current science standards, pedagogical practices, and the understanding of various types of educational research as well as some of the practices related to conducting their own research projects.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5670 - Research Methodology

Credits: 4

This course provides foundational information on asking appropriate questions, researching (including IRB), writing, formatting, and defending a Plan B project. At the end of the semester students will have a committee, a preliminary draft, and present their research. Spring semester will be used to complete projects with committee members.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5700 - Seminar in Science for Secondary School Teachers

Credits: 1-6

Max Credit (Max. 6)

A course to give graduate students in education, or in-service teachers, an in-depth view of the new materials for teaching science in secondary schools.

Prerequisite: consent of instructor.

NASC5770 - Investigation in Natural Science for Secondary Teachers

Credits: 1-5

Max Credit (Max. 10)

Deals with the design, construction, and testing of curricula materials to bring the spirit of scientific inquiry to secondary school students. Research to be conducted in the Science and Mathematics Teaching Center.

Prerequisite: consent of instructor.

NASC5810 - ML Science & Math Practicum

Credits: 3

Practica for graduate students in the MS-Natural Science MSC and MMA programs in Middle and Junior High schools. Mathematics and science classrooms will serve as sites for assignments. Students complete assignments for the content area of certification as well as appropriate discussions.

Prerequisite: Graduate students in department who have passed at least four departmental courses or consent of the instructor.

NASC5890 - Directed Professional Study

Credits: 1-6

Max Credit (Max. 6)

Primarily for upper-division students who can benefit from independent study with minimal supervision. Given to allow interested students to pursue specific aspects of curriculum and instruction.

Prerequisite: consent of instructor and graduate standing.

NASC5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

NASC5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NASC5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NASC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: graduate standing.

NASC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

NASC5961 - Plan B Project

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have program approval.

NASC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

College of Law

102 Law Building

Klint Alexander, Dean

Phone: (307)766-6416 FAX: (307)766-6417

Web site: www.uwyo.edu/law

Professors:

KLINT ALEXANDER, B.A. Yale University 1991; Ph.D./M.Phil. Cambridge University 1997; J.D. University of Virginia 1999; Dean & Professor of Law 2015.

MELISSA ALEXANDER, B.A. Yale University 1996; J.D. University of Virginia 1999; Professor of Law 2019, 2015.

JACQUELYN BRIDGEMAN, B.A. Stanford University 1996; J.D. University of Chicago 1999; Associate Dean for Academic Affairs and Professor of Law 2008, 2002.

KENNETH CHESTEK, B.A. Pennsylvania State University 1975; J.D. University of Pittsburg School of Law 1979; Professor of Law 2018, 2012.

DANIELLE R. COVER, B.A. University of Maryland 1994; J.D. Tulane University School of Law 1997; Professor of Law 2020, 2014; Director of Legal Services Clinic.

JAMES M. DELANEY, B.A. University of Washington 1985; J.D. Gonzaga University School of Law 1992; LL.M. in Taxation, University of Florida 1997; Professor of Law 2013.

STEPHEN M. FELDMAN, B.A. Hamilton College 1977; J.D. University of Oregon 1982; J.S.M. Stanford University 1986; Jerry W. Housel/ Carl F. Arnold Distinguished Professor of Law 2002.

MARK GLOVER, B.A. Washington University in St. Louis 2002; J.D. Boston University School of Law 2008; LL.M. Harvard Law School 2011; Professor of Law 2019, 2015.

DARRELL D. JACKSON, B.A. College of William and Mary 1987; J.D. George Mason University School of Law 1990; Ph.D. University of Colorado School of Education 2011; Professor of Law 2018, 2013.

SAM KALEN, B.A. Clark University 1980; J.D. Washington University 1984; Professor of Law 2014, 2009.

GEORGE MOCSARY, B.E. The Cooper Union School of Engineering 1995; MBA University of Rochester 1995; J.D. Fordham University School of Law 2009; Professor of Law 2019.

NOAH B. NOVOGRODSKY, B.A. Swarthmore College 1992; J.D. Yale Law School 1997; Professor of Law 2013, 2009.

TARA RIGHETTI, B.A. University of Colorado Boulder 2005; J.D. 2007; Professor of Law 2020, 2014.

JASON ROBISON, B.S. University of Utah 2003; J.D. University of Oregon 2006; LL.M. Harvard Law School 2009; S.J.D. 2013; Professor of Law 2019, 2015.

ALAN ROMERO, B.A. Brigham Young University 1990; J.D. Harvard University 1993; Professor of Law 2007, 2003.

MICHAEL R. SMITH, B.S. Florida State University 1982; J.D. University of Florida 1985; Professor of Law 2006.

Associate Professors:

LAUREN MCLANE, B.S. Radford University 2002; J.D. Seattle University School of Law 2008; Associate Professor of Law 2021, 2018; Director, Defender Aid Clinic.

DONA PLAYTON, B.S. University of Wyoming 1989; J.D. University of Wyoming 1993; Associate Professor of Law 2002, 2018; Director, Family and Child Legal Advocacy Clinic.

Assistant Professors:

JERRY FOWLER, B.A. Princeton University 1983; J.D. Stanford University 1990; Assistant Professor of Law 2019; Director, International Human Rights Clinic.

Academic Professionals:

DEBORA PERSON, B.A. Arizona State University 1981; M.L.S. Rutgers University 1992; Library Associate 1993; Administrative Law Librarian 2005, 1994.

TAWNYA PLUMB, B.A. University of Wyoming 1996; M.L.I.S. University of Texas at Austin 1998; Electronic Services and Assistant Librarian 2004.

Professors Emeritus

Debra L. Donahue, Harvey Gelb, Timothy Kearley, Jerry R. Parkinson, Dee Pridgen, Joel Selig, Elaine A. Welle

The College of Law was founded in 1920. The goal of the college is to provide a sound and thorough education in the law that will prepare the student to practice law in accordance with the highest standards of professional competence and responsibility. The emphasis in instruction is on analysis and understanding of legal principles and the

development of skills necessary to the practice of the profession. The course of study will prepare a graduate to practice in any jurisdiction which has adopted the Anglo-American system of law.

The curriculum of the College of Law consists of three years of study within the college. Required courses necessary to basic legal knowledge make up the first two semesters of study, while courses in the final four semesters are largely elective. Students become eligible to receive the Juris Doctor (J.D.) degree upon successful completion of 90 semester credit hours of law courses with a grade point average of at least 2.000.

The college acts as a law center for Wyoming. It serves lawyers, judges, and government by a program of continuing legal education for attorneys and others interested in significant legal developments, by research projects aimed at improving state law, and by publishing the Wyoming Law Review.

Accreditation

The college is approved by the American Bar Association and its graduates are eligible for admission to the bar in every state. A student planning to practice in a particular state should check its rules for admission to the bar.

The college is also a member of the Association of American Law Schools. Membership is conditioned upon the maintenance of an adequate teaching staff and library, the offering of a sound educational program and adherence to prescribed standards for the admission and graduation of students.

Prelegal Curriculum

There is no prescribed or required set of courses for prelegal work. A student must usually have a B.A. or B.S. degree before beginning the professional study of law. There are no restrictions on the field in which the degree is earned.

The objective of prelegal study should be to acquire knowledge and skills useful in the study and practice of law. College study should prepare the student for law school by developing language comprehension and use, understanding of political, economic, social and cultural institutions, and the ability to think logically and creatively. Courses promoting these objectives are included in the basic requirements for most undergraduate degrees. The choice of a major should be determined by the student's academic interest and professional objective in law.

Valuable background may be acquired through the study of English, history, philosophy, economics, political science, psychology, sociology, business administration, mathematics and the natural sciences.

For additional information, see the College of Law web site, (www.uwyo.edu/law).

Admission Requirements and Procedures

Admission to the professional curriculum in law is granted by the admissions committee of the College of Law. The College of Law restricts the number of entering students to a class size consistent with its facilities and its educational objectives. In evaluating an application, the committee considers the applicant's undergraduate college scholastic record and score on the Law School Admission Test (LSAT).

Other criteria relevant to the probability of success in the study and practice of law will also be considered.

1. Prior to beginning work in the College of Law, applicants must have a bachelor's degree from an accredited college or university, unless they have requested and been granted following exception:
 - a. An applicant who needs not more than 6 semester hours of college credit to qualify for a bachelor's degree may be admitted in exceptional cases to law school if the committee determines that the applicant has sufficient education and preparation for the study of law; has an outstanding

- undergraduate scholastic record; and has an approved program signed by the appropriate undergraduate official indicating that the remaining requirements for the bachelor's degree may be met by summer school attendance or by other means that will not interfere with the study of law.
2. Every applicant must take the Law School Admission Test. A packet giving information about the test, the dates on which it is given, and centers at which it can be taken, sample questions and an application form, may be obtained from Law School Admission Council, Box 2000, Newtown, PA 18940, by phone at (215) 968-1001, online at www.lsac.org.
 3. Every applicant must register with the Law School Admission Council Credential Assembly Service, CAS. Registration may be done through the LSAC website (www.lsac.org). The CAS will prepare a report that is transferred to the college.
 4. Every applicant must complete the electronic University of Wyoming College of Law Application through LSAC between October 15 and April 30. Applications received by December 15 will be considered for early admission.
 5. If admitted, official transcripts sent directly to the College of Law from each college attended must be on file in the Admissions Office at least 30 days before the student's registration date.

Application Deadline

An initial entering class will be selected from completed applications on file on April 30. Students who submit an application by December 15 will be considered for early admission. An application is complete only when the college has received the LSAT score, the CAS report, applications, and all supporting documents.

Admission With Advanced Standing

Transfer students are admitted only when the College of Law facilities and curriculum permit. A transfer student may transfer up to the number of credits the student could have earned had the student completed his or her first year at the University of Wyoming College of Law. Transfer credit will be given only for courses in which the student earned a grade of C or higher. Applicants admitted must satisfy the requirements for graduation established by the College of Law, including such other requirements as may be imposed as a condition of admission. Students interested in transferring should contact the College of Law for information concerning application procedures.

Academic Regulations

The Juris Doctor (J.D.) degree is awarded by the College of Law faculty to candidates who meet the following requirements:

Curriculum is subject to change at the College of Law Faculties discretion, which may cause the annually updated university catalog to be out of date. For students matriculating in or after the fall 2013 semester, each student must successfully complete (grade of "D-" or better for courses taken at this school, grade of "C" or better for courses taken elsewhere) 90 credit hours (required for graduation) of law coursework in accordance with the official curriculum as adopted by the College of Law faculty. At least 59 of these credits must be completed at the University of Wyoming College of Law. Courses taken for S/U grades count toward the hours required for the J.D. degree only if the course is offered for the S/U grade only. Regardless of the matriculation date, students must complete at least 76 credit hours through graded (A-F) courses.

The course of study must be completed no earlier than 24 months (2 years) and not later than 84 months (7 years) after a student has commenced law study. No student shall be permitted to enroll at any time in coursework that, if successfully completed, would exceed 20 percent (18 hours) of the total coursework required for graduation.

Second and third year students may take up to six of 90 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students must receive a letter

grade of B or better for these non-law courses to count toward graduation requirements. Additionally, these courses will transfer in with a satisfactory grade of 'S' and will not impact their law school GPA. Students who wish to enroll in a non-law course on this basis must secure the prior approval of the course professor and the Associate Dean of Academic Affairs at the College of Law. Approval will be based on the student's submission of a Non-Law Grad Course Request form with a brief written statement explaining how the proposed coursework relates to and enhances the student's legal education. Students should be aware that non-law courses completed on this basis will not count toward the 76 hours that students must complete in graded courses as a requirement for graduation. The non-law coursework will instead be counted as credits the law students are permitted to take on an S/U basis.

The College of Law automatically approves up to 9 hours of any joint degree core courses with the corresponding prefix to their joint degree (i.e. MBAM, POLS, ENR) that meet the grade requirement to transfer in toward their law degree. If additional courses are needed outside of these respective prefixes, these will be approved on a case by case basis. Those students enrolled in a joint degree program may take up to 9 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students in a joint degree program who use 9 non-law credit hours toward their J.D. degree may reduce their required number of graded credits from 76 to 73 so that they can participate in other S/U offerings at the College of Law. To receive law school credit for the non-law course, a student will be required to earn a grade of B or better in the non-law course. The grade will not count, however, toward the student's law school GPA. The course will be counted as a "satisfactory" grade for purposes of the student's law school GPA. Joint degree students should be aware that non-law courses completed on this basis will not count toward the 73 hours that joint degree students must complete in graded courses as a requirement for graduation. The non-law coursework will instead be counted as credits the law students are permitted to take on an S/U basis.

To graduate, all students must earn a cumulative grade point average of 2.000 for all courses taken at the College of Law. If a course is repeated, both grades shall be included in computing the average. The student, except in exceptional circumstances, must have a baccalaureate degree. Candidates who meet these requirements are eligible for graduation at the end of any semester.

Academic Standing

The following requirements apply to any coursework at the College of Law. Courses that law students may complete outside of the College of Law do not count in calculation of the required College of Law grade point average (GPA).

In the first year, a student who fails to make a 1.800 GPA after the first semester, or fails to make a 1.900 cumulative GPA overall in the first year's work, shall be excluded from the College of Law. A student who at any time fails to make a passing grade in two of the courses for which the student is registered in any semester shall be excluded from the College of Law.

A student who enters the second year with a GPA lower than 2.000 but at 1.900 or above, or who fails to maintain a 2.000 cumulative GPA after the first year, shall be placed on academic probation. A student on academic probation who does not attain an overall grade point average of 2.000 within one semester shall be excluded.

A student excluded from the College of Law may petition the faculty for readmission. The faculty may, in its discretion, readmit the student upon receipt of satisfactory evidence of extenuating circumstances or marked improvement in grades and study habits. Readmission may be subject to conditions, including, but not limited to, the repeating of any or all courses, as the faculty may decide. If a student's petition for reinstatement is denied, the student must wait nine months before petitioning again for readmission. Also, all students are limited to two petitions for readmission. The entire faculty will automatically hear and consider a student's initial petition. In the event of a second petition for readmission, a committee selected by the Dean will hear and consider the petition. The committee will present a report and recommendation to the faculty for adoption. Denial of a second petition is final.

Advanced Writing Requirement

As a condition of graduation, all students must complete an upper-level writing requirement consisting of a research paper of a minimum length of 5,000 words, exclusive of footnotes. All students must follow a designated standard citation form. Students must submit a detailed outline of the paper to the supervising professor, then must rewrite the paper at least once after the professor reviews the first draft. With the professor's approval, the student can meet the advanced writing requirement in any law school elective course, including a seminar, as long as the above requirements are met. The supervising professor must certify that the writing requirement has been fulfilled.

All student articles written for law review, whether published or unpublished, must have a supervising faculty member and otherwise meet all other provisions of the College of Law Advanced Writing Requirement. A student may also fulfill the requirement through an independent study or by writing a case note or comment for the law review, under the supervision of a professor. It cannot be satisfied through participation in a clinic.

Attendance Requirement

Students must attend at least 75 percent of regularly scheduled classes in each required course. A professor in a required course may impose an attendance requirement of greater than 75 percent if the policy is announced in writing on the first day the class meets.

In elective courses, students must attend at least 75 percent of regularly scheduled classes unless the professor announces a different policy in writing on the first day the class meets. Any alternative policy must comply with the American Bar Association (ABA) requirement of regular and punctual attendance.

A student who fails to meet the minimum class attendance requirement in any class will be dropped from the course and receive a grade of F, unless extenuating circumstances are present, in which case the student shall receive a grade of W. A professor may impose sanctions for students who have met the minimum class attendance requirement but in other respects have violated specified attendance guidelines, if the professor announces the guidelines and possible sanctions in writing on the first day the class meets.

The following table indicates the number of classes a student must attend under the 75 percent rule in a two hour or three hour course, depending on the number of class meetings. Students must verify with the professor the number of classes required in a one or four hour course.

The ABA requires attendance at 75 percent of all scheduled class times.

3-Credit Course (meeting three times a week for 55 minutes each):

<u>Class Meetings</u>	<u>Must Attend</u>
40	30
41	31
42	32

2-Credit Course (meeting twice a week for 55 minutes each) or a 3-Credit Course (meeting twice a week for 80 minutes each):

<u>Class Meetings</u>	<u>Must Attend</u>
26	20
27	20
28	21

Class Rank

Students are ranked by class at the end of each of the fall and spring semesters once the faculty have submitted all grades. Class rankings will be available in the Front Office. Students can choose to have their spring class ranking letter mailed to them if they provide the Front Office with a self-addressed, stamped envelope. Transfer students to the College of Law shall not be ranked with other UW students until they have completed two full-time semesters at UW (or a minimum of 24 UW credits). Students who visit out at other ABA accredited law schools or who graduate early are ranked based on their ranking at the end of their last semester at UW.

Experiential Learning Requirement

As a condition of graduation, each student must successfully complete no fewer than 6.0 credit hours in experiential learning courses. Experiential learning courses include a simulation course, a law clinic, or an externship field placement. Simulation courses provide substantial experience not involving legal representation of an actual client, that (1) is reasonably similar to the experience of a lawyer advising or representing a client or engaging in other lawyering tasks in a set of facts and circumstances devised or adopted by a faculty member; and (2) includes: direct supervision of the student's performance by the faculty member; opportunities for performance, feedback from a faculty member, and self-evaluation; and a classroom instructional component (ABA Standard 303).

Typically students may fulfill the experiential learning requirement by successfully completing 6.0 credit hours in any of the following upper- class elective courses:

- Advanced Appellate Advocacy (LAW 6520)
- Advanced Legal Research (LAW 6990)
- Advanced Oil & Gas Law (LAW 6992)
- Advanced Persuasive Writing (LAW 6925)
- Alternative Dispute Resolution (LAW 6915)
- Business Planning (LAW 6560)
- Civil Pretrial Practice (LAW 6565)
- Clinic: Civil Legal Services (LAW 6930 or LAW 6931)
- Clinic: Defender Aid (LAW 6932 or LAW 6930)
- Clinic: Energy, Environ. & Natural Resources (LAW 6933 or LAW 6930)
- Clinic: Family & Child Advocacy (LAW 6930 or LAW 6934)
- Clinic: International Human Rights (LAW 6930)
- Clinic: Prosecution Assistance (LAW 6930 or LAW 6936)
- Contract Drafting (LAW 6935)
- Estate Planning (LAW 6670)
- Estate Planning Practicum (LAW 6937 or LAW 6930 or LAW 6915)
- Externships (LAW 6960)
- Interviewing, Counseling & Negotiation (LAW 6166 or LAW 6915)
- Summer Trial Institute (LAW 6850)
- Trial Practice (LAW 6850)

Note: classes may be removed from and/or added to this list each semester.

Grading

Grades are assigned on a plus/minus system. Grades of incomplete (I), and withdrawal (W), are disregarded. A required course in which a grade of F or W or U is received must be repeated. A course cannot otherwise be repeated without

the consent of the faculty. If a course is repeated, both grades are included in computing the student's grade point average.

A4.00	B +3.333	C+2.333	D+1.333	F0.000
A-3.667	B3.000	C2.000	D1.000	WF0.000
	B-2.667	C-1.667	D-0.667	

Satisfactory (S) or unsatisfactory (U) grading applies only if the course is offered on an S/U basis or a student takes a non-law graduate-level course as explained above. Students from other colleges who are permitted to take professional courses in the College of Law must take them for S/U credit. The grading scale is at discretion of the instructor for each course.

Bar Exam Passage Rate Improvement Program

Students matriculating after August 2021, a student whose first-year GPA is in the bottom one-third of the class will be required to pass four of the following courses as a requirement of graduation: Business Organizations (or one of either Agency and Partnership or Corporations); Secured Transactions; Trusts and Estates; Criminal Procedure; Criminal Adjudication; Family Law; Constitutional Law II; or Real Estate Finance. During the fall and spring semesters after the 1L year it is required to take at least one of these courses as a minimum each semester, until the requirement has been satisfied.

In order to graduate, a student whose first-year GPA is in the bottom one-third of the class will also be required to take and pass a law school-offered bar examination course as a 3L (typically in their final spring semester), unless for unanticipated reasons the College of Law does not offer that course in a particular year.

Curriculum

Required Courses: First (1L) Year Students (*Additional courses cannot be taken the first year without special permission from a dean.*)

Fall Semester

Civil Procedure I (6240) - 3

Contracts I (6110) - 3

Legal Research (6165) - 1

Legal Writing I (6160) - 3

Property I (6120) - 3

Torts I (6130) - 4

Spring Semester

Civil Procedure II (6340) - 2

Constitutional Law I (6250) - 3

Contracts II (6210) - 2

Criminal Law (6140) - 3

Legal Writing II (6260) - 2

Property II (6220) - 2

Required Courses: Second (2L) Year Students (offered once per year)

Evidence (6410) - 3

Professional Responsibility (6420) - 3

Elective Courses: Second (2L) & Third (3L) Year Students (* subject to availability)

See Law Courses section

Graduation with Honors

The degree of Juris Doctor is awarded with honors if the student achieves a grade point average of 3.400 or better on all resident credit in the College of Law.

Honor Roll

Students enrolled in a minimum of 12.0 semester hours of law courses carrying A-F grades, and who have no semester grades of incomplete (I), are eligible for the President's Honor Roll and the Dean's Honor Roll. Students with a semester average of 4.000 will be named to the President's Honor Roll. First-year students with a semester average of 3.250 or better and second-year and third-year students with a semester average of 3.400 or better will be named to the Dean's Honor Roll.

Minimum Hours

The College of Law does not permit students to attend on a part-time basis. Students are required to take the full load of required courses during their first two semesters and to carry at least 9 credit hours in each of the remaining semesters of law study. Notwithstanding, if a student has less than 9 credits remaining in their final semester of study, then said student may register for only the number of remaining credits (e.g. if a student only has 4 credits left to graduate, that student will only be required to register for 4 credits). First year students will be allowed to take less than the full load of required courses only if they present exceptional circumstances, as determined by the Dean or his/her delegate.

Transfer Credits

The College of Law admits transfer students only in the fall of their second year. A student granted transfer admission may transfer credits earned in courses taken at another ABA-accredited law school toward a degree from the UW College of Law up to the number of credits that a traditional UW student would have earned during the student's first year at the University of Wyoming (32 credits as of the 2020-21 academic year). In addition, University of Wyoming law students who visit out for a semester or full year may also transfer credits from other ABA approved law schools, as long as 59 credits are completed at the University of Wyoming. The College of Law will also accept up to 15 hours of transfer credit from another ABA accredited school for an international student previously enrolled in an LL.M. or other post-J.D. program. To receive transfer credit from a course, a grade must be a "C" or better. Transfer credits are recorded on the JD transcript as an "S" (Satisfactory), instead of graded credits. All transfer credits must be approved by the Associate Dean of Academic Affairs in advance.

Withdrawing from a Course &/or the University

Failure to attend class or failure to pay tuition does not constitute withdrawal from a class or from the University. Students who pre-register for classes on WyoWeb will be assessed tuition and fees. Students who drop or withdraw from their last or only class for a given term after the end of the drop/add time period must also meet with the Assistant Dean of the College of Law and complete the official withdraw forms required by the Office of Registrar. Financial aid recipients who withdraw from courses or reduce credit hours must consult with a financial aid counselor regarding repayment of financial aid funds if applicable. For more complete details regarding deadlines, refunds, and cancellations, see the University's Accounts Receivable web page <http://www.uwyo.edu/fsbo/accounts-receivable/>

Exam Procedures and Policies

1. Review the Honor Code before beginning the exam period. It applies to all examinations. If you have any questions about the materials allowed by a professor, please see the professor in advance of the exam.
2. A copy of the final exam schedule will be posted on the web, please check dates and times carefully.
3. We use exam numbers, rather than students' names, so that professors cannot identify the students' exams they are grading. Exam numbers will be available in ExamSoft one to two weeks before the exam period. You must write this number on all of your exams and blue books, or as your identification number for typed exams. **DO NOT** write your name on your exam. Midterm exams and final exams have unique numbers. Save these numbers, as you will use the same number for all of your midterm and final exams respectively. New numbers are assigned each semester.
4. All examinations must be: (A) written in ink in 8 1/2 x 11 size "blue books," OR (B) typed on the student's laptop using the ExamSoft software. Students provide their own blue books, pens or laptops. The law school will supply answer sheets and pencils for any multiple choice exams.
5. If you are using a laptop:
 - Exemplify (SofTest) is operable for PC's and Mac's. Please reference this site for the most up to date Minimum System Requirements, Exemplify: Minimum System Requirements - ExamSoft
 - You must download the exam software (free for students) well in advance of the exam day.
 - Have your laptop set up and the software running in the designated room before the time to begin the exam.
 - Instructions for using the ExamSoft Exemplify (SofTest) software are available at the Examssoft website (use Chrome or Firefox ONLY).
 - If you experience any problems with your computer during the exam, come to the front office immediately and someone will assist you.
 - Once you complete the exam, and have turned in your exam questions, be sure you receive the "upload successful" message to assure that your exam answers have been transmitted.
6. All exam reschedules must be approved by COL Assistant Dean, Lindsay Hoyt or the Registrar. You must meet the criteria published within the exam schedule to reschedule an exam, i.e., two exams on one day, three exams in three days, or four exams in five days. Fill out the exam reschedule request form and turn it into COL Registrar, Dave

Bluemel. Please note, that if possible, an elective will be rescheduled rather than a large required class, and rescheduled to a later, rather than an earlier date.

7. Students who are handwriting their exams must return the exam questions and blue books to a staff member in the lobby outside the Dean's office at or before the time indicated on the exam. Laptop users should exit the exam software and turn in the exam questions to a staff member at or before the time indicated. It is your responsibility to determine the precise time the exam is to be returned and to ensure that you meet the deadline. Use the clock in the exam room for reference, not the clock that may appear on your computer or the time on your wristwatch.

8. During the exam, turn off (or leave outside the room) all cell phones, smart watches, pagers, and PDA's. Do not leave them on vibrate, as this may be disturbing to other students.

9. When you finish your exam, please be courteous/quiet as you gather your belongings and leave the exam room. You MAY NOT return to the room to gather your belongings after you have turned in your exam, unless it is after the collection time indicated on the exam. **Be** aware that students are taking exams in both the morning and the afternoon and are taking exams that have differing ending times -- so please curb your talking in the classroom areas and halls during the administration of exams.

10. If you cannot take the exam at the set time due to illness, or other emergency, you must notify Assistant Dean Lindsay Hoyt, as soon as possible, prior to the exam and be prepared to supply appropriate documentation.

11. Final grades will be available on WyoWeb. No grades will be given over the telephone.

Final Exam Reschedule Policy

No student is required to take exams in the following circumstances as long as they submit a reschedule form two weeks prior to the first day of exams:

- two exams on one day
- Three exams in three consecutive days
- four exams in five consecutive days

Students who have six final exams cannot be provided relief due to the limited number of exam days. Efforts will be made, however, to distribute the six exams so as to avoid three in a row. A student who meets the above criteria must see Assistant Dean Lindsay Hoyt to reschedule. Exams are not normally rescheduled outside of the regular exam period.

Disability Assistance

The University of Wyoming College of Law is committed to making its programs accessible to individuals with disabilities and ensuring a robust academic experience for all students. The College of Law works closely with the Disability Support Services office on the University's main campus to coordinate a variety of services for students with disabilities. The Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973 guarantee equal access to programs and services to those with disabilities. In order to be a qualified individual subject to the protections of these Acts, a person must demonstrate that he or she has a disability that substantially limits a major life activity (e.g., seeing, hearing, walking, breathing, performing manual tasks, learning, caring for oneself, and working) and, as such, requires a reasonable accommodation in order to have equal access. This section of the College of Law's policies explains a student's rights and responsibilities in seeking to receive accommodations from the College of Law because of a disability. The process and procedures outlined here apply to law school classroom accommodations, exam accommodations, and accommodations related to accessing the University's facilities.

I. Rights and Responsibilities in Requesting Reasonable Accommodations

A. Accommodation Request Deadlines

1. The deadlines for students requesting accommodations is 2 weeks before the start of the academic year or semester for classroom and exam accommodations.
2. Extensions to these deadlines may be granted to students who were unable to meet the deadline due to extenuating circumstances. Accommodations are prospective; retroactive accommodations are not available. For this reason, it is important that the student timely submit requests for accommodations.

B. Accommodation Process and Procedure for Classroom and Exam Accommodations

1. A student who believes that he or she has a qualifying disability warranting accommodation for academic programs, exams or access to the University's facilities should submit their requests for accommodations through the University of Wyoming's Disability Support Services (DSS), by contacting udss@uwyo.edu or 307 766-3073 or applying through the website found here: <https://www.uwyo.edu/udss/>.
2. The DSS application process is required and separate from any communication with College of Law staff. Students *should not* go directly to any faculty in an effort to arrange accommodations for disabilities.
3. Once the student submits the completed application and supporting medical documentation, DSS will review the documentation to verify the existence of a qualifying and make a decision regarding the student's eligibility for services. DSS also may request additional documentation at any time or may request that the student's physician or other licensed health professional speak directly to the DSS staff.
4. Following the determination that the student has a qualified disability, DSS and the Assistant Dean of the College of Law, as the designated liaison for the College and its faculty, will consult together to make a determination regarding the student's requested accommodations related to the student's courses, exams, and access to university facilities.
5. A reasonable accommodation is an accommodation that does not impose an undue financial or administrative burden on the College of Law and does not fundamentally alter the nature of the educational service, program, or activity at the College of Law.
6. DSS is responsible for making determinations about reasonable accommodations after consulting with the Assistant Dean of the College of Law and will then notify the student by email of the decision to deny, grant, or partially grant or provide a reasonable alternative to the requested accommodations. This email is required prior to any accommodations being made.
7. Information regarding a student's disability and any accommodations provided shall be disclosed only when necessary in furtherance of the student's education or to individuals who have a need to know the information as determined by the University. As a general rule, when feasible, student anonymity will be maintained.
8. For any exam condition accommodations, DSS will notify the Assistant Dean of the College of Law who will oversee the implementation of the accommodation. DSS will also notify any other law school staff designated by the Assistant Dean of the College of Law who are needed to implement the accommodation (e.g. the designated testing coordinator, faculty etc.). Students will be provided notice of the time and place of their accommodated testing by DSS.
9. For classroom accommodations, the Assistant Dean of the College of Law will oversee implementation of the accommodations and notify the faculty of the particular course if the accommodations provided affect the conduct of the class.

10. If a student is denied eligibility for DSS or requested reasonable accommodations, the student may request a review of these determinations by the Vice President for Student Affairs consistent with the process mentioned here <https://www.uwyo.edu/udss/laws-and-complaint-processes/if-and-when-you-disagree.html> Students who have questions about the review process may contact DSS for more information. The Vice President for Student Affairs may consult with the Dean of the College of Law prior to making a final determination.

II. Rights and Responsibilities of the Student after Receiving Classroom and Exam Accommodations

- A. A student must renew his or her request for accommodations each semester by meeting with DSS in order to determine whether new and different accommodations are necessary for the student's disability to be accommodated. Requests for classroom and exam accommodations must be made two weeks prior to the beginning of the semester. At these meetings, DSS may request that the student submit updated documentation verifying the nature and extent of the student's disability.
- B. If a student's condition changes at any time, thereby affecting the nature and extent of his or her disability, the student must notify the DSS immediately and DSS will consult with the Assistant Dean of the College of Law, as the designated liaison for the College to engage in the interactive process set forth in section I(B)(4).
- C. If there is a problem with any accommodations that a student receives, whether it is related to a course, an exam, or access to a facility, the student must promptly notify DSS who will coordinate with the Assistant Dean of the College of Law so that steps may be taken, to the extent practicable, to resolve the problem.
- D. Communication via accommodations (including exam schedules and room assignments) will be made using the student's email account. A student is responsible for checking email on a timely basis to determine the status of any issue relating to the accommodation that has been put in place for a particular disability. If the student's disability prevents physical access to email, an alternative method of communication will be determined in consultation with DSS, the College of Law, and the student.

III. Requests for Accommodations Related to the College of Law Facilities

Any requests for disability accommodations related to the College of Law buildings or University grounds may be initiated by contacting DSS or the Assistant Dean of the College. DSS and/or the College of Law will work collaboratively regarding any requests and may involve other campus units, including but not limited to the UW Operations, in order to process and/or implement reasonable accommodations related to the College of Law facilities.

Joint Degree Programs

JD/MA in ENR Program

A joint Juris Doctor/Master of Arts of Environment and Natural Resources degree is available to all admitted law students upon application. Students in this joint degree program must take 18 credits outside the law school in ENR courses, and must take 12 law school credits from a menu of ENR related law courses to qualify for this joint degree. Students in the joint degree program must also complete a supervised research project. Additionally, nine (9) credits of approved MA coursework (see Academic Regulations) will be applied to the Juris Doctor degree.

Current core courses: ENR 5000, ENR 5900, ENR 5890.

JD/MBA Program

A joint Juris Doctor/Master of Business Administration program is available in the College of Law and the College of Business. This program will take approximately four years to complete. Students spend three years on-campus engaged in law studies. In either their second or third year, students will be enrolled full-time in the MBA Program, taking core Fall and Spring business courses followed by participation in an MBA Summer Project. The MBA Capstone course will be completed during the student's third year for a total of 38 MBA Program credits. Nine (9) credit hours of approved Law coursework will be transferred as elective hours to the MBA Program for a total of 47 credit hours. Additionally, nine (9) credits of approved MBA coursework (see Academic Regulations) will be applied to the Juris Doctor degree. Students successfully completing this lock-step program will earn dual Juris Doctor and Masters of Business Administration degrees.

Current core courses: MBAM 5102, MBAM 5104, MBAM 5107, MBAM 5202, MBAM 5204, MBAM 5207, MBAM 5208, MBAM 5209, MBAM 5305, MBAM 5330.

JD/MPA Program

A student in the joint Juris Doctor/Master of Public Administration program must be admitted to both the College of Law and College of Arts and Sciences. The degrees are awarded concurrently by each college upon successful completion of the combined degree program requirements. In fulfillment of the J.D. degree, the College of Law will accept up to nine hours of MPA credits in courses approved by the law faculty (see Academic Regulations). In fulfillment of the MPA degree, the College of Arts and Sciences will accept up to 12 hours of credits earned in specified courses in the J.D. program. For additional information regarding these joint degree programs, contact the College of Law or the joint program of interest.

Current core courses: POLS 5000, POLS 5400, POLS 5410, POLS 5440, POLS 5684, POLS 5510, POLS 5690, POLS 5080, POLS 5060, POLS 5450, POLS 5460, POLS 5480

Nonprofessional Degree Students

Graduate students from other colleges of the University of Wyoming may be permitted to take one or more law courses on an S/U basis for non-law credit when the following conditions are met: the law course taken is acceptable for their degree program and the prior written approval of the professor assigned to the course and the Associate Dean or Assistant Dean has been obtained. In order to obtain audit or visitor privileges, students must obtain prior written approval of the professor assigned to the course and the Associate Dean or Assistant Dean. For further information and requirements contact the Associate Dean of Academic Affairs, College of Law, Dept. 3035, 1000 E. University Ave., Laramie, WY 82071.

Course descriptions may be obtained online at www.uwyo.edu/law.

Graduate

Juris Doctor

The goal of the College of Law is to provide a sound and thorough education in the law that will prepare the student to practice law in accordance with the highest standards of professional competence and responsibility.

Curriculum

Overall Hours

For students matriculating in or after the fall 2013 semester, each student must successfully complete (grade of "D-" or better for courses taken at this school, grade of "C" or better for courses taken elsewhere) 90 credit hours (required for graduation) in accordance with the official curriculum as adopted by the College of Law faculty. At least 59 of these credits must be completed at the University of Wyoming College of Law.

The College of Law automatically approves up to 9 hours of any joint degree core courses with the corresponding prefix to their joint degree (i.e. MBAM, POLS, ENR) that meet the grade requirement, of a letter grade of B or better, to transfer in toward their law degree. If additional courses are needed outside of these respective prefixes, these will be approved on a case by case basis. Those students enrolled in a joint degree program may take up to 9 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree.

Law A-F hours

Regardless of the matriculation date, students must complete at least 76 credit hours through graded (A-F) courses.

Those students enrolled in a joint degree program may take up to 9 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students in a joint degree program who use 9 non-law credit hours toward their J.D. degree may reduce their required number of graded credits from 76 to 73 so that they can participate in other S/U offerings at the College of Law.

Required Courses: First (1L) Year Students

(Additional courses cannot be taken the first year without special permission from a dean).

Fall Semester

LAW6240 - Civil Procedure I

Credits: 3
Max Credit (Max. 3)

A study of modern practice in civil cases under Rules of Civil Procedure and other sources of procedural law. Civil Procedure I and its continuation, Civil Procedure II, cover all aspects of jurisdiction and other issues bearing on what court(s) may hear a case; choice of state or federal law; pleading; joinder of claims and parties; class actions; discovery and other pre-trial procedures; summary judgment; non-jury and jury trials; appeals; and claim and issue preclusion.

LAW6110 - Contract I

Credits: 3
Max Credit (Max. 3)

A study of the elements of simple contracts, including offer and acceptance, consideration, conditions, defenses, and damages. The impact of the Uniform Commercial Code on contracts is considered.

LAW6165 - Legal Research

Credits: 1
Max Credit (Max. 1)

Introduction to paper and electronic resources that cover primary & secondary legal materials, including case law, statutes, agency regulations for federal and state jurisdictions, & treatises, journals, restatements, and other secondary sources. Discusses research plans and develops brief research strategies for hypothetical situations.

LAW6160 - Legal Writing I

Credits: 3
Max Credit (Max. 3)

In this course students are introduced to the fundamentals of legal reasoning and analysis and the basics of legal writing.

LAW6120 - Property I

Credits: 3
Max Credit (Max. 4)

Covers two general areas. The first area is the rights that define property ownership, in relation to neighbors, the world, and others with interests in the property. Subjects include rights to use the land and its products, estates, concurrent ownership, and landlord-tenant law. The second area is private limitations on those rights, in the form of covenants and easements.

LAW6130 - Torts I

Credits: 4
Max Credit (Max. 4)

Study of the methods and policies for allocating risks of harm; intentionally inflicted harms; negligence in its general aspects and its application to products liability, landowners, and automobile traffic; emotional harms; defamation; and fraud. Principal areas of coverage typically include wrongful death, defenses, vicarious liability, strict liability, nuisance, products liability and defamation. If time permits we will also cover privacy, misrepresentation and other topics.

Spring Semester

LAW6340 - Civil Procedure II

Credits: 2
Max Credit (Max. 2)

A study of modern practice in civil cases under Rules of Civil Procedure and other sources of procedural law. Civil Procedure I and its continuation, Civil Procedure II, cover all aspects of jurisdiction and other issues bearing on what court(s) may hear a case; choice of state or federal law; pleading; joinder of claims and parties; class actions; discovery and other pre-trial procedures; summary judgment; non-jury and jury trials; appeals; and claim and issue preclusion.

LAW6250 - Constitutional Law I

Credits: 3
Max Credit (Max. 3)

Constitutional Law I is divided into two parts. Part I focuses on governmental structures. Part II begins our coverage of individual rights and liberties. Part I's coverage includes the power of judicial review, separation of powers, federalism, and congressional powers. Part II focuses on equal protection.

LAW6210 - Contracts II

Credits: 2
Max Credit (Max. 2)

A study of the elements of simple contracts, including offer and acceptance, consideration, conditions, defenses, and damages. The impact of the Uniform Commercial Code on contracts is considered.

LAW6140 - Criminal Law

Credits: 3
Max Credit (Max. 3)

The sources of criminal law and the purposes of criminal punishment, the constituent parts of criminal conduct, including act (or omission), culpable mental state, result, and causation. These general principles are brought to bear on homicide and sexual assault. Also considers common defenses to criminal charges, including self-defense, necessity, duress, insanity, and intoxication. Students are required to consider the constitutional limits of the criminal law and the relationship of substantive principles to practice.

LAW6260 - Legal Writing II

Credits: 2
Max Credit (Max. 2)

This course builds on the first semester Legal Writing course by introducing students to: (1) more sophisticated aspects of legal reasoning, analysis and legal research; (2) the basics of persuasive legal writing; (3) the basics of appellate procedure and an appellate brief; and (4) the basics of oral advocacy.

LAW6220 - Property II

Credits: 2
Max Credit (Max. 2)

First covers some private and public limitations on owners' property rights, primarily easements and zoning. The rest of the semester deals with acquiring ownership rights, possession and transfers, including the law relating to deeds and titles.

Required Courses: Second (2L) Year Students

(offered once per year)

LAW6410 - Evidence

Credits: 3
Max Credit (Max. 3)

A study of the means by which any alleged fact is established or disproved, including competency of witnesses; direct examination; cross-examination and impeachment; privileges; basic and special issues of relevancy; the hearsay rule and its exceptions; real, demonstrative, and documentary evidence; opinion and scientific evidence; judicial notice; and the responsibility of proof.

LAW6420 - Professional Responsibility

Credits: 3
Max Credit (Max. 3)

A study of the duties of attorneys to their clients and the public under the Model Rules of Professional Conduct and case law.

Experiential Hours

Each student must successfully complete no fewer than 6.0 credit hours in experiential learning courses:

LAW6166 - Interview, Counseling and Negotiation

Credits: 3
Introduction to the basic lawyering skills of interviewing, fact investigation, counseling, and negotiation. Employs simulation exercises, self-critiques, and feedback from the faculty member as well as other students. In addition to the exercises, exposure to the theoretical underpinnings of the skills and examine some of the ethical issues involved in creating and maintaining professional relationships with clients and opposing parties and counsel.

LAW6560 - Business Planning

Credits: 3
Max Credit (Max. 3)

Focus is primarily on a problem involving several persons who are organizing a business entity. Consideration will be given to the characteristics of several kinds of business organizations and to making a judgment as to which organization should be used to house the business being set up. Considers tax and non-tax aspects with respect to business organizations.

LAW6565 - Civil Pretrial Practice

Credits: 3
Max Credit (Max. 3)

Includes the civil litigation process from the filing of a complaint and decisions related to the complaint, to discovery including written discovery and depositions, to pre-trial motions such as motions to change venue, to exclude evidence, and for summary judgment, to preparation for pre-trial conferences and trial. Sample cases provide the basis for the drafting of various discovery documents and motions. There will be no exam.

LAW6670 - Estate Planning

Credits: 2
Max Credit (Max. 2)

Applies estate and gift tax principles in a survey of estate planning principles and techniques. Traditional estate planning tools including wills, trusts, and durable powers of attorney are discussed as well as post-mortem planning, administration issues, and planning for special situations, such as owners of closely held businesses, entrepreneurs, and the disabled.

LAW6850 - Trial Practice

Credits: 3
Max Credit (Max. 3)

Trial Practice is a rigorous learn-by-doing course designed to build courtroom skills. Through a combination of exercises, lectures, demonstrations, drills and complete trials, students are prepared to advocate before judges and juries. The first half of the course focuses on basic examination and exhibit skills, including direct, cross, redirect, making and responding to objections, and the introduction and use of real and demonstrative evidence. In the sixth week, students conduct bench trials. The second half of the course builds on the basic skills and covers advanced ones, including examination of expert witnesses, opening statement, closing argument and voir dire. Jury trials are conducted in the final two weeks.

LAW6930 - Legal Clinic

Credits: 2-3
Max Credit (Max. 6)

Supervised clinical training in law office and court procedures. Clinical programs available are the Defender Aid Program, Legal Services Program, and the Prosecution Assistance Program.

Prerequisite: Students must have completed first year of law school.

LAW6931 - Clinic: Civil Legal Services

Credits: 3
Max Credit (Max. 12)

The Civil Legal Services Clinic has provided legal assistance to Wyoming citizens for over 20 years. Students represent low-income and marginalized individuals across the state who could not otherwise afford legal representation. The CLSC's mission is to provide legal services in a broad range of general civil legal matters.

LAW6932 - Clinic: Defender Aid

Credits: 3
Max Credit (Max. 12)

Provides representation to indigent persons in Wyoming state and federal courts. We represent clients pending trial, on direct appeal from their convictions, and handle post-conviction matters in state and federal court.

LAW6933 - Clinic: Energy, Environment and Natural Resources

Credits: 3
Max Credit (Max. 12)

Fall: Classroom component of the Clinic will provide a practitioner's view of key aspects of federal court litigation practice in cases involving natural resources issues. Spring: Clinic will provide an overview of the Wyoming Administrative Procedure Act and the Wyoming statutes that govern the regulation of energy production, environmental protection, and natural resources management in Wyoming.

LAW6934 - Clinic: Family and Child Advocacy

Credits: 3
Max Credit (Max. 12)

Handle a wide array of cases including divorce, child custody, domestic violence protection orders, stalking orders, guardian ad litem appointments in juvenile and domestic relations cases, and other family law matters. In addition, law students represent children or their parents in child abuse and neglect cases, termination of parental rights, children in need of supervision and delinquency actions.

LAW6935 - Contract Drafting

Credits: 3
Max Credit (Max. 3)

Covers fact investigation and the role of the lawyer in a transaction proposed by the client, including possible negotiations with other parties; drafting a contract in Plain English; and the ethical obligations of a transactional lawyer, through simulations and problem-solving exercises.

Prerequisite: LAW 6110.

LAW6936 - Clinic: Prosecution Assistance

Credits: 3
Max Credit (Max. 12)

The program is heavily involved with the Wyoming Attorney General's office, usually in representing the state in criminal appeals before the Wyoming Supreme Court. In handling these appeals, students are responsible for the entire preparation of appellate briefs and the presentation of oral argument to the Supreme Court.

LAW6937 - Estate Planning Practicum

Credits: 3
Max Credit (Max. 12)

Provides students the opportunity to work with low-income clients around the State of Wyoming in a transactional law setting. Prepare wills, powers of attorney, advance health care directives, deeds, affidavits of distribution and other probate documents for small estates and will learn how to plan an estate for beneficiaries who are minors or who have special needs.

LAW6960 - Legal Externships

Credits: 1-3
Max Credit (Max. 6)

The externship program provides second and third year students with an opportunity to learn through practice by working directly with attorneys or judges for academic credit. Externship placements are limited to judges, government agencies and nonprofit organizations, and must be pre-approved by the College of Law faculty.

LAW6925 - Advanced Persuasive Writing

Credits: 3

Max Credit (Max. 3)

Art and science of written legal persuasion. Specifically, course explores the nature of legal persuasion from the standpoints of numerous disciplines, including classical rhetoric, psychology, literary theory, and morality theory, and based on these principles, covers specific strategies lawyers can use to make their writing more persuasive.

Prerequisite: LAW 6160 and LAW 6260, and completion of first year of law school.

LAW6992 - Advanced Oil and Gas Law

Credits: 3

Simulate the work of an oil and gas attorney. Explore oil and gas financing arrangements including the farmout, JOA, and productions sharing agreements, drilling and service agreements, downstream marketing and purchase agreements, conveyances of oil and gas real property interests, the purchase and sale of petroleum properties, oil and gas development on federal lands, and title examination.

Prerequisite: C or better in LAW 6790.

Advanced Writing

As a condition of graduation, all students must complete an upper-level writing requirement.

Elective Courses:

Second (2L) & Third (3L) Year Students (* subject to availability);

See Law Courses section

Juris Doctor/Master of Arts in Environment and Natural Resources

Students working toward the J.D./M.A. in ENR consult a Haub School advisor to design a program of study tailored to meet their educational goals.

Academic Regulations

A joint Juris Doctor/Master of Arts of Environment and Natural Resources degree is available to all admitted law students upon application. Students in this joint degree program must take 18 credits outside the law school in ENR courses, and must take 12 law school credits from a menu of ENR-related law courses to qualify for this joint degree. Students in the joint degree program must also complete a supervised research project. Additionally, nine (9) credits of

approved MA coursework (see Academic Regulations) will be applied to the Juris Doctor degree. Current core courses: ENR 5100, ENR 5900, ENR 5890, ENR 5750.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

Environmental & Natural Resources, J.D./M.A.

Here is where you will find the requirements for the Environment & Natural Resources, J.D./M.A.

Juris Doctor/Master of Business Administration

The Juris Doctor/MBA program offered with the UW Colleges of Law and Business provides students with a high ROI. Optimize time and money spent by pursuing this dual program and tapping into quality education, networking, and career possibilities.

Academic Regulations

A dual Juris Doctor/Master of Business Administration program is available in the College of Law and the College of Business. This program will take approximately four years to complete. Students spend three years on-campus engaged in law studies. In their second year, students will be enrolled full-time in the MBA Program taking required core business courses during the Fall, Spring, and Summer as well as participating in additional required program activities (orientation, Experiential Leadership Program, Jackson Leadership Summit, MBA Executive Speaker Series, Professional Development activities, etc.). The MBA Capstone course will be the final course completed in the summer term for a total of up to 36 MBA program credits. Nine (9) credit hours of approved coursework will be transferred as elective hours to the Juris Doctor degree and up to six (6) credit hours of approved coursework will be transferred as elective hours to the MBA degree. Students successfully completing this dual program will earn dual Juris Doctor and Masters of Business Administration degrees.

Current Core Courses:

MBAM5101 - MBA Foundations

Credits: 1

The purpose of this course is to prepare students for the academic rigors of the MBA program.

Restricted Enrollment in MBAM or MBAF degree program.

Prerequisite: Admission to full-time MBA program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5107 - Decision Making I

Credits: 1

This course develops a systematic process for making decisions in complex business situations, by integrating six dimensions of business risk: competitive, financial, organizational, legal, social, and ethical. The process combines analytical and ethical reasoning methods that compensate for the flawed decision making common in business organizations.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5209 - Decision Making II

Credits: 1

An experiential learning course that builds on MBAM 5107. Students apply systematic business decision making process to real-world business situations. Student teams work directly with owners and managers of Wyoming companies to address their strategic, competitive, operational, financial, and/or administrative challenges in real time.

Prerequisite: MBAM 5107.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

MBA

Here is where you will find informatin on the Business Administration, M.B.A.

Juris Doctor/Master of Public Administration

The Master's in Public Administration degree offered at the University of Wyoming is considered an ethics based program where complicated issues of administrative decision making are the hallmarks of professional life.

Academic Regulations

A student in the joint Juris Doctor/Master of Public Administration program must be admitted to both the College of Law and College of Arts and Sciences. The degrees are awarded concurrently by each college upon successful completion of the combined degree program requirements. In fulfillment of the J.D. degree, the College of Law will accept up to nine hours of MPA credits in courses approved by the law faculty (see Academic Regulations). In fulfillment of the MPA degree, the College of Arts and Sciences will accept up to 12 hours of credits earned in specified courses in the J.D. program. For additional information regarding these joint degree programs, contact the College of Law or the joint program of interest.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

MPA/JD

Here you will find information on the Public Administration (MPA/JD)

Armed Forces Services

LTC George R. Rigglin, Commander, Army ROTC
LtCol. Anthony Kusek, Commander, Air Force ROTC

It has been the consistent policy of the university in cooperation with the federal government to make courses in military science and aerospace studies available on a voluntary basis to all qualified students.

Academic credits for Army and Air Force Reserve Officers' Training Corps (ROTC) are applied toward baccalaureate and graduate degrees in varying amounts depending upon the degree plan of the student and as determined by the college concerned.

Minor

Aerospace Studies Minor

Air Force ROTC offers an Aerospace Studies minor.

The 24 credit hours required to accomplish the Aerospace Studies minor will effectively compliment many majors, provide a sound basis for future professional development, and increase the career opportunities of a UW graduate.

Minor Requirements

For the Aerospace Studies minor, the student must complete the core AFROTC program plus:

- 3 credit hours in any Management (MGT) course in the current UW catalog **AND**
- 3 credit hours in one Political Science (POLS) course listed below
OR
- 6 credit hours of Political Science courses listed below.

Political Science

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 o r POLS 1250 o r permission of the instructor.

POLS2290 - Governments and Politics of Latin America

Credits: 3

Studies chief cultural and historical factors influencing Latin American political process. Surveys major institutions and political patterns of the region.

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

- POLS 2300

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

POLS3220 - Government and Politics of Russia and FSU

Credits: 3

Examines the political, economic and identity transitions of Russia and other states of the former Soviet Union during the post-communist era. Explores how current challenges relate to past Soviet practices.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3300 - Model United Nations

Credits: 1-3

Max Credit (Max. 6)

Focuses on the United Nations (UN) system and multilateral diplomacy to prepare students to participate in a Model UN simulation. Students learn to evaluate the UN system, learn strategies to address international problems, and develop skills to effectively represent a country in a role-playing exercise.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

- POLS 4220

POLS4230 - Governments and Politics of Asia

Credits: 3

Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 5230.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4255 - Politics of Developing Nations

Credits: 3

An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed INST 4255.

Dual Listed POLS 5255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200/INST 1200 or POLS 1250/INST 1250 or POLS 2310/INST 2310, or permission of instructor.

- POLS 4300

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4360 - International Peace and Conflict

Credits: 3

Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed INST 4360.

Dual Listed POLS 5360.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4870 - Seminar in International Relations

Credits: 3

Max Credit (Max. 6)

Encompasses reading and research in international law and politics.

Dual Listed POLS 5870.

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

Army ROTC Military Science Minor

The military science minor, encompassing 22 credit hours, will prepare selected students for commissioning and establish a sound basis for their future professional development.

Army ROTC offers a military science minor. Effective with the Fall 2015 semester, the requirements for a minor in military science are as follows:

Minor Requirements

Army ROTC offers a military science minor. Effective with the Fall 2015 semester, the requirements for a minor in military science are as follows:

ARMY3010 - Leadership and Tactics I

Credits: 3

Studies leadership techniques and tactical operations at the small-unit level. Instruction covers the decision-making process, troop leading procedures, land navigation and operation orders. In-depth analysis of team/squad tactical procedures and techniques. Numerous student oral presentations and practical exercises.

USP 2003-2014 Code U30

Prerequisite: ARMY 2010, ARMY 2020, basic camp or consent of department head.

ARMY3020 - Leadership and Tactics II

Credits: 3

Studies platoon-level tactics and leadership techniques. Instruction covers the solving of complex tactical problems. Illustrates techniques for properly managing personnel, resources and time to accomplish organizational goals. Introduces Army staff functions and prepares students for successful completion of ARMY 3030.

Prerequisite: ARMY 3010.

ARMY3025 - Conduct of Training

Credits: 1

Introduces the Army's system of conducting training exercises. Covers prerequisite training, pre-execution checks, officer/NCO responsibilities, training presentation techniques, sustainment training and training assessment.

Prerequisite: consent of instructor.

ARMY3026 - Assessment of Training

Credits: 1

Introduces the Army's system of training assessment. Covers formal and informal after-action reviews (AARs); preparation for, conduct of, and goals of an AAR; and writing of Army after-action reports.

Prerequisite: consent of instructor.

ARMY3030 - Practicum in Leadership

Credits: 3

Encompasses Leadership Development and Assessment Course, a five week test of the cadet's leadership ability. Each cadet is evaluated in ten different positions. Positions include both garrison and tactical situations. Each position requires the cadet to plan, implement and execute a wide variety of tasks. The cadet must control all personnel under this command. The cadet is extensively evaluated by cadre Tactical Officer/Non-commissioned Officer on twelve leadership dimensions. Successful completion of the Leadership Development and Assessment course is required for commissioning.

Prerequisite: successful completion of ARMY 3010 and ARMY 3020.

ARMY4010 - Dynamics of the Military Organization I

Credits: 2

Studies and analyzes organization, resources and functions of military staff. Reviews formal staff problem-solving procedures, including student effective writing and briefing presentations. Introduces ethics and the military profession.

Former Course Number [4030]

Prerequisite: ARMY 3010, ARMY 3020 or consent of department head.

ARMY4020 - Dynamics of the Military Organization II

Credits: 2

Introduces military law; planning and management of personal affairs; Army transportation, logistics and personnel management systems. Studies officer/NCO relations. Includes student writing and briefing presentations on assigned topics.

Former Course Number [4040]

Prerequisite: ARMY 4010 or consent of department head.

ARMY4015 - Staff Officer Practicum I

Credits: 1

Gives students practical experience in serving on an Army staff. Under supervision of an Army ROTC cadre member, students undergo training and conduct practical exercises in one of the following specialties: command and control, operations, personnel or logistics.

Prerequisite: concurrent enrollment in ARMY 4010.

ARMY4016 - Staff Officer Practicum II

Credits: 1

Gives students experience in serving on an Army staff. Under the supervision of an Army ROTC Cadre member, students undergo training and conduct practical exercises in one of the following specialties: command and control, operations, personnel or logistics.

Prerequisite: concurrent enrollment in ARMY 4020.

ARMY4025 - Principles of Training Management

Credits: 1

Introduces students to the Army's system of training management. Covers principles and philosophy of training, training guidance, training cycles, soldiers/leader tasks, techniques for collective and multi-echelon training, as well as procedures for short-term planning.

Prerequisite: consent of instructor.

ARMY4026 - Preparation of Training

Credits: 1

Introduces the Army's system of training preparation. Covers short-range training plans, training meetings, development of timelines, publishing of training schedules, training and evaluation outlines, as well as rehearsals.

Prerequisite: consent of instructor.

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

OR

- HP 4900 Credits: 3

Total Credit Hours: 22

Haub School of Environment and Natural Resources

Helga Otto Haub School of Environment and Natural Resources

John Koprowski, Dean
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Phone: (307) 766-5080 FAX: (307) 766-5099
Web site: www.uwyo.edu/haub

Degrees Offered

The Haub School offers undergraduate and graduate degrees, concurrent majors and minors, certificates, and a graduate degree in partnership with the College of Law:

Bachelor of Science in Environmental Systems Science (for baccalaureate students)

Bachelor of Science in Environment & Natural Resources (for baccalaureate students, required concurrent major)

Environment & Natural Resources concurrent major (for baccalaureate or master's students earning a degree from UW)

Bachelor of Science in Outdoor Recreation & Tourism Management (for baccalaureate students)

Environment & Natural Resources minor (for baccalaureate, master's, and doctoral students)

Sustainability minor (for baccalaureate students)

Outdoor Leadership minor (for baccalaureate students)

Master of Science in Environment, Natural Resources & Society (for master's students)

Master of Arts in Environment & Natural Resources (J.D./M.A. for law students only)

Collaborative Practice minor (for master's and doctoral students)

Program Admission

Undergraduate students will apply for admission to the University of Wyoming, and then declare a major or minor within the Haub School at any point during their course of study. To declare a major or minor, students must meet with a Haub School academic advisor.

Graduate students interested in the concurrent major or minor in Environment & Natural Resources (ENR) will apply for admission to a primary degree program at the University of Wyoming. Once accepted to their primary graduate program, students must complete an additional online process to confirm their enrollment in the ENR major or minor. A one-page Statement of Purpose is required to apply. Visit the Haub School website at <https://www.uwyo.edu/haub> for details.

Applicants to the M.S. in Environment, Natural Resources & Society must apply to the University of Wyoming. Applications for graduate assistantships should be directed to the Haub School. Current application requirements are available online.

Applicants to the J.D./M.A. in ENR must apply to both the College of Law and the Haub School. Admission to the joint degree program is contingent on acceptance to the College of Law. Current application requirements are available online.

More information, including complete curricula for each academic offering, is available from the Haub School.

Haub School Requirements for Undergraduate Programs

All students declared in undergraduate Haub School programs, including majors and minors, must earn a C or better in all Haub School program requirements. Students enrolled in multiple Haub School programs must earn 12 credits unique to each program.

Undergraduate students earning a B.S. in Environmental Systems Science, a B.S. in Outdoor Recreation & Tourism Management, and/or a B.S. in Environment & Natural Resources (plus a concurrent major in another field) must also fulfill the additional following Haub School Requirements:

- Complete two courses (totaling a minimum of 6 credit hours), one to meet the U.S. Diversity (ASD) requirement and one to meet the Global Awareness (ASG) requirement. Courses approved to meet these requirements are searchable within WyoRecords under the Browse Classes feature.
- Meet all University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program (USP) requirements and maintaining a minimum 2.0 cumulative GPA for good academic standing and graduation.

Major

Environment & Natural Resources, B.S. or Concurrent Major

Environment & Natural Resources (ENR) students will gain depth and breadth across a range of interdisciplinary fields that engage with complex ENR ideas and challenges, with the goal of integrating across fields of study.

Program Overview

Students can choose to pursue:

- a concurrent major in ENR, earned alongside an approved baccalaureate degree in any other discipline, or
- B.S. in ENR, earned alongside an additional major in any other discipline.

The ENR curriculum is designed to prepare students to demonstrate learning in six key areas:

1. **Specialization & Integration** - Students will complement their disciplinary depth with broad exposure to ENR-related disciplines and approaches.
2. **Spatial & Temporal Perspectives** - Students will understand the temporal and spatial characteristics of ENR challenges.
3. **Policy** - Students will recognize the content and implications of past and current ENR policies.
4. **Cultures & Values** - Students will appreciate the diversity of ENR perspectives and experiences, including the role of personal and collective value systems and structural inequalities in shaping those systems.
5. **Complexity, Risk, & Uncertainty** - Students will understand that ENR problems inherently involve complexity, risk, and uncertainty.

6. Professional & Academic Skills - Students will acquire specific skills necessary to succeed in a range of ENR professions and/or graduate and professional school, especially proficiency in written and oral communication, applied problem solving, and collaboration.

All undergraduate students in ENR complete their coursework in conjunction with another major in any discipline.

Students must complete 36+ hours of coursework in ENR, including:

15+ Credit Hours of ENR Core Courses:

Foundations of Environmental Science

(Choose one course):

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Environment & Society

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

Approaches to Problem Solving

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making. Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

Environmental Assessment

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

Applied Experience (2 credits)

ENR4970 - ENR Internship

Credits: 1-6
Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

21+ Credit Hours of ENR Disciplines Courses:

Cultures & Values

(Choose one course):

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

AMST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U.S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program, or instructor approval.

ENR4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed AMST 4030.

Dual Listed ENR 5030.

Prerequisite: 3 hours in any interdisciplinary program.

AMST4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 4030.

Dual Listed AMST 5030.

Prerequisite: 3 hours in any interdisciplinary program.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

ENR2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

USP 2003-2014 Code [CH< >(none)]

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

GEOG4570 - Cultural Geography

Credits: 3

Cultural Geography is an overview in qualitative cultural landscape studies. The course emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Students are exposed to readings in cultural geography from a wide array of viewpoints with an emphasis placed on classic works.

Cross Listed GEOG 5570, INST 4570, INST 5570

Prerequisite: 6 hours in social science

HLED4020 - Food, Health, and Justice

Credits: 3

Maps ways our dominant national and global food systems affect health and equity in health, largely though not only negatively. Students will critically assess practiced and potential strategies for creating alternative food systems that support health and equity, particularly at the U. S. community level.

Dual Listed HLED 5020.

Prerequisite: Completed COM 2 course and minimum 2.750 cumulative UW GPA.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

GWST4450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 5450.

Prerequisite: 6 hours in WMST, PHIL, and/or ENR.

Economics

(Choose one course):

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

GEOG3050 - Economic Geography

Credits: 3

Economic Geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

Environmental Management

(Choose one course):

ENR4800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed AMST 4800.

Dual Listed ENR 5800.

Prerequisite: ARE 3020 or AMST 5400.

AMST4800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed ENR 4800.

Dual Listed AMST 5800.

Prerequisite: ARE 3020 or AMST 5400.

ENR4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430/CHE 4430.

Prerequisite: CHEM 1020.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical

ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

Data Analysis

(Choose one course):

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language,

including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

Physical & Natural Science

Choose One Course:

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

ATSC2200 - Severe and Unusual Weather

Credits: 3

A nontechnical course on severe and unusual weather events that occur around the globe. The focus of the course is on a wide range of weather events that have profound impacts on societies, economics, and cultures, and the material is presented in a qualitative manner such that is highly accessible by students coming from all backgrounds.

USP 2003-2014 Code U5PN

ENR3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed REWM 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ENR4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 4285.

Dual Listed ENR 5285.

Prerequisite: University Studies QA.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

ENR3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed SOIL 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

GEOG4460 - Biogeography

Credits: 3

A systematic study of the distribution of plants and animals, communities and ecosystems, the processes that produce patterns of distribution and their change over time. Interactions of climate, soil geomorphology, biota and human activities are emphasized.

Former Course Number [G&R 4460, 3460]

Prerequisite: junior standing and GEOG 1010 or LIFE 2022 or LIFE 2023.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

OR Complete all Three Courses:

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

Policy

(Choose one course):

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

INST4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 4455.

Dual Listed INST 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 4475.

Dual Listed POLS 5475.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

ENR Electives

(Select from the following, minimum three credits required):

Any course with code ENR 1000-4999

An Approved Major in Any Discipline

All undergraduate students in ENR complete their coursework in conjunction with another major in any discipline.

Students can choose to pursue:

- a concurrent major in ENR, earned alongside an approved baccalaureate degree in any other discipline, or
- B.S. in ENR, earned alongside an additional major in any other discipline.

Haub School Requirements (for B.S. ENR only)

Students earning a B.S. in ENR with their degree awarded from the Haub School must additionally complete 6 credit hours of Haub School Requirements:

1. U.S. Diversity (choose one course)
2. Global Awareness (choose one course)

University Studies Program

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements:

Students complete additional credit hours in consultation with advisor(s) if needed to meet minimum credits to earn a B.S. in ENR (minimum 120 credits, including 42 upper division credits) or to meet primary degree requirements.

Additionally, students must:

- earn a C or better in all courses fulfilling program requirements - including Haub School U.S. Diversity and Global Awareness courses, and degree, major, and/or minor courses;
- earn 12 credits unique to each program when enrolled in multiple Haub School programs;
- meet University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program and maintaining minimum 2.0 GPA for good academic standing and graduation.

Environmental Systems Science, B.S.

Environmental Systems Science (ESS) is an interdisciplinary undergraduate degree in environmental science, focusing on the interactions between the various components of Earth and environmental systems.

Program Overview

Students earning a B.S. in Environmental Systems Science will

1. demonstrate a knowledge of interdisciplinary perspective and integrative thinking,

1. understand physical and biological components of environmental systems, including the human component;
2. design, conduct, and interpret scientific investigations,
 1. understand the ethics of scientific investigation,
 2. demonstrate proficiency in data collection, statistical analysis, and use of information technology tools and modeling;
3. apply systems concepts to problems concerning environmental systems and their components, and construct conceptual and quantitative systems models;
4. examine spatial, temporal, and spatial-temporal patterns in environmental systems, and use information technology tools to depict, project, and communicate such patterns.

Students earning a B.S. degree in ESS complete coursework including:

23+ Credit Hours of Foundations Courses:

Intro to Systems Science

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L

USP 2015 Code U5PN

Foundation of Biological Sciences

(Choose one course):

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Foundation of Earth Sciences

(Choose one course):

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Foundation of Physical Sciences

(Complete all courses):

Chemistry

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Physics

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

Geochemical Cycles

ESS2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed GEOL 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

OR

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

15+ Credit Hours of Spheres Courses:

Anthrosphere

(Choose one course):

ENR4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed AMST 4030.

Dual Listed ENR 5030.

Prerequisite: 3 hours in any interdisciplinary program.

AMST4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 4030.

Dual Listed AMST 5030.

Prerequisite: 3 hours in any interdisciplinary program.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOG 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS

Former Course Number [G&R 3550]

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

Atmosphere

(Choose one course):

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

ATSC2200 - Severe and Unusual Weather

Credits: 3

A nontechnical course on severe and unusual weather events that occur around the globe. The focus of the course is on a wide range of weather events that have profound impacts on societies, economics, and cultures, and the material is presented in a qualitative manner such that is highly accessible by students coming from all backgrounds.

USP 2003-2014 Code U5PN

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and

local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

Biosphere

Choose One Course:

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their

application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

GEOG4460 - Biogeography

Credits: 3

A systematic study of the distribution of plants and animals, communities and ecosystems, the processes that produce patterns of distribution and their change over time. Interactions of climate, soil geomorphology, biota and human activities are emphasized.

Former Course Number [G&R 4460, 3460]

Prerequisite: junior standing and GEOG 1010 or LIFE 2022 or LIFE 2023.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics,

evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

OR Complete all Three Courses

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

Lithosphere - Environmental Change

(Choose one course):

ENR3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed SOIL 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

ENR4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430/CHE 4430.

Prerequisite: CHEM 1020.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

Lithosphere - Hydrology & Surface Processes

(Choose one course):

ENR4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 4285.

Dual Listed ENR 5285.

Prerequisite: University Studies QA.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

17+ Credit Hours of Skills & Tools Courses:

College Algebra

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

Statistics or Calculus

(Choose one course):

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

Data Analysis

(Choose one course):

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

GEOL3250 - Geosciences and Computers

Credits: 4

An integrated introduction to the basic components of modern scientific computing and to illustrate basic computing concepts through geoscience applications.

USP 2003-2014 Code [I< >(none)]

Prerequisite: One USP designated science course with lab.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

GIS/Remote Sensing

(Choose one course):

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

Applied Experience (1 credit)

ESS4970 - Internship in Earth System Science

Credits: 1-6

Max Credit (Max. 6)

Offers students an individualized opportunity to connect their academic training, professional experiences, and future goals. Students must first consult with their Haub School advisor and have completed and appropriate internship, professional and/ or applied experience that provides exposure to complex environmental systems, scientific practices, and relevant interactions in the professional world.

Prerequisite: ESS 1000.

Capstone

ESS4950 - Exploring the Earth System

Credits: 3

Conduct critical and interdisciplinary assessments on complex topics addressing physical, biological, and human components of the Earth System. Through multiple written, oral, and digital communication products, students will work independently and collaboratively to critically review existing literature, define knowledge gaps, analyze evidence, and synthesize results for multiple audiences.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ESS 1000 and either ESS 3480 or ENR 3450.

18+ Credit Hours in an Approved Minor or Concurrent Major

18+ credit hours in an approved* minor or concurrent major as an area of specialization: Agroecology, Agronomy, Anthropology, Astronomy, Biology, Botany, Chemistry, Environment & Natural Resources, Forest Resources, Geography, Geology, GIS & Remote Sensing Certificates, Horticulture, Insect Biology, Land Surveying, Paleoenvironmental Studies, Physics, Plant Protection, Rangeland Ecology & Watershed Management, Reclamation & Restoration Ecology, Secondary Earth Science Education, Soil Science, Statistics, Sustainability, Wildlife & Fisheries Biology & Management, or Zoology

** other options available; subject to advisor approval*

6+ Credit Hours of Haub School Requirements Courses:

- U.S. Diversity (choose one course)
- Global Awareness (choose one course)

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements:

Students complete additional credit hours in consultation with advisor if needed to meet minimum 120 credits, including 42 upper division credits, to earn a bachelor's degree from the University of Wyoming.

Additionally, students must:

- earn a C or better in all courses fulfilling program requirements - including Haub School U.S. Diversity and Global Awareness courses, and degree, major, and/or minor courses;
- earn 12 credits unique to each program when enrolled in multiple Haub School programs;
- meet University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program and maintaining minimum 2.0 GPA for good academic standing and graduation.

Outdoor Recreation & Tourism Management, Business & Hospitality Management Concentration, B.S.

A B.S. in Outdoor Recreation and Tourism Management (ORTM) emphasizes stewardship and conservation of natural resources, tourism and outdoor recreation theories and best practices, and entrepreneurial and business management strategies.

Program Overview

Students choose one of five different concentrations.

Students earning a degree in ORTM will be expected to demonstrate learning in six key areas:

1. Leadership
 1. competency in leading and building diverse, collaborative teams;
 2. application and evaluation of ethical, resourceful leadership principles to challenges and solutions within the ORTM industry.
2. Professional Practice
 1. ability to apply and critically evaluate practical, creative, ethical, and theoretical frameworks in diverse and complex professional circumstances.
3. Communication
 1. ability to manage dynamic relationships and demonstrate best practices in communication.
4. Nimble and Creative Thinking
 1. ability to strategically design, implement, and evaluate sustainable and emergent services, experiences, and opportunities.
5. Trans-disciplinarity
 1. synthesis and application of ecological and human communities, with the capacity to provide wise stewardship and conservation of natural resources;
 2. tourism and outdoor recreation theories and best practices;
 3. entrepreneurial and business management strategies.
6. Place-based and Global Understanding
 1. skills to implement solutions appropriate for local environments that demonstrate fluency in global contexts and diverse cultures.

To fulfill the requirements, students must complete the following, earning 76+ credit hours in specified categories:

18 Credit Hours of ORTM Core Courses:

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM1050 - Natural and Cultural Resources of the West

Credits: 3

The American West is an attraction for visitors, largely due to its unique sense of place, blend of people and culture, history and natural resources. Within the context of outdoor recreation and cultural/historical tourist attractions, students will examine diverse natural and cultural resources.

ORTM2000 - Foundations of Customer Service and Hospitality

Credits: 3

Customer service and hospitality are fundamental to providing high-quality services. This course examines critical elements of excellent customer service in the tourism industry, including transportation, accommodation, food and beverage, and attractions. Students will develop communication skills relating to customer service, self-presentation, and interpersonal interactions, including international and cultural communications.

Cross Listed HOSP 2000

ORTM2050 - Program Planning, Design and Delivery

Credits: 3

Design, delivery, and marketing of programs to diverse and inclusive audiences. Students will utilize tools, analytics, and techniques in both the direct supply and facilitation of a planned experience. Students will design and implement a program to a non-peer group.

USP 2015 Code U5C2

Prerequisite: ORTM 1000.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

ORTM3050 - Operations, Management and Environmental Stewardship

Credits: 3

Operations and management are critical aspects of the successful delivery of quality recreation and tourism experiences. Students will evaluate environmental stewardship challenges and potential solutions with the integration of operations and management. Students will develop an understanding of functions that are critical to operational leadership, such as revenue management (budgeting, cost controls, profit centers), and human capital management.

Prerequisite: ORTM and junior standing.

20+ Credit Hours in ORTM Foundations Courses:

Statistics:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences.

Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Business Fundamentals:

(Complete One Course from Each Area):

Economics:

(Choose One Course)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1200 - Economics, Law and Government

Credits: 3

Markets and free enterprise depend on supportive legal and political institutions. The course exposes students to the U. S. political economy. Important relationships between market development, the legal framework and the political system are presented. The U. S. and Wyoming constitutions are studied to show their importance to free enterprise. Topics deal with public choice, cost-benefit analysis in policy, the importance of property rights and regulation.

USP 2003-2014 Code U3V
USP 2015 Code U5V

Management:

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

Marketing:

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

Environment & Natural Resources:

Environmental Science:

(Choose One Course)

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE
USP 2015 Code U5PN
Former Course Number [G&R 1010]

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE
USP 2015 Code U5PN

Conservation & Sustainability:

(Choose One Course)

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH
USP 2015 Code U5H

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

RNEW1000 - Wyoming Wildlands: Science and Stewardship

Credits: 3

Introduces students to the breadth of Wyoming natural resources and ecosystems. In this class we investigate the science and management of the Wyoming landscape. Students are introduced to the rangelands, wildlife, forests, watersheds, and disturbed lands of Wyoming with an emphasis on understanding the ecology and natural history of the region. Throughout the course, students are exposed to how the extensive ecosystems of the West are managed by public and private groups and how human decisions change the landscape.

USP 2015 Code U5PN

People & Culture:

Social Science:

(Choose One Course)

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG
Former Course Number [G&R 1020]

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

Culture/Diversity:

(Choose One Course)

AMST2010 - Introduction to American Studies

Credits: 3

Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)

USP 2003-2014 Code U3CH, U3WB
USP 2015 Code U5H

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.

USP 2003-2014 Code U3I, U3L

A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

13+ Credit Hours in Synthesis & Applied Experience:

Professional Semester:

(Complete all Courses in the Same Semester)

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4902 - Recreation Venue Operations

Credits: 3

Applied best practices of resource and facility management in conjunction with recreation use and infrastructure development and maintenance. Students will examine the importance and challenges of matching user expectations with quality amenities of both private business and resource management agencies. Students will evaluate real-world problems and opportunities.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4903 - Capstone

Credits: 3

Integrates theory and practice to create solutions for real-world problems and opportunities in outdoor recreation and tourism. Industry or government sponsors will mentor projects; students will research and execute a project and share a product with direct value to the sponsor and community.

USP 2015 Code U5C3

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

Applied Experience (One Credit Minimum):

**students must complete a 400-hour internship experience prior to enrolling in ORTM 4970*

ORTM4970 - Internship

Credits: 1-6

Max Credit (Max. 6)

Provides students the potential to succeed as professional at management or higher levels in park, recreation, tourism, or related organizations. Internships are required to be at least 400 clock hours, and no fewer than 10 weeks. Please discuss the criteria and requirements of employers/sponsors and students with your advisor.

Restricted Restricted to ORTM majors only.

Prerequisite: Any ORTM class and junior standing.

19+ Credit-Hour Concentration:

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and

enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

HOSP4800 - Hospitality Operations Management

Credits: 3

This course provides a broad-reaching, applications-based understanding of hospitality operations and management. It provides a managerial perspective on the operations of each component of hospitality management and operations, including the financial aspect.

Prerequisite: HOSP 2000

Management:

(Choose One Course)

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

Sales & Marketing:

(Choose One Course)

MKT4230 - Integrated Marketing Communication

Credits: 3

Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4440 - Services Marketing

Credits: 3

This course is designed for students who may be interested in working in service industries and will address the distinct needs and problems of service firms in the area of marketing.

Prerequisite: HOSP 2000 or MKT 2100 .

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Approved Electives:

(Choose Two Courses):

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows

and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

HOSP3000 - Managing Profitability in Hospitality

Credits: 3

This course examines the complexities of profitability in the hospitality industry, driven by issues of pricing and cost management. Areas explored can include restaurants, hotels, and other hospitality ventures.

Prerequisite: ACCT 2010

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

6+ Credit Hours of Haub School Requirements Courses:

- U.S. Diversity (choose one course)
- Global Awareness (choose one course)

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements:

Students complete additional credit hours in consultation with advisor if needed to meet minimum 120 credits, including 42 upper division credits, to earn a bachelor's degree from the University of Wyoming.

Additionally, students must:

- earn a C or better in all courses fulfilling program requirements - including Haub School U.S. Diversity and Global Awareness courses, and degree, major, and/or minor courses;
- earn 12 credits unique to each program when enrolled in multiple Haub School programs;
- meet University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program and maintaining minimum 2.0 GPA for good academic standing and graduation.

Outdoor Recreation & Tourism Management, Creative Studies in Recreation & Tourism Concentration, B.S.

A B.S. in Outdoor Recreation and Tourism Management (ORTM) emphasizes stewardship and conservation of natural resources, tourism and outdoor recreation theories and best practices, and entrepreneurial and business management strategies.

Program Overview

Students choose one of five different concentrations.

Students earning a degree in ORTM will be expected to demonstrate learning in six key areas:

1. Leadership
 1. competency in leading and building diverse, collaborative teams;
 2. application and evaluation of ethical, resourceful leadership principles to challenges and solutions within the ORTM industry.
2. Professional Practice
 1. ability to apply and critically evaluate practical, creative, ethical, and theoretical frameworks in diverse and complex professional circumstances.
3. Communication
 1. ability to manage dynamic relationships and demonstrate best practices in communication.
4. Nimble and Creative Thinking

1. ability to strategically design, implement, and evaluate sustainable and emergent services, experiences, and opportunities.
5. Trans-disciplinarity
 1. synthesis and application of ecological and human communities, with the capacity to provide wise stewardship and conservation of natural resources;
 2. tourism and outdoor recreation theories and best practices;
 3. entrepreneurial and business management strategies.
6. Place-based and Global Understanding
 1. skills to implement solutions appropriate for local environments that demonstrate fluency in global contexts and diverse cultures.

To fulfill the requirements, students must complete the following, earning 76+ credit hours in specified categories:

18 Credit Hours of ORTM Core Courses:

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM1050 - Natural and Cultural Resources of the West

Credits: 3

The American West is an attraction for visitors, largely due to its unique sense of place, blend of people and culture, history and natural resources. Within the context of outdoor recreation and cultural/historical tourist attractions, students will examine diverse natural and cultural resources.

ORTM2000 - Foundations of Customer Service and Hospitality

Credits: 3

Customer service and hospitality are fundamental to providing high-quality services. This course examines critical elements of excellent customer service in the tourism industry, including transportation, accommodation, food and beverage, and attractions. Students will develop communication skills relating to customer service, self-presentation, and interpersonal interactions, including international and cultural communications.

Cross Listed HOSP 2000

ORTM2050 - Program Planning, Design and Delivery

Credits: 3

Design, delivery, and marketing of programs to diverse and inclusive audiences. Students will utilize tools, analytics, and techniques in both the direct supply and facilitation of a planned experience. Students will design and implement a program to a non-peer group.

USP 2015 Code U5C2

Prerequisite: ORTM 1000.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

ORTM3050 - Operations, Management and Environmental Stewardship

Credits: 3

Operations and management are critical aspects of the successful delivery of quality recreation and tourism experiences. Students will evaluate environmental stewardship challenges and potential solutions with the integration of operations and management. Students will develop an understanding of functions that are critical to operational leadership, such as revenue management (budgeting, cost controls, profit centers), and human capital management.

Prerequisite: ORTM and junior standing.

20+ Credit Hours in ORTM Foundations Courses:

Statistics:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Business Fundamentals:

(Complete One Course from Each Area)

Economics:

(Choose One Course)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1200 - Economics, Law and Government

Credits: 3

Markets and free enterprise depend on supportive legal and political institutions. The course exposes students to the U. S. political economy. Important relationships between market development, the legal framework and the political system are presented. The U. S. and Wyoming constitutions are studied to show their importance to free enterprise. Topics deal with public choice, cost-benefit analysis in policy, the importance of property rights and regulation.

USP 2003-2014 Code U3V

USP 2015 Code U5V

Management:

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

Marketing:

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

Environment & Natural Resources:

Environmental Science:

(Choose One Course)

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Conservation & Sustainability:

(Choose One Course)

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

RNEW1000 - Wyoming Wildlands: Science and Stewardship

Credits: 3

Introduces students to the breadth of Wyoming natural resources and ecosystems. In this class we investigate the science and management of the Wyoming landscape. Students are introduced to the rangelands, wildlife, forests,

watersheds, and disturbed lands of Wyoming with an emphasis on understanding the ecology and natural history of the region. Throughout the course, students are exposed to how the extensive ecosystems of the West are managed by public and private groups and how human decisions change the landscape.

USP 2015 Code U5PN

People & Culture:

Social Science:

(Choose One Course)

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Culture/Diversity:

(Choose One Course)

AMST2010 - Introduction to American Studies

Credits: 3

Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)

USP 2003-2014 Code U3CH, U3WB

USP 2015 Code U5H

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing

environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.
USP 2003-2014 Code U3I, U3L
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

13+ Credit Hours in Synthesis & Applied Experience:

Professional Semester:

(Complete all Courses in the Same Semester)

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and

opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4902 - Recreation Venue Operations

Credits: 3

Applied best practices of resource and facility management in conjunction with recreation use and infrastructure development and maintenance. Students will examine the importance and challenges of matching user expectations with quality amenities of both private business and resource management agencies. Students will evaluate real-world problems and opportunities.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4903 - Capstone

Credits: 3

Integrates theory and practice to create solutions for real-world problems and opportunities in outdoor recreation and tourism. Industry or government sponsors will mentor projects; students will research and execute a project and share a product with direct value to the sponsor and community.

USP 2015 Code U5C3

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

Applied Experience (One Credit Minimum):

**students must complete a 400-hour internship experience prior to enrolling in ORTM 4970*

ORTM4970 - Internship

Credits: 1-6
Max Credit (Max. 6)

Provides students the potential to succeed as professional at management or higher levels in park, recreation, tourism, or related organizations. Internships are required to be at least 400 clock hours, and no fewer than 10 weeks. Please discuss the criteria and requirements of employers/sponsors and students with your advisor.

Restricted Restricted to ORTM majors only.

Prerequisite: Any ORTM class and junior standing.

19+ Credit-Hour Concentration:

- Self-designed program of study; requires approval from Haub School advisor

6+ Credit Hours of Haub School Requirements Courses:

- U.S. Diversity (choose one course)
- Global Awareness (choose one course)

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

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Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

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Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

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Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements:

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Additionally, students must:

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Outdoor Recreation & Tourism Management, Cultural & International Tourism Concentration, B.S.

A B.S. in Outdoor Recreation and Tourism Management (ORTM) emphasizes stewardship and conservation of natural resources, tourism and outdoor recreation theories and best practices, and entrepreneurial and business management strategies.

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3. Communication
 1. ability to manage dynamic relationships and demonstrate best practices in communication.
4. Nimble and Creative Thinking
 1. ability to strategically design, implement, and evaluate sustainable and emergent services, experiences, and opportunities.
5. Trans-disciplinarity
 1. synthesis and application of ecological and human communities, with the capacity to provide wise stewardship and conservation of natural resources;
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6. Place-based and Global Understanding
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Credits: 3

The American West is an attraction for visitors, largely due to its unique sense of place, blend of people and culture, history and natural resources. Within the context of outdoor recreation and cultural/historical tourist attractions, students will examine diverse natural and cultural resources.

ORTM2000 - Foundations of Customer Service and Hospitality

Credits: 3

Customer service and hospitality are fundamental to providing high-quality services. This course examines critical elements of excellent customer service in the tourism industry, including transportation, accommodation, food and beverage, and attractions. Students will develop communication skills relating to customer service, self-presentation, and interpersonal interactions, including international and cultural communications.

Cross Listed HOSP 2000

ORTM2050 - Program Planning, Design and Delivery

Credits: 3

Design, delivery, and marketing of programs to diverse and inclusive audiences. Students will utilize tools, analytics, and techniques in both the direct supply and facilitation of a planned experience. Students will design and implement a program to a non-peer group.

USP 2015 Code U5C2

Prerequisite: ORTM 1000.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

ORTM3050 - Operations, Management and Environmental Stewardship

Credits: 3

Operations and management are critical aspects of the successful delivery of quality recreation and tourism experiences. Students will evaluate environmental stewardship challenges and potential solutions with the integration of operations and management. Students will develop an understanding of functions that are critical to operational leadership, such as revenue management (budgeting, cost controls, profit centers), and human capital management.

Prerequisite: ORTM and junior standing.

20+ Credit Hours in ORTM Foundations Courses:

Statistics:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Business Fundamentals:

(Complete One Course from Each Area)

Economics:

(Choose One Course)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1200 - Economics, Law and Government

Credits: 3

Markets and free enterprise depend on supportive legal and political institutions. The course exposes students to the U. S. political economy. Important relationships between market development, the legal framework and the political system are presented. The U. S. and Wyoming constitutions are studied to show their importance to free enterprise. Topics deal with public choice, cost-benefit analysis in policy, the importance of property rights and regulation.

USP 2003-2014 Code U3V

USP 2015 Code U5V

Management:

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

Marketing:

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

Environment & Natural Resources:

Environmental Science:

(Choose One Course)

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Conservation & Sustainability:

(Choose One Course)

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

RNEW1000 - Wyoming Wildlands: Science and Stewardship

Credits: 3

Introduces students to the breadth of Wyoming natural resources and ecosystems. In this class we investigate the science and management of the Wyoming landscape. Students are introduced to the rangelands, wildlife, forests, watersheds, and disturbed lands of Wyoming with an emphasis on understanding the ecology and natural history of the region. Throughout the course, students are exposed to how the extensive ecosystems of the West are managed by public and private groups and how human decisions change the landscape.

USP 2015 Code U5PN

People & Culture:

Social Science:

(Choose One Course)

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Culture/Diversity:

(Choose One Course)

AMST2010 - Introduction to American Studies

Credits: 3

Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)

USP 2003-2014 Code U3CH, U3WB

USP 2015 Code U5H

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict

between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.

USP 2003-2014 Code U3I, U3L
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

13+ Credit Hours in Synthesis & Applied Experience:

Professional Semester:

(Complete all Courses in the Same Semester)

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining

social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4902 - Recreation Venue Operations

Credits: 3

Applied best practices of resource and facility management in conjunction with recreation use and infrastructure development and maintenance. Students will examine the importance and challenges of matching user expectations with quality amenities of both private business and resource management agencies. Students will evaluate real-world problems and opportunities.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4903 - Capstone

Credits: 3

Integrates theory and practice to create solutions for real-world problems and opportunities in outdoor recreation and tourism. Industry or government sponsors will mentor projects; students will research and execute a project and share a product with direct value to the sponsor and community.

USP 2015 Code U5C3

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

Applied Experience (One Credit Minimum):

**students must complete a 400-hour internship experience prior to enrolling in ORTM 4970*

ORTM4970 - Internship

Credits: 1-6

Max Credit (Max. 6)

Provides students the potential to succeed as professional at management or higher levels in park, recreation, tourism, or related organizations. Internships are required to be at least 400 clock hours, and no fewer than 10 weeks. Please discuss the criteria and requirements of employers/sponsors and students with your advisor.

Restricted Restricted to ORTM majors only.

Prerequisite: Any ORTM class and junior standing.

19+ Credit-Hour Concentration

Global Tourism:

ORTM4050 - Global Tourism

Credits: 3

This course focuses on global destinations and the people who inhabit and visit them. Students will examine tourism from different human angles including that of the tourist, the tourism service providers, the government agencies that promote and regulate it, researchers, and the local populations whose lives are impacted.

A&S College Core 2015 ASG

Prerequisite: COM2 and ORTM 1000; junior or senior standing.

International Experience:

- Students must complete a faculty-led, semester-, or year-long study abroad course or experience

Cultural Resources:

(Choose One Course)

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.
Prerequisite: SOC 1000.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD
Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.
USP 2003-2014 Code U3CS, U3D
Prerequisite: one course in American Indian culture.

GEOG4570 - Cultural Geography

Credits: 3

Cultural Geography is an overview in qualitative cultural landscape studies. The course emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Students are exposed to readings in cultural geography from a wide array of viewpoints with an emphasis placed on classic works.

Cross Listed GEOG 5570, INST 4570, INST 5570
Prerequisite: 6 hours in social science

INST3000 - Social Change

Credits: 3

Studies causes, processes and consequences of structural transformations in historical and comparative perspective. Reviews and assesses forces that account for sociological changes. Explores social change globally as well as in the U. S.

Cross Listed SOC 3000.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG
Former Course Number [2100]

Prerequisite: SOC 1000.

INST3200 - Comparative Political Cultures

Credits: 3

Histories and experiences of various societies have shaped their values, norms, beliefs, expectations, and attitudes. This class explores how the beliefs, values, and lifestyles of various societies shape peoples' views of their place in the politics of the state and of the state's place in their daily lives.

Cross Listed POLS 3200.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/INST 1250 or permission of instructor.

INST4060 - NGOs, Development, and Culture

Credits: 3

Non-governmental organizations (NGOs) have grown exponentially in number and are often viewed as the new and best vehicle for international development. By focusing on international non-governmental organizations (INGOs), in the contexts of Western aid to post-colonial societies and the role they play in the international aid system, the course explores INGOs from historical, global, and cultural perspectives.

Dual Listed INST 5060.

Prerequisite: junior standing and instructor permission.

INST4350 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology. Identical to ANTH 4340.

Prerequisite: ANTH 1200.

POLS4475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 4475.

Dual Listed POLS 5475.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

The American West:

(Choose One Course)

GEOG4500 - The American Landscape

Credits: 3

This course trains students to interpret patterns and processes of contemporary landscapes of the Americas (North, Central, and South America) by viewing those landscapes historically. We investigate the relationship between landscape, politics, and economy, or, more generally, the relationship between landscape as a geographical form and cultural politics in the hemisphere. Students are introduced to research techniques and methodologies in historical geography.

Cross Listed Cross listed with GEOG 5500, INST 4500, INST 5500

Former Course Number [G&R 4500]

Prerequisite: 6 credits of international studies or social science coursework

GEOG4502 - Images of Wyoming and the West

Credits: 3

The West is nothing more than a barren, desolate landscape to some while to others it offers great spiritual and cultural significance. Examines how individuals and groups perceive Wyoming and the West, how such perceptions have been constructed over time, and how these differing views create images of the region both real and imagined.

Dual Listed GEOG 5502.

Prerequisite: GEOG 1000 or GEOG 1020 and junior standing.

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

NAIS3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the Plains region of the U. S. from prehistory to the present.

Cross Listed HIST 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses

interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000
Dual Listed HIST 5000
USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 9 hours of HIST or NAIS.

NAIS4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed HIST 4000.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 9 hours of HIST or NAIS.

NAIS3200 - Indigenous Peoples and the Environment

Credits: 3

Understand the historical, political, and socio-economic forces that have shaped the relationships of Indigenous peoples to their environments, and be able to discern the similarities and dissimilarities of Indigenous issues across international borders. The course may include a study abroad component.

Prerequisite: 6 hours NAIS credit.

Language:

(Complete two consecutive language or ASL courses)

LANG1010 - First Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010.

Cultural/International Museum Studies:

(Choose One Course)

ANTH2200 - World Culture

Credits: 3

Provides an understanding of cultural behavior of people in various geographical areas of the world. Students read ethnographies, cultural descriptions of societies, written by cultural anthropologists.

When Offered (Normally offered at least once a year)

USP 2003-2014 Code U3G, U3CS

A&S College Core 2015 ASG

ANTH2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in long-distance trade.

Cross Listed HIST 2600.

USP 2015 Code U5H

ANTH2700 - Introduction to Museology

Credits: 3

Max Credit 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ART 2700/HIST 2700.

USP 2003-2014 Code U3CH

AMST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History

and History.

Cross Listed ART 2700/ANTH 2700/HIST 2700.
USP 2003-2014 Code U3CH

ANTH3410 - Maya, Aztec, and Inca Cultures

Credits: 3

An exploration of the early states and empires of the New World through the archaeological record. Compares and contrasts the Aztec, Maya, and Inca cultures with emphasis placed on origins, political and social organization, ritual beliefs, and reasons for collapse.

Prerequisite: ANTH 1300.

INST2230 - Introduction to Asian Studies

Credits: 3

Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

INST2240 - Introduction to African Studies

Credits: 3

Confronts African stereotypes by exploring the continent's complex history and current affairs, with the help of different disciplinary perspectives, such as economics, political science, and anthropology. Equipped with the basics, students will be primed to tackle more advanced courses on Africa.

Cross Listed AAST 2240.
USP 2003-2014 Code U3WB
USP 2015 Code U5C2

INST2250 - Introduction to Latin American Studies

Credits: 3

An introduction to the culture, history and politics of Latin America, from the US/Mexico border to the Antarctic ice fields of Patagonia. We will consider historical events and encounters from pre-Conquest times to contemporary crises. Our toolkit includes geography, anthropology, history, political economy, literature and cultural studies.

USP 2015 Code U5C2

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.

USP 2015 Code U5C2

INST2350 - Introduction to Global Studies

Credits: 3

Taking an interdisciplinary approach to the study of globalization, the course explores the links between trade, consumption, civil society, social justice, and ecological integrity.

USP 2003-2014 Code U3CS, U3G

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 o r POLS 1250 o r permission of the instructor.

6+ Credit Hours of Haub School Requirements Courses:

- U.S. Diversity (choose one course)
- Global Awareness (choose one course)

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements:

Students complete additional credit hours in consultation with advisor if needed to meet minimum 120 credits, including 42 upper division credits, to earn a bachelor's degree from the University of Wyoming.

Additionally, students must:

- earn a C or better in all courses fulfilling program requirements - including Haub School U.S. Diversity and Global Awareness courses, and degree, major, and/or minor courses;
- earn 12 credits unique to each program when enrolled in multiple Haub School programs;
- meet University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program and maintaining minimum 2.0 GPA for good academic standing and graduation.

Outdoor Recreation & Tourism Management, Management of Recreation Resources Concentration, B.S.

A B.S. in Outdoor Recreation and Tourism Management (ORTM) emphasizes stewardship and conservation of natural resources, tourism and outdoor recreation theories and best practices, and entrepreneurial and business management strategies.

Program Overview

Students choose one of five different concentrations.

Students earning a degree in ORTM will be expected to demonstrate learning in six key areas:

1. Leadership
 1. competency in leading and building diverse, collaborative teams;
 2. application and evaluation of ethical, resourceful leadership principles to challenges and solutions within the ORTM industry.
2. Professional Practice
 1. ability to apply and critically evaluate practical, creative, ethical, and theoretical frameworks in diverse and complex professional circumstances.
3. Communication
 1. ability to manage dynamic relationships and demonstrate best practices in communication.
4. Nimble and Creative Thinking

1. ability to strategically design, implement, and evaluate sustainable and emergent services, experiences, and opportunities.
5. Trans-disciplinarity
 1. synthesis and application of ecological and human communities, with the capacity to provide wise stewardship and conservation of natural resources;
 2. tourism and outdoor recreation theories and best practices;
 3. entrepreneurial and business management strategies.
6. Place-based and Global Understanding
 1. skills to implement solutions appropriate for local environments that demonstrate fluency in global contexts and diverse cultures.

To fulfill the requirements, students must complete the following, earning 76+ credit hours in specified categories:

18 Credit Hours of ORTM Core Courses:

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM1050 - Natural and Cultural Resources of the West

Credits: 3

The American West is an attraction for visitors, largely due to its unique sense of place, blend of people and culture, history and natural resources. Within the context of outdoor recreation and cultural/historical tourist attractions, students will examine diverse natural and cultural resources.

ORTM2000 - Foundations of Customer Service and Hospitality

Credits: 3

Customer service and hospitality are fundamental to providing high-quality services. This course examines critical elements of excellent customer service in the tourism industry, including transportation, accommodation, food and beverage, and attractions. Students will develop communication skills relating to customer service, self-presentation, and interpersonal interactions, including international and cultural communications.

Cross Listed HOSP 2000

ORTM2050 - Program Planning, Design and Delivery

Credits: 3

Design, delivery, and marketing of programs to diverse and inclusive audiences. Students will utilize tools, analytics, and techniques in both the direct supply and facilitation of a planned experience. Students will design and implement a program to a non-peer group.

USP 2015 Code U5C2

Prerequisite: ORTM 1000.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

ORTM3050 - Operations, Management and Environmental Stewardship

Credits: 3

Operations and management are critical aspects of the successful delivery of quality recreation and tourism experiences. Students will evaluate environmental stewardship challenges and potential solutions with the integration of operations and management. Students will develop an understanding of functions that are critical to operational leadership, such as revenue management (budgeting, cost controls, profit centers), and human capital management.

Prerequisite: ORTM and junior standing.

20+ Credit Hours in ORTM Foundations Courses:

Statistics:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Business Fundamentals:

(Complete One Course from Each Area)

Economics:

(Choose One Course)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1200 - Economics, Law and Government

Credits: 3

Markets and free enterprise depend on supportive legal and political institutions. The course exposes students to the U. S. political economy. Important relationships between market development, the legal framework and the political system are presented. The U. S. and Wyoming constitutions are studied to show their importance to free enterprise. Topics deal with public choice, cost-benefit analysis in policy, the importance of property rights and regulation.

USP 2003-2014 Code U3V

USP 2015 Code U5V

Management:

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

Marketing:

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

Environment & Natural Resources:

Environmental Science:

(Choose One Course)

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Conservation & Sustainability:

(Choose One Course)

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

RNEW1000 - Wyoming Wildlands: Science and Stewardship

Credits: 3

Introduces students to the breadth of Wyoming natural resources and ecosystems. In this class we investigate the science and management of the Wyoming landscape. Students are introduced to the rangelands, wildlife, forests,

watersheds, and disturbed lands of Wyoming with an emphasis on understanding the ecology and natural history of the region. Throughout the course, students are exposed to how the extensive ecosystems of the West are managed by public and private groups and how human decisions change the landscape.

USP 2015 Code U5PN

People & Culture:

Social Science:

(Choose One Course)

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Culture/Diversity:

(Choose One Course)

AMST2010 - Introduction to American Studies

Credits: 3

Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)

USP 2003-2014 Code U3CH, U3WB

USP 2015 Code U5H

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing

environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.
USP 2003-2014 Code U3I, U3L
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

13+ Credit Hours in Synthesis & Applied Experience:

Professional Semester:

(Complete all Courses in the Same Semester)

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and

opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4902 - Recreation Venue Operations

Credits: 3

Applied best practices of resource and facility management in conjunction with recreation use and infrastructure development and maintenance. Students will examine the importance and challenges of matching user expectations with quality amenities of both private business and resource management agencies. Students will evaluate real-world problems and opportunities.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4903 - Capstone

Credits: 3

Integrates theory and practice to create solutions for real-world problems and opportunities in outdoor recreation and tourism. Industry or government sponsors will mentor projects; students will research and execute a project and share a product with direct value to the sponsor and community.

USP 2015 Code U5C3

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

Applied Experience (One Credit Minimum):

**students must complete a 400-hour internship experience prior to enrolling in ORTM 4970*

ORTM4970 - Internship

Credits: 1-6
Max Credit (Max. 6)

Provides students the potential to succeed as professional at management or higher levels in park, recreation, tourism, or related organizations. Internships are required to be at least 400 clock hours, and no fewer than 10 weeks. Please discuss the criteria and requirements of employers/sponsors and students with your advisor.

Restricted Restricted to ORTM majors only.

Prerequisite: Any ORTM class and junior standing.

19+ Credit-Hour Concentration:

Environmental or Biological Science:

(Choose One Course)

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Resource Management:

(Choose One Course)

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

Human Dimensions:

(Choose One Course)

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 4450.

Dual Listed ENR 5450.

Prerequisite: completion of USP O requirement; junior standing.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

AMST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U.S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program, or instructor approval.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on

our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

Law & Policy:

(Choose One Course)

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental

matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

Planning:

(Choose One Course)

AGEC4660 - Community and Economic Development

Credits: 3

Community development from an interdisciplinary perspective, integrating theory, concepts and methods from sociology, economics, political science, and community development. Students learn how community theory can be used to design and support effective economic development programs. Includes readings, lectures, guest lectures, field trips and community analysis projects.

Dual Listed AGEC 5660.

Prerequisite: AGEC 1010/ ECON 1010, ECON 1020 , and junior standing.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

Geographic Information Systems or Analytics:

(Choose One Course)

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

6+ Credit Hours of Haub School Requirements Courses:

- U.S. Diversity (choose one course)
- Global Awareness (choose one course)

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements:

Students complete additional credit hours in consultation with advisor if needed to meet minimum 120 credits, including 42 upper division credits, to earn a bachelor's degree from the University of Wyoming.

Additionally, students must:

- earn a C or better in all courses fulfilling program requirements - including Haub School U.S. Diversity and Global Awareness courses, and degree, major, and/or minor courses;
- earn 12 credits unique to each program when enrolled in multiple Haub School programs;
- meet University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program and maintaining minimum 2.0 GPA for good academic standing and graduation.

Outdoor Recreation & Tourism Management, Outdoor Recreation Leadership Concentration, B.S.

A B.S. in Outdoor Recreation and Tourism Management (ORTM) emphasizes stewardship and conservation of natural resources, tourism and outdoor recreation theories and best practices, and entrepreneurial and business management strategies.

Program Overview

Students choose one of five different concentrations.

Students earning a degree in ORTM will be expected to demonstrate learning in six key areas:

1. Leadership
 1. competency in leading and building diverse, collaborative teams;
 2. application and evaluation of ethical, resourceful leadership principles to challenges and solutions within the ORTM industry.
2. Professional Practice
 1. ability to apply and critically evaluate practical, creative, ethical, and theoretical frameworks in diverse and complex professional circumstances.
3. Communication
 1. ability to manage dynamic relationships and demonstrate best practices in communication.
4. Nimble and Creative Thinking
 1. ability to strategically design, implement, and evaluate sustainable and emergent services, experiences, and opportunities.
5. Trans-disciplinarity
 1. synthesis and application of ecological and human communities, with the capacity to provide wise stewardship and conservation of natural resources;
 2. tourism and outdoor recreation theories and best practices;
 3. entrepreneurial and business management strategies.
6. Place-based and Global Understanding
 1. skills to implement solutions appropriate for local environments that demonstrate fluency in global contexts and diverse cultures.

To fulfill the requirements, students must complete the following, earning 76+ credit hours in specified categories:

18 Credit Hours of ORTM Core Courses:

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM1050 - Natural and Cultural Resources of the West

Credits: 3

The American West is an attraction for visitors, largely due to its unique sense of place, blend of people and culture,

history and natural resources. Within the context of outdoor recreation and cultural/historical tourist attractions, students will examine diverse natural and cultural resources.

ORTM2000 - Foundations of Customer Service and Hospitality

Credits: 3

Customer service and hospitality are fundamental to providing high-quality services. This course examines critical elements of excellent customer service in the tourism industry, including transportation, accommodation, food and beverage, and attractions. Students will develop communication skills relating to customer service, self-presentation, and interpersonal interactions, including international and cultural communications.

Cross Listed HOSP 2000

ORTM2050 - Program Planning, Design and Delivery

Credits: 3

Design, delivery, and marketing of programs to diverse and inclusive audiences. Students will utilize tools, analytics, and techniques in both the direct supply and facilitation of a planned experience. Students will design and implement a program to a non-peer group.

USP 2015 Code U5C2

Prerequisite: ORTM 1000.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

ORTM3050 - Operations, Management and Environmental Stewardship

Credits: 3

Operations and management are critical aspects of the successful delivery of quality recreation and tourism experiences. Students will evaluate environmental stewardship challenges and potential solutions with the integration of operations and management. Students will develop an understanding of functions that are critical to operational leadership, such as revenue management (budgeting, cost controls, profit centers), and human capital management.

Prerequisite: ORTM and junior standing.

20+ Credit Hours in ORTM Foundations Courses:

Statistics:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Business Fundamentals:

(Complete One Course from Each Area):

Economics:

(Choose One Course)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1200 - Economics, Law and Government

Credits: 3

Markets and free enterprise depend on supportive legal and political institutions. The course exposes students to the U. S. political economy. Important relationships between market development, the legal framework and the political system are presented. The U. S. and Wyoming constitutions are studied to show their importance to free enterprise. Topics deal with public choice, cost-benefit analysis in policy, the importance of property rights and regulation.

USP 2003-2014 Code U3V

USP 2015 Code U5V

Management:

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

Marketing:

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

Environment & Natural Resources:

Environmental Science:

(Choose One Course)

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Conservation & Sustainability:

(Choose One Course)

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might

guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

RNEW1000 - Wyoming Wildlands: Science and Stewardship

Credits: 3

Introduces students to the breadth of Wyoming natural resources and ecosystems. In this class we investigate the science and management of the Wyoming landscape. Students are introduced to the rangelands, wildlife, forests, watersheds, and disturbed lands of Wyoming with an emphasis on understanding the ecology and natural history of the region. Throughout the course, students are exposed to how the extensive ecosystems of the West are managed by public and private groups and how human decisions change the landscape.

USP 2015 Code U5PN

People & Culture:

Social Science:

(Choose One Course)

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Culture/Diversity:

(Choose One Course)

AMST2010 - Introduction to American Studies

Credits: 3

Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)

USP 2003-2014 Code U3CH, U3WB

USP 2015 Code U5H

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.

USP 2003-2014 Code U3I, U3L

A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

13+ Credit Hours in Synthesis & Applied Experience:

Professional Semester:

(Complete all Courses in the Same Semester)

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4902 - Recreation Venue Operations

Credits: 3

Applied best practices of resource and facility management in conjunction with recreation use and infrastructure development and maintenance. Students will examine the importance and challenges of matching user expectations with quality amenities of both private business and resource management agencies. Students will evaluate real-world problems and opportunities.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4903 - Capstone

Credits: 3

Integrates theory and practice to create solutions for real-world problems and opportunities in outdoor recreation and tourism. Industry or government sponsors will mentor projects; students will research and execute a project and share a product with direct value to the sponsor and community.

USP 2015 Code U5C3

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

Applied Experience (One Credit Minimum):

**students must complete a 400-hour internship experience prior to enrolling in ORTM 4970*

ORTM4970 - Internship

Credits: 1-6

Max Credit (Max. 6)

Provides students the potential to succeed as professional at management or higher levels in park, recreation, tourism, or related organizations. Internships are required to be at least 400 clock hours, and no fewer than 10 weeks. Please discuss the criteria and requirements of employers/sponsors and students with your advisor.

Restricted Restricted to ORTM majors only.

Prerequisite: Any ORTM class and junior standing.

19+ Credit-Hour Concentration:

Outdoor Leadership:

ENR2800 - Introduction to Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. Significant focus is on self-awareness, judgment, and decision-making. The specific skills and theories students learn throughout provide a foundation for other leadership endeavors.

Cross Listed ORTM 2800

Prerequisite: consent of instructor.

OR

ORTM2800 - Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. There is a significant focus on self-awareness, judgment, and decision-making. The specific skills and theories students learn in the class provide a foundation for other leadership endeavors.

Cross Listed ENR 2800

Prerequisite: COM 1

Business Ethics:

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

Wilderness First Responder and CPR Certifications:

- ENR 3900 - Wilderness Medicine Credits: 1-3

OR

- provide proof of certification to advisor

**certifications must be current at time of graduation.*

Leadership:

(Choose One Course)

AGRI3000 - Discovering and Utilizing Ideas and Information

Credits: 3

Learning in this area guides students to accessing, evaluating, and utilizing information and ideas; communicating information and ideas effectively and responsibly; civic engagement for individual, organizational and community problem-solving, and applying new skills, knowledge, and perspectives in a contemporary society.

USP 2003-2014 Code U3I, U3L

Prerequisite: WA and junior status.

AGRI4700 - Elements of Leadership

Credits: 3

Focuses on a basic understanding of theory and practice. Will develop self-awareness and provide a foundation for continued development of leadership skill in the workplace, the community and the home.

Dual Listed AGRI 5700.

Prerequisite: Restricted enrollment. Prior approval required.

CNSL2200 - Introduction to Student Leadership

Credits: 2

Acquaints student leaders with skills and competencies necessary for successful service in the university community.

When Offered (Normally offered each fall semester)

USP 2003-2014 Code U3CS, U3L

CNSL3010 - Student Leadership Strategies

Credits: 2

Develops skills and competencies requisite to effective leadership. Provides student leaders with skills they will profit from, both while enrolled at the university and later in their chosen careers.

When Offered (Normally offered each spring semester)

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases

the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

GWST1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical and cultural aspects of leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed SOWK 1900.

USP 2003-2014 Code U3L, U3O

Former Course Number [4510]

Business:

(Choose One Course)

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

Law & Policy:

(Choose One Course)

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

Human Dimensions:

(Choose One Course)

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 4450.

Dual Listed ENR 5450.

Prerequisite: completion of USP O requirement; junior standing.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

AMST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U.S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program, or instructor approval.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

Natural History:

Choose One Course:

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

AMST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U.S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program, or instructor approval.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG4460 - Biogeography

Credits: 3

A systematic study of the distribution of plants and animals, communities and ecosystems, the processes that produce patterns of distribution and their change over time. Interactions of climate, soil geomorphology, biota and human activities are emphasized.

Former Course Number [G&R 4460, 3460]

Prerequisite: junior standing and GEOG 1010 or LIFE 2022 or LIFE 2023.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

GEOG4000 - Terrain Analysis

Credits: 3

Studies techniques for acquiring and analyzing spatial data from maps, remotely sensed imagery and field surveys for landscape assessment. Emphasizes deriving maps that describe physical suitability of landscapes for specific human activities. Field trip required.

Former Course Number [G&R 4000]

Prerequisite: Completion of USP PN requirement or consent of instructor.

OR Complete all Three Courses

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

6+ Credit Hours of Haub School Requirements Courses:

- U.S. Diversity (choose one course)
- Global Awareness (choose one course)

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements:

Students complete additional credit hours in consultation with advisor if needed to meet minimum 120 credits, including 42 upper division credits, to earn a bachelor's degree from the University of Wyoming.

Additionally, students must:

- earn a C or better in all courses fulfilling program requirements - including Haub School U.S. Diversity and Global Awareness courses, and degree, major, and/or minor courses;
- earn 12 credits unique to each program when enrolled in multiple Haub School programs;
- meet University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program and maintaining minimum 2.0 GPA for good academic standing and graduation.

Minor

Environment & Natural Resources Minor

An Environment & Natural Resources (ENR) minor may accompany any primary field of study. The ENR core, plus one elective course, fulfills the 18 credit hour requirement for the minor.

15+ Credit Hours of ENR Core Courses:

Foundations of Environmental Science:

(Choose one course):

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Environment & Society:

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

Approaches to Problem Solving:

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making. Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

Environmental Assessment:

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical

thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

Applied Experience (2 Credits):

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

3+ Credit Hours of ENR Electives

(Select from the following, minimum three credits required):

Any course with code ENR 1000-4999

Outdoor Leadership Minor

The Outdoor Leadership minor is available to any undergraduate student at the University of Wyoming. Students earning the minor will study leadership, ethics, field ecology, outdoor recreation, and wilderness medicine.

6+ Credit Hours of Outdoor Leadership Foundations Courses:

Introduction to Outdoor Leadership:

ENR2800 - Introduction to Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. Significant focus is on self-awareness, judgment, and decision-making. The specific skills and theories students learn throughout provide a foundation for other leadership endeavors.

Cross Listed ORTM 2800

Prerequisite: consent of instructor.

OR

ORTM2800 - Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. There is a significant focus on self-awareness, judgment, and decision-making. The specific skills and theories students learn in the class provide a foundation for other leadership endeavors.

Cross Listed ENR 2800

Prerequisite: COM 1

Environmental Science:

(Choose one):

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOG 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOG1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

8+ Credit Hours of Concepts Courses:

Field Ecology:

Choose One Course:

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

OR Complete all Three Courses:

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

Leadership:

(Choose one):

AGRI3000 - Discovering and Utilizing Ideas and Information

Credits: 3

Learning in this area guides students to accessing, evaluating, and utilizing information and ideas; communicating information and ideas effectively and responsibly; civic engagement for individual, organizational and community problem-solving, and applying new skills, knowledge, and perspectives in a contemporary society.

USP 2003-2014 Code U3I, U3L

Prerequisite: WA and junior status.

AGRI4700 - Elements of Leadership

Credits: 3

Focuses on a basic understanding of theory and practice. Will develop self-awareness and provide a foundation for continued development of leadership skill in the workplace, the community and the home.

Dual Listed AGRI 5700.

Prerequisite: Restricted enrollment. Prior approval required.

CNSL2200 - Introduction to Student Leadership

Credits: 2

Acquaints student leaders with skills and competencies necessary for successful service in the university community.

When Offered (Normally offered each fall semester)

USP 2003-2014 Code U3CS, U3L

CNSL3010 - Student Leadership Strategies

Credits: 2

Develops skills and competencies requisite to effective leadership. Provides student leaders with skills they will profit from, both while enrolled at the university and later in their chosen careers.

When Offered (Normally offered each spring semester)

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

GWST1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical and cultural aspects of leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed SOWK 1900.

USP 2003-2014 Code U3L, U3O

Former Course Number [4510]

Ethics & Culture:

(Choose one):

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

AMST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U.S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program, or instructor approval.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the

American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

USP 2003-2014 Code [CH< >(none)]

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

ORTM1050 - Natural and Cultural Resources of the West

Credits: 3

The American West is an attraction for visitors, largely due to its unique sense of place, blend of people and culture, history and natural resources. Within the context of outdoor recreation and cultural/historical tourist attractions, students will examine diverse natural and cultural resources.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

3+ Credit Hours of Applied Experience:

(Choose from the following; minimum three credits required):

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1

Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

Wilderness First Responder and CPR Certifications:

- ENR 3900 - Wilderness Medicine Credits: 1-3
OR

- provide proof of certification to advisor

**certifications must be current at time of graduation.*

Program Overview

Students earning a minor in outdoor leadership will:

1. develop an understanding of leadership theories, including leadership movements, qualities, styles, and models;
2. identify and evaluate the cultural and environmental dimensions of outdoor leadership, including moral and ethical responsibilities, the fundamentals of ecological systems, and the human impact on the natural world;
3. demonstrate and apply outdoor leadership competency in a practical leadership role;
4. plan, implement, supervise, and analyze a high-quality, safe outdoor adventure and/or educational program;
5. earn and maintain a professional certification of Wilderness First Responder.

To fulfill the requirements for the minor, students must complete the following, earning 17+ credits in specified categories:

Sustainability Minor

The Sustainability minor is available to any undergraduate student at the University of Wyoming. The minor prioritizes systems thinking, civic engagement, and personal development rooted in sustainability for everyday challenges.

Program Overview

Students completing the sustainability minor will be expected to:

1. demonstrate a theoretical and historical understanding of sustainability;

2. develop a model of sustainability informed by personal values and integrated into student's worldview;
3. think holistically about consequences of actions and intellectually respond to perspectives of sustainability outside their own, as well as explore and evaluate the implications of sustainability values;
4. develop and implement sustainability solutions in their community and have the ability to apply sustainability principles to a range of disciplines and professional settings.

To fulfill the requirements for the minor, students must earn 18 credit hours:

9 Credit Hours of Sustainability Core Courses:

Foundations of Sustainability

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

Campus Sustainability

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

Ethics & Justice:

(Choose one course):

ENR2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

USP 2003-2014 Code [CH< >(none)]

OR

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

OR

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

GWST4450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 5450.

Prerequisite: 6 hours in WMST, PHIL, and/or ENR.

HLED4020 - Food, Health, and Justice

Credits: 3

Maps ways our dominant national and global food systems affect health and equity in health, largely though not only negatively. Students will critically assess practiced and potential strategies for creating alternative food systems that support health and equity, particularly at the U. S. community level.

Dual Listed HLED 5020.

Prerequisite: Completed COM 2 course and minimum 2.750 cumulative UW GPA.

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.

USP 2003-2014 Code U3I, U3L

A&S College Core 2015 ASD

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

9+ Credit Hours of Sustainability Electives Courses:

(choose three courses from any of the following categories)

Culture & Society

AMST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U.S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program, or instructor approval.

AMST4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 4030.

Dual Listed AMST 5030.

Prerequisite: 3 hours in any interdisciplinary program.

AMST4800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed ENR 4800.

Dual Listed AMST 5800.

Prerequisite: ARE 3020 or AMST 5400.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

OR

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary

environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

OR

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

OR

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS

Former Course Number [G&R 3550]

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

Economics & Policy

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

OR

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

OR

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

INST4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 4455.

Dual Listed INST 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

OR

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

Energy & Environment

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

ARE2410 - Fundamentals of Building Performance

Credits: 3

Introduction to building performance measures that embrace a global notion of environmental stewardship. Emphasis on passive heating and cooling systems and daylighting strategies to manage the thermal and luminous environments over the facility life cycle.

Prerequisite: PHYS 1210.

ENR4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430/CHE 4430.

Prerequisite: CHEM 1020.

OR

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

OR

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

ENR3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed REWM 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

OR

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to

these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed CHEM 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological,

geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

OR

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of

formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

Food Systems

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences

between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

AGEC3860 - World Food, Ag, & Development

Credits: 3

Explores economic approaches to improving nutrition, agriculture production, and the environment in developing regions of the world. Students gain understanding of complex conditions surrounding food security; institutions involved with food policy, aid, and production; environmental factors influencing agricultural production; inequality; and international cultural and societal food disparities.

Cross Listed INST 3860.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3G

USP 2015 Code U5H

Former Course Number [4860]

Prerequisite: AGEC 1010/ECON 1010 or AGEC 1020.

ANTH4260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 5260.

Prerequisite: ANTH 1100 or ANTH 1200.

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

HLED4020 - Food, Health, and Justice

Credits: 3

Maps ways our dominant national and global food systems affect health and equity in health, largely though not only negatively. Students will critically assess practiced and potential strategies for creating alternative food systems that support health and equity, particularly at the U. S. community level.

Dual Listed HLED 5020.

Prerequisite: Completed COM 2 course and minimum 2.750 cumulative UW GPA.

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

Graduate

Collaborative Practice Graduate Minor

The Collaborative Practice minor is designed to provide students with skills in designing, organizing, facilitating, and evaluating collaborative decision-making processes.

Program Overview

Students pursuing the Collaborative Practice minor will:

- build process competencies in collaborative decision making and problem solving, and
- deepen their knowledge in the application of collaborative processes in specific contexts (natural resources, health, education, business, etc.).

Collaborative Practice minor students who are currently working towards an ENR graduate major may not count ENR 5910 or ENR 5921 towards their ENR major. ENR5450 - Negotiation and one elective (approved for both the Collaborative Practice minor and the ENR major) may count for both.

In addition to degree requirements of the student's home department, students must complete 12 credit hours:

9 Credit Hours in Collaborative Practice Core Courses:

ENR5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 5450.

Dual Listed ENR 4450.

Prerequisite: completion of USP O requirement; junior standing.

ENR5910 - Collaborative Practice Methods

Credits: 3

This course introduces students to the principles, concepts, and methods of collaborative decision making as it is practiced in a variety of settings. Students acquire collaborative skills and competencies in collaborative processes such as working in teams and facilitating groups, negotiating and managing conflict, conducting situation assessments and issue analyses, and developing methods and standards for integrating technical information in collaborative decision making. The course will involve extensive use of cases, role-plays, and related participative activities.

Prerequisite: Admission by consent of instructor.

ENR5921 - Collaborative Practicum

Credits: 1-3

Max Credit (Max. 3)

Under the guidance and instruction of ENR faculty, students will have the opportunity to apply the skills and information gained in ENR 5910 to real-world situations. Students will gain practical experience in collaboration, facilitative leadership, and conflict resolution and to develop and refine skills in one or more of the learning objectives and expected competencies.

Prerequisite: ENR 5910.

3 Credit Hours in Collaborative Practice Electives:

Students will consult with their Haub School advisor to choose an elective to deepen their process competencies or build knowledge for application of collaborative governance in specific contexts (natural resources, health, education, business, etc). Context specific electives should focus on policy within that context.

Environment & Natural Resources Graduate Major

The ENR graduate major is completed in tandem with any UW graduate degree. Graduates will understand and evaluate the relationship of their primary discipline to other environmental fields to address the complexity of environmental challenges.

Program Overview

Students earning the ENR graduate major will take classes and conduct research in such fields as cultural studies, ecology, economics, law and politics, and management to:

- be conversant across a range of field of environmental significance, spanning science and technology to human dimensions of natural resources;
- understand and evaluate the relationship of your primary discipline to other relevant ENR fields; and
- produce discourse, scholarship, and practical solutions that address the complexity of ENR challenges.

Graduate students interested in the concurrent major in ENR will apply for admission to a primary degree program at the University of Wyoming. Once accepted to their primary graduate program, students must complete an additional online process to confirm their enrollment in the ENR major. During the Haub School admission process, students will submit a one-page Statement of Purpose. Current application requirements are available online.

In addition to degree requirements of the student's home department, students must complete 15 credit hours:

6 Credit Hours in ENR Core Courses:

ENR5100 - Foundations of ENRS

Credits: 3

This course, required of students in all ENR graduate programs, provides students with language and conceptual frameworks for understanding a range of perspectives that stakeholders bring to ENRS issues. It builds students' "epistemological toolbox" for interacting with others who bring different paradigms of thought, values, ways of knowing, and terminology into the "big tent" of environmental studies.

Prerequisite: Graduate student status.

ENR5900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and

natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 4900.

Prerequisite: graduate standing and ENR 5100.

9+ Credit Hours in ENR Electives Courses:

(Choose three+ courses from any of the following categories)

Human Dimensions

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC5660 - Community and Economic Development

Credits: 3

Community development from an interdisciplinary perspective, integrating theory, concepts and methods from sociology, economics, political science, and community development. Students learn how community theory can be used to design and support effective economic development programs. Includes readings, lectures, guest lectures, field trips and community analysis projects.

Dual Listed AGEC 4660.

Prerequisite: AGEC 1020/ ECON 1020 or SOC 2090 and junior standing.

AMST5030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 5030.

Dual Listed AMST 4030.

Prerequisite: graduate status.

ANTH5260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and

theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 4260.

Prerequisite: ANTH 1100 or ANTH 1200.

ECON5410 - Seminar in Advanced Resource and Environmental Economics

Credits: 1-3

Max Credit (Max. 6)

This course explores the modern theory and empirics in environmental and natural resource economics. We focus on cost-benefit analysis, land use, energy, biodiversity protection, climate change, forestry, ecosystem services, fisheries, water, and sustainable development.

Prerequisite: ECON 4400 and ECON 5020.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENR5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGECE 5450.

Dual Listed ENR 4450.

Prerequisite: completion of USP O requirement; junior standing.

ENR5560 - Conservation Entrepreneurship

Credits: 3

This course introduces students to foundational concepts in social entrepreneurship and applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches. Prerequisites: graduate standing.

Dual Listed ENR 4560

Prerequisite: Graduate standing.

ENR5600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 4600

Prerequisite: Graduate standing.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

OR

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.
OR

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG5570 - Cultural Geography

Credits: 3

Cultural Geography is an overview in qualitative cultural landscape studies. The course emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Students are exposed to readings in cultural geography from a wide array of viewpoints with an emphasis placed on classic works.

Dual Listed GEOG 4570.
Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

GEOG5590 - Geography of Conflicts

Credits: 3

Explores the representation of place and how various groups often have differing views of how a place should be represented and/or thought of. Various local representations of contested land use, group place identity, and personal place identity are discussed.

Dual Listed GEOG 4590.
Former Course Number [5574]

Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

REWM5103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Preparation of public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 4103.

Prerequisite: REWM 2000 and CS course.

GWST5450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 4450.

Prerequisite: six credits from women's studies, philosophy, and/or ENR.

Law & Policy

ENR5750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 4750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

OR

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

OR

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

INST5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 5455.

Dual Listed INST 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

OR

POLS5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 5455.

Dual Listed POLS 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

LAW6660 - Environmental Law

Credits: 3
Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6700 - Indian Law

Credits: 3
Max Credit (Max. 3)

Surveys the law that applies to Native Americans and tribal governments. Deals primarily with federal law because of the unique relationship between the federal government and tribes, which are sovereign entities, and because federal law controls most Native American activities. The main issues are jurisdictional; that is, they concern the allocation of legislative (or regulatory) and judicial (both civil and criminal) jurisdiction among federal, tribal, and state governments.

LAW6800 - Public Lands

Credits: 3
Max Credit (Max. 3)

Examines the law governing management of the federal public lands/national parks, national forests, wildlife refuges, BLM lands, etc. Among other laws, we study NEPA, General Mining Law of 1872, Mineral Leasing Act of 1920, National Forest Management Act of 1976, Taylor Grazing Act, Federal Land Policy and Management Act, Endangered Species Act, and Wilderness Act. In addition to examining Congress' prescriptions for public land management and the constraints it has imposed on land managers, the course also explores how the public and politics influence public land policy and decision making.

LAW6860 - Water Law and Policy

Credits: 3
Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

LAW6865 - Natural Resources Law

Credits: 3
Max Credit (Max. 3)

Comprehensive view of the general law governing natural and environmental resources. Students will learn to understand how our legal system has organized the various problems of allocation, use rights, duties and limitations, and governance, in the context of establishing rules governing human use of the earth's natural endowment.

Prerequisite: completion of first year of law school.

POLS5051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

POLS5475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 5475.

Dual Listed POLS 4475.

Prerequisite: graduate standing.

Natural & Physical Sciences

BOT5280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 5280.

Dual Listed BOT 4280.

Prerequisite: graduate standing.

BOT5700 - Vegetation Ecology

Credits: 4

The ecology of major vegetation types, with emphasis on patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 4700.

Prerequisite: LIFE 3400.

BOT5775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed ECOL 5775/RNEW 5775.

Dual Listed BOT 4775.

Prerequisite: LIFE 3400.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 5285.

Dual Listed ENR 4285.

Prerequisite: graduate standing and University Studies QA.

OR

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

ENR5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 5240.

Dual Listed ENR 4240.

OR

PATB5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed ENR 5240

Dual Listed PATB 4240

GEOG5450 - Fluvial Geomorphology

Credits: 4

A systematic examination of rivers and related land forms. Emphasizes understanding how processes of flow and sediment transport influence channel form and behavior. Considers rivers systems across a range of scales, from movement of individual sediment particles to organization of continental drainage basins. Explores connections to aquatic ecosystems and human impacts.

Dual Listed GEOG 4450.

Prerequisite: GEOG 3010 or GEOL 2100 or GEOL 2150 or equivalent and graduate standing.

GEOG5440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 4440 .

Prerequisite: Graduate standing.

PLNT5120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 4120

Prerequisite: 8 hours of LIFE and/or CHEM

REWM5000 - Range Resource Management

Credits: 3

Basic concepts and theories of rangeland resource management, trends in rangeland classification, grazing management and improvement practices.

Prerequisite: graduate classification in agriculture or related natural resource subject matter areas.

REWM5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed ECOL 5580.

Dual Listed REWM 4580.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture

production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

REWM5750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 4750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM5400 - Community Ecology

Credits: 3

Community ecology is the study of interactions within and among groups of species. This course focuses on (1) the major classical concepts and theories in community ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

Cross Listed ECOL 5400.

Prerequisite: LIFE 3410 or equivalent.

RNEW5500 - Stable Isotope Ecology

Credits: 3

Application of stable isotope measurements to organismal and systems ecology. Lectures address the theory underlying the use of stable isotopes at natural abundance levels as tracers and integrators of important physiological and ecological processes. Laboratory exercises provide hands on experience with stable isotope ratio measurements.

Prerequisite: graduate classification in a natural science or agriculture discipline.

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

Quantitative & Qualitative Methods:

BOT5550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

COJO5070 - Quantitative Research Methods

Credits: 3

Design, implementation, and examination of research questions in communication with quantitative, social scientific methodologies. Attention primarily on survey design, experimental design, and quantitative content analysis. Analysis of quantitative data with statistical programs. Theories and ethical issues with quantitative research. Design and implement a quantitative study start to finish.

Prerequisite: graduate standing.

ENR5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 5550.

Dual Listed ENR 4550.

Former Course Number [5700]

Prerequisite: QA.

OR

AGEC5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 5550.

Dual Listed AGEC 4550.

Prerequisite: QA/Q.

ENR5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

OR

GEOL5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 4525.

GIST5100 - Foundations of Geospatial Information Science and Technology

Credits: 3

This online and on-campus graduate-level course provides an introduction to key concepts in geospatial information science and technology (GIST) including spatial data structures, coordinate systems, cartographic principles, spatial analysis, modeling, spatial cognition, and applications of GIS in a multidisciplinary context. Lecture and project-based (poster).

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Dual Listed GIST 4130.

Former Course Number [BOT 5130; RNEW 5130]

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Additional Program Requirements:

1. **Statement of Purpose:** Prior to or concurrent with declaring an Environment and Natural Resources (ENR) graduate major or minor, students must submit a 1-page Statement of Purpose describing how the Haub School's program aligns with their academic and professional goals.
2. **Cumulative Learning Analysis:** Immediately prior to graduation, students must submit a 1-2 page Cumulative Learning Analysis, analyzing their learning as a whole throughout their graduate work, informed by their coursework, research and co-curricular activities.
3. **Program Completion Letter:** Upon completion of ENR coursework, students will arrange a meeting with their advisor to ensure all requirements have been met. Once this step is complete, their advisor will submit a signed Program Completion Letter to the registrar, indicating the student should receive the ENR concurrent degree.

Environment & Natural Resources Graduate Minor

The Environment & Natural Resources (ENR) graduate minor is designed for doctoral students in any discipline who want to broaden their perspectives, experiences, and critical thinking skills to complex environmental problems.

Program Overview

The ENR minor is also available to master's students.

Graduate students interested in the concurrent minor in ENR will apply for admission to a primary degree program at the University of Wyoming. Once accepted to their primary graduate program, students must complete an additional online process to confirm their enrollment in the ENR minor. During the Haub School admission process, students submit a one-page Statement of Purpose. Current application requirements are available online.

In addition to degree requirements of the student's home department, students must complete 12 credit hours:

6 Credit Hours in ENR Core Courses:

ENR5100 - Foundations of ENRS

Credits: 3

This course, required of students in all ENR graduate programs, provides students with language and conceptual frameworks for understanding a range of perspectives that stakeholders bring to ENRS issues. It builds students' "epistemological toolbox" for interacting with others who bring different paradigms of thought, values, ways of

knowing, and terminology into the "big tent" of environmental studies.

Prerequisite: Graduate student status.

ENR5900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 4900.

Prerequisite: graduate standing and ENR 5100.

6+ Credit Hours in ENR Electives Courses:

(Choose three+ courses from any of the following categories)

Human Dimensions:

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC5660 - Community and Economic Development

Credits: 3

Community development from an interdisciplinary perspective, integrating theory, concepts and methods from sociology, economics, political science, and community development. Students learn how community theory can be used to design and support effective economic development programs. Includes readings, lectures, guest lectures, field trips and community analysis projects.

Dual Listed AGEC 4660.

Prerequisite: AGEC 1020/ ECON 1020 or SOC 2090 and junior standing.

AMST5030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 5030.
Dual Listed AMST 4030.
Prerequisite: graduate status.

ANTH5260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 4260.
Prerequisite: ANTH 1100 or ANTH 1200.

ECON5410 - Seminar in Advanced Resource and Environmental Economics

Credits: 1-3
Max Credit (Max. 6)

This course explores the modern theory and empirics in environmental and natural resource economics. We focus on cost-benefit analysis, land use, energy, biodiversity protection, climate change, forestry, ecosystem services, fisheries, water, and sustainable development.

Prerequisite: ECON 4400 and ECON 5020.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENR5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGECE 5450.
Dual Listed ENR 4450.
Prerequisite: completion of USP O requirement; junior standing.

ENR5560 - Conservation Entrepreneurship

Credits: 3

This course introduces students to foundational concepts in social entrepreneurship and applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches. Prerequisites: graduate standing.

Dual Listed ENR 4560

Prerequisite: Graduate standing.

ENR5600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 4600

Prerequisite: Graduate standing.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

OR

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

OR

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOG 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG5570 - Cultural Geography

Credits: 3

Cultural Geography is an overview in qualitative cultural landscape studies. The course emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Students are exposed to readings in cultural geography from a wide array of viewpoints with an emphasis placed on classic works.

Dual Listed GEOG 4570.

Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

GEOG5590 - Geography of Conflicts

Credits: 3

Explores the representation of place and how various groups often have differing views of how a place should be represented and/or thought of. Various local representations of contested land use, group place identity, and personal place identity are discussed.

Dual Listed GEOG 4590.

Former Course Number [5574]

Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

REWM5103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Preparation of public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 4103.

Prerequisite: REWM 2000 and CS course.

GWST5450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 4450.

Prerequisite: six credits from women's studies, philosophy, and/or ENR.

Law & Policy:

ENR5750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 4750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

OR

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

OR

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

INST5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 5455.

Dual Listed INST 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

OR

POLS5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 5455.

Dual Listed POLS 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

LAW6660 - Environmental Law

Credits: 3

Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6700 - Indian Law

Credits: 3

Max Credit (Max. 3)

Surveys the law that applies to Native Americans and tribal governments. Deals primarily with federal law because of the unique relationship between the federal government and tribes, which are sovereign entities, and because federal law controls most Native American activities. The main issues are jurisdictional; that is, they concern the allocation of legislative (or regulatory) and judicial (both civil and criminal) jurisdiction among federal, tribal, and state governments.

LAW6800 - Public Lands

Credits: 3

Max Credit (Max. 3)

Examines the law governing management of the federal public lands/national parks, national forests, wildlife refuges, BLM lands, etc. Among other laws, we study NEPA, General Mining Law of 1872, Mineral Leasing Act of 1920, National Forest Management Act of 1976, Taylor Grazing Act, Federal Land Policy and Management Act, Endangered Species Act, and Wilderness Act. In addition to examining Congress' prescriptions for public land management and the constraints it has imposed on land managers, the course also explores how the public and politics influence public land policy and decision making.

LAW6860 - Water Law and Policy

Credits: 3

Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

LAW6865 - Natural Resources Law

Credits: 3
Max Credit (Max. 3)

Comprehensive view of the general law governing natural and environmental resources. Students will learn to understand how our legal system has organized the various problems of allocation, use rights, duties and limitations, and governance, in the context of establishing rules governing human use of the earth's natural endowment.

Prerequisite: completion of first year of law school.

POLS5051 - Environmental Politics

Credits: 3
Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.
Dual Listed POLS 4051.
Prerequisite: POLS 1000.

POLS5475 - Politics of Natural Resources in Latin America

Credits: 3
This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 5475.
Dual Listed POLS 4475.
Prerequisite: graduate standing.

Natural & Physical Sciences:

BOT5280 - Paleobotany

Credits: 4
An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 5280.
Dual Listed BOT 4280.
Prerequisite: graduate standing.

BOT5700 - Vegetation Ecology

Credits: 4

The ecology of major vegetation types, with emphasis on patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 4700.

Prerequisite: LIFE 3400.

BOT5775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed ECOL 5775/RNEW 5775.

Dual Listed BOT 4775.

Prerequisite: LIFE 3400.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 5285.

Dual Listed ENR 4285.

Prerequisite: graduate standing and University Studies QA.

OR

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

ENR5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 5240.

Dual Listed ENR 4240.

OR

PATB5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed ENR 5240

Dual Listed PATB 4240

GEOG5440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 4440 .

Prerequisite: Graduate standing.

GEOG5450 - Fluvial Geomorphology

Credits: 4

A systematic examination of rivers and related land forms. Emphasizes understanding how processes of flow and sediment transport influence channel form and behavior. Considers rivers systems across a range of scales, from movement of individual sediment particles to organization of continental drainage basins. Explores connections to aquatic ecosystems and human impacts.

Dual Listed GEOG 4450.

Prerequisite: GEOG 3010 or GEOL 2100 or GEOL 2150 or equivalent and graduate standing.

PLNT5120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 4120

Prerequisite: 8 hours of LIFE and/or CHEM

REWM5000 - Range Resource Management

Credits: 3

Basic concepts and theories of rangeland resource management, trends in rangeland classification, grazing management and improvement practices.

Prerequisite: graduate classification in agriculture or related natural resource subject matter areas.

REWM5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed ECOL 5580.

Dual Listed REWM 4580.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

REWM5750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 4750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM5400 - Community Ecology

Credits: 3

Community ecology is the study of interactions within and among groups of species. This course focuses on (1) the major classical concepts and theories in community ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

Cross Listed ECOL 5400.

Prerequisite: LIFE 3410 or equivalent.

RNEW5500 - Stable Isotope Ecology

Credits: 3

Application of stable isotope measurements to organismal and systems ecology. Lectures address the theory underlying the use of stable isotopes at natural abundance levels as tracers and integrators of important physiological and ecological processes. Laboratory exercises provide hands on experience with stable isotope ratio measurements.

Prerequisite: graduate classification in a natural science or agriculture discipline.

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units

representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

Quantitative & Qualitative Methods:

BOT5550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

ENR5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 5550.

Dual Listed ENR 4550.

Former Course Number [5700]

Prerequisite: QA.

OR

AGEC5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 5550.

Dual Listed AGEC 4550.

Prerequisite: QA/Q.

ENR5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

OR

GEOL5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 4525.

GIST5100 - Foundations of Geospatial Information Science and Technology

Credits: 3

This online and on-campus graduate-level course provides an introduction to key concepts in geospatial information science and technology (GIST) including spatial data structures, coordinate systems, cartographic principles, spatial analysis, modeling, spatial cognition, and applications of GIS in a multidisciplinary context. Lecture and project-based (poster).

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Dual Listed GIST 4130.

Former Course Number [BOT 5130; RNEW 5130]

OR

- RNEW 5130

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Additional Program Requirements:

1. **Statement of Purpose:** Prior to or concurrent with declaring an Environment and Natural Resources (ENR) graduate major or minor, students must submit a 1-page Statement of Purpose describing how the Haub School's program aligns with their academic and professional goals.
2. **Cumulative Learning Analysis:** Immediately prior to graduation, students must submit a 1-2 page Cumulative Learning Analysis, analyzing their learning as a whole throughout their graduate work, informed by their coursework, research and co-curricular activities.
3. **Program Completion Letter:** Upon completion of ENR coursework, students will arrange a meeting with their advisor to ensure all requirements have been met. Once this step is complete, their advisor will submit a signed Program Completion Letter to the registrar, indicating the student should receive the ENR concurrent degree.

Environment & Natural Resources, J.D./M.A.

Through this concurrent degree program law students can add a master's degree in ENR. Students develop experience in interdisciplinary content, analytical tools, and collaborative problem-solving skills for addressing complex natural resource issues.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

Juris Doctor/MA in Environment & Natural Resources

Here you will find information on the Juris Doctor/Master of Arts in Environment and Natural Resources

Program Overview

Applicants to the J.D./M.A. in Environment & Natural Resources (ENR) must apply to both the College of Law and the Haub School. Admission to the joint degree program is contingent on acceptance to the College of Law. Current application requirements are available online.

Students working toward the J.D./M.A. in ENR consult a Haub School advisor to design a program of study tailored to meet their educational goals.

Students must earn a minimum of 30 credits for the master's degree:

9 Credit Hours in ENR Core Courses:

Foundations of ENRS

ENR5100 - Foundations of ENRS

Credits: 3

This course, required of students in all ENR graduate programs, provides students with language and conceptual frameworks for understanding a range of perspectives that stakeholders bring to ENRS issues. It builds students' "epistemological toolbox" for interacting with others who bring different paradigms of thought, values, ways of knowing, and terminology into the "big tent" of environmental studies.

Prerequisite: Graduate student status.

ENR Policy in Practice

ENR5900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 4900.

Prerequisite: graduate standing and ENR 5100.

Plan B Writing Seminar (1 credit)

Typically completed in the second semester of the second year. Students must select an advisor-approved ENR 5890 section to meet this requirement.

ENR5890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 4890.

Prerequisite: ENR 5100 or consent of instructor.

Plan B Thesis: JD/MA (2 credits)

ENR5961 - Plan B Projects

Credits: 2

Max Credit (Max. 6)

Limited to students enrolled in a Plan B graduate program. Students will be involved in non-course scholarly activities in support of the Plan B project.

Restricted Restricted to ENR graduate students.

9 Credit Hours in ENR Electives Courses:

Students must take a minimum of 9 credits outside the College of Law. Courses familiarize students with non-law ENR perspectives and approaches. Students work with a Haub School advisor to select courses from an approved list.

(Choose three+ courses in consultation with Haub School advisor):

Humanities

AMST5030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 5030.

Dual Listed AMST 4030.

Prerequisite: graduate status.

- ANTH 5620

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENR5560 - Conservation Entrepreneurship

Credits: 3

This course introduces students to foundational concepts in social entrepreneurship and applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches. Prerequisites: graduate standing.

Dual Listed ENR 4560

Prerequisite: Graduate standing.

ENR5600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 4600

Prerequisite: Graduate standing.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

OR

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOG 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

GWST5450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 4450.

Prerequisite: six credits from women's studies, philosophy, and/or ENR.

Environmental Science

BOT5280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 5280.

Dual Listed BOT 4280.

Prerequisite: graduate standing.

BOT5700 - Vegetation Ecology

Credits: 4

The ecology of major vegetation types, with emphasis on patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 4700.

Prerequisite: LIFE 3400.

BOT5775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed ECOL 5775/RNEW 5775.

Dual Listed BOT 4775.

Prerequisite: LIFE 3400.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 5240.

Dual Listed ENR 4240.

OR

PATB5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in

animals, plants, and humans.

Cross Listed ENR 5240

Dual Listed PATB 4240

ENR5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 5285.

Dual Listed ENR 4285.

Prerequisite: graduate standing and University Studies QA.

OR

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

GEOG5440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 4440 .

Prerequisite: Graduate standing.

GEOG5450 - Fluvial Geomorphology

Credits: 4

A systematic examination of rivers and related land forms. Emphasizes understanding how processes of flow and sediment transport influence channel form and behavior. Considers rivers systems across a range of scales, from movement of individual sediment particles to organization of continental drainage basins. Explores connections to aquatic ecosystems and human impacts.

Dual Listed GEOG 4450.

Prerequisite: GEOG 3010 or GEOL 2100 or GEOL 2150 or equivalent and graduate standing.

PLNT5120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 4120

Prerequisite: 8 hours of LIFE and/or CHEM

REWM5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed ECOL 5580.

Dual Listed REWM 4580.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

RNEW5400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness as well as management strategies for invasive plant species.

Cross Listed PLNT 5400.

Dual Listed RNEW 4400.

Prerequisite: LIFE 3400.

RNEW5500 - Stable Isotope Ecology

Credits: 3

Application of stable isotope measurements to organismal and systems ecology. Lectures address the theory underlying the use of stable isotopes at natural abundance levels as tracers and integrators of important physiological and

ecological processes. Laboratory exercises provide hands on experience with stable isotope ratio measurements.

Prerequisite: graduate classification in a natural science or agriculture discipline.

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

Social Science

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGECE 1020 or equivalent; QB course, WB course; senior standing.

AGEC5660 - Community and Economic Development

Credits: 3

Community development from an interdisciplinary perspective, integrating theory, concepts and methods from sociology, economics, political science, and community development. Students learn how community theory can be used to design and support effective economic development programs. Includes readings, lectures, guest lectures, field trips and community analysis projects.

Dual Listed AGECE 4660.

Prerequisite: AGECE 1020/ ECON 1020 or SOC 2090 and junior standing.

ECON5410 - Seminar in Advanced Resource and Environmental Economics

Credits: 1-3

Max Credit (Max. 6)

This course explores the modern theory and empirics in environmental and natural resource economics. We focus on cost-benefit analysis, land use, energy, biodiversity protection, climate change, forestry, ecosystem services, fisheries, water, and sustainable development.

Prerequisite: ECON 4400 and ECON 5020.

ENR5750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 4750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 5450.

Dual Listed ENR 4450.

Prerequisite: completion of USP O requirement; junior standing.

OR

AGEC5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 5450.

Dual Listed AGEC 4450.

Prerequisite: completion of USP O/COM2 requirement; junior standing or consent of instructor.

ENR5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 5550.

Dual Listed ENR 4550.

Former Course Number [5700]

Prerequisite: QA.

OR

AGEC5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 5550.

Dual Listed AGECE 4550.

Prerequisite: QA/Q.

ENR5050 - Techniques in Environmental Data Management

Credits: 4

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e. g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Cross Listed ECOL 5050/GEOG 5050.

Prerequisite: graduate standing.

OR

ECOL5050 - Techniques in Environmental Data Management

Credits: 4

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e. g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Cross Listed ENR 5050/GEOG 5050.

Prerequisite: graduate standing.

ENR5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

OR

GEOL5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 4525.

POLS5051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

GIST5130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Dual Listed GIST 4130.

Former Course Number [BOT 5130; RNEW 5130]

GIST5211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 4211.

Former Course Number [BOT 5211; GEOG 5211]

Prerequisite: GIST 5111 or GIST 5130.

INST5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed POLS 5445.

Dual Listed INST 4445.

Prerequisite: graduate standing.

OR

POLS5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 5445.

Dual Listed POLS 4445.

Prerequisite: 9 hours of international studies or social science coursework

INST5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 5455.

Dual Listed INST 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

OR

POLS5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 5455.

Dual Listed POLS 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

INST5475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed POLS 4475 /POLS 5475
INST 4475 /5475

GEOG 4475

Dual Listed POLS 4475/5475

INST 4475/5475

GEOG 4475

Prerequisite: graduate standing.

OR

POLS5475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 5475.

Dual Listed POLS 4475.

Prerequisite: graduate standing.

POLS5710 - Topics In Political Science

Credits: 1-3

Max Credit (Max. 9)

Intended to accommodate various specialized subjects not offered as regular courses.

Prerequisite: graduate standing.

REWM5000 - Range Resource Management

Credits: 3

Basic concepts and theories of rangeland resource management, trends in rangeland classification, grazing management and improvement practices.

Prerequisite: graduate classification in agriculture or related natural resource subject matter areas.

REWM5103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Preparation of public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 4103.

Prerequisite: REWM 2000 and CS course.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

12 Credit Hours in Environmental and Natural Resources Law Specialization Courses:

Students will take 12 credits to gain depth in ENR law, selected from the following options in consultation with Haub School advisor. Special approval may be granted for special topics courses.

LAW6510 - Administrative Law

Credits: 3

Max Credit (Max. 3)

A review of administrative law practice and procedure, primarily at the federal level. The course begins with materials on the nature and function of administrative agencies. Agency rulemaking power, emphasizing federal and state Administrative Procedure Act (APA) requirements. Considers the adjudicative powers of administrative agencies, including an agency's obligation to afford persons due process of law. Finally, the course examines judicial review of administrative agency decisions.

LAW6660 - Environmental Law

Credits: 3

Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6700 - Indian Law

Credits: 3

Max Credit (Max. 3)

Surveys the law that applies to Native Americans and tribal governments. Deals primarily with federal law because of the unique relationship between the federal government and tribes, which are sovereign entities, and because federal law controls most Native American activities. The main issues are jurisdictional; that is, they concern the allocation of legislative (or regulatory) and judicial (both civil and criminal) jurisdiction among federal, tribal, and state governments.

LAW6790 - Oil and Gas

Credits: 3

Max Credit (Max. 3)

A study of the law regarding private property interests in oil and gas. Subjects include the acquisition, transfer, lease, and assignment of oil and gas interests; rules and contracts governing the relationships among surface owners, oil and gas lessors, oil and gas lessees, and neighboring owners; and government regulation.

LAW6800 - Public Lands

Credits: 3

Max Credit (Max. 3)

Examines the law governing management of the federal public lands/national parks, national forests, wildlife refuges, BLM lands, etc. Among other laws, we study NEPA, General Mining Law of 1872, Mineral Leasing Act of 1920, National Forest Management Act of 1976, Taylor Grazing Act, Federal Land Policy and Management Act, Endangered Species Act, and Wilderness Act. In addition to examining Congress' prescriptions for public land management and the constraints it has imposed on land managers, the course also explores how the public and politics influence public land policy and decision making.

LAW6860 - Water Law and Policy

Credits: 3

Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

LAW6890 - Land Use Law

Credits: 3

Max Credit (Max. 3)

Deals primarily with public methods of making decisions concerning the use and development of land. Land use decisions range from the issuance of building permits or variances to zoning to long-range planning. Examines tensions between private and public interests (private landowners, community residents, developers, business persons, and city/county officials) over the use of private property, the legal principles that inform the possible resolutions of these

tensions and define governmental authority, and the implications of land use regulation for the exercise of other rights, such as free speech.

LAW6910 - Seminar

Credits: 1-2

LAW6991 - Advanced Water Law and Policy

Credits: 3

Research projects within the fields of domestic, international, or comparative water law and policy. Focuses on the elaborate body of laws governing allocation and management of water in and around the Colorado River Basin - i. e. , the "Law of the River. " Explore the Law of the River's historical evolution and current composition as well as cutting-edge policy issues currently facing it. Writing-intensive format satisfies the College of Law's Advanced Writing Requirement.

Prerequisite: C or better in LAW 6860.

LAW6992 - Advanced Oil and Gas Law

Credits: 3

Simulate the work of an oil and gas attorney. Explore oil and gas financing arrangements including the farmout, JOA, and productions sharing agreements, drilling and service agreements, downstream marketing and purchase agreements, conveyances of oil and gas real property interests, the purchase and sale of petroleum properties, oil and gas development on federal lands, and title examination.

Prerequisite: C or better in LAW 6790.

LAW6915 - Topics in Law

Credits: 1-3

Specific subject matter varies each year and between each section because the course is normally taught by a visiting faculty or by a law faculty member or interdisciplinary team who wish to present a special topic not able to be offered on a regular basis. Students should check class schedules for current offerings each semester.

Prerequisite: completion of first year of law school; consent of instructor required for non-law students.

- LAW 6500 - Agricultural Law

Plan B Project Research

Students must complete a cumulative work of scholarship known as the Plan B project. The Plan B offers more flexibility than a traditional thesis in content and format. Students will be required to choose a Haub School faculty committee chair and at least two additional committee members. Committee composition is subject to approval by the program chair and Dean of the Haub School. A public oral defense of the project is required. All members of the student's committee must be present at the defense. The student's committee has to give final approval of the student's Plan B thesis and defense via a report of final examination.

Environment, Natural Resources & Society, M.S.

This master's degree program develops collaborative, interdisciplinary leaders in environmental fields such as natural resource management, planning, and administration across nonprofit, for profit, government, and academic settings.

Program Overview

Students earning the master of science in Environment, Natural Resources & Society (ENRS) will consult a Haub School advisor to design a program of study tailored to meet their educational goals. Students take courses and complete a Plan A research thesis or Plan B research project focusing on issues pertinent to environmental or natural resources management or policy.

Graduates of this program will:

- develop an interdisciplinary and collaborative mindset;
- experience critical engagement with community stakeholders and decision-makers;
- excel in team-based collaborative environments;
- gain experience in relevant and emergent research methods and practices;
- demonstrate excellent written, oral, and digital communication across a range of audiences and purposes, including developing expertise in public engagement;
- apply conceptual, critical, and creative thought to relevant environmental and natural resource issues; and,
- analyze and evaluate complex systems that contribute to inclusive, sound, and well-informed decisions.

Applicants to the M.S. in Environment, Natural Resources & Society must apply directly to the University of Wyoming. Applications for graduate assistantships should be directed to the Haub School. Current application requirements are available online.

Students must earn a minimum of 32 credit hours for the Plan A thesis option and 30 credit hours for the Plan B option:

11 Credit Hours in ENRS Core Courses:

ENR5001 - Orientation to ENRS

Credits: 2

ENR 5001 aims to develop program culture and introduce resources and norms, provide common frames for understanding ENRS challenges, develop leadership and teamwork skills, and identify and explore some of the ENRS challenges in Wyoming.

ENR5100 - Foundations of ENRS

Credits: 3

This course, required of students in all ENR graduate programs, provides students with language and conceptual frameworks for understanding a range of perspectives that stakeholders bring to ENRS issues. It builds students' "epistemological toolbox" for interacting with others who bring different paradigms of thought, values, ways of knowing, and terminology into the "big tent" of environmental studies.

Prerequisite: Graduate student status.

ENR5900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 4900.

Prerequisite: graduate standing and ENR 5100.

ENR5921 - Collaborative Practicum

Credits: 1-3

Max Credit (Max. 3)

Under the guidance and instruction of ENR faculty, students will have the opportunity to apply the skills and information gained in ENR 5910 to real-world situations. Students will gain practical experience in collaboration, facilitative leadership, and conflict resolution and to develop and refine skills in one or more of the learning objectives and expected competencies.

Prerequisite: ENR 5910.

Plan A Thesis Credit (4 credit hours):

ENR5960 - Thesis Research

Credits: 1-12

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: Enrollment in a graduate degree program.

Or Plan B Thesis Credit (2 credit hours):

ENR5961 - Plan B Projects

Credits: 2

Max Credit (Max. 6)

Limited to students enrolled in a Plan B graduate program. Students will be involved in non-course scholarly activities in support of the Plan B project.

Restricted Restricted to ENR graduate students.

17 Credit Hours in ENRS Electives:

Students will consult with their Haub School advisor to choose electives that support their plan of study and Plan A or Plan B thesis. Choose courses from any of the following categories:

Social & Cultural Sciences

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC5660 - Community and Economic Development

Credits: 3

Community development from an interdisciplinary perspective, integrating theory, concepts and methods from sociology, economics, political science, and community development. Students learn how community theory can be used to design and support effective economic development programs. Includes readings, lectures, guest lectures, field trips and community analysis projects.

Dual Listed AGEC 4660.

Prerequisite: AGEC 1020/ ECON 1020 or SOC 2090 and junior standing.

AMST5030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 5030.

Dual Listed AMST 4030.

Prerequisite: graduate status.

ANTH5260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 4260.

Prerequisite: ANTH 1100 or ANTH 1200.

ECON5410 - Seminar in Advanced Resource and Environmental Economics

Credits: 1-3

Max Credit (Max. 6)

This course explores the modern theory and empirics in environmental and natural resource economics. We focus on

cost-benefit analysis, land use, energy, biodiversity protection, climate change, forestry, ecosystem services, fisheries, water, and sustainable development.

Prerequisite: ECON 4400 and ECON 5020.

ENR5560 - Conservation Entrepreneurship

Credits: 3

This course introduces students to foundational concepts in social entrepreneurship and applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches. Prerequisites: graduate standing.

Dual Listed ENR 4560

Prerequisite: Graduate standing.

ENR5600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 4600

Prerequisite: Graduate standing.

ENR5910 - Collaborative Practice Methods

Credits: 3

This course introduces students to the principles, concepts, and methods of collaborative decision making as it is practiced in a variety of settings. Students acquire collaborative skills and competencies in collaborative processes such as working in teams and facilitating groups, negotiating and managing conflict, conducting situation assessments and issue analyses, and developing methods and standards for integrating technical information in collaborative decision making. The course will involve extensive use of cases, role-plays, and related participative activities.

Prerequisite: Admission by consent of instructor.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

OR

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

OR

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOG 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG5570 - Cultural Geography

Credits: 3

Cultural Geography is an overview in qualitative cultural landscape studies. The course emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Students are exposed to readings

in cultural geography from a wide array of viewpoints with an emphasis placed on classic works.

Dual Listed GEOG 4570.

Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

GEOG5590 - Geography of Conflicts

Credits: 3

Explores the representation of place and how various groups often have differing views of how a place should be represented and/or thought of. Various local representations of contested land use, group place identity, and personal place identity are discussed.

Dual Listed GEOG 4590.

Former Course Number [5574]

Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

GWST5450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 4450.

Prerequisite: six credits from women's studies, philosophy, and/or ENR.

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

REWM5103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Preparation of public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 4103.

Prerequisite: REWM 2000 and CS course.

Law & Policy

ENR5750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 4750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR5890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 4890.

Prerequisite: ENR 5100 or consent of instructor.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

OR

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

OR

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

INST5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 5455.

Dual Listed INST 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

OR

POLS5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 5455.

Dual Listed POLS 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

LAW6660 - Environmental Law

Credits: 3

Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6700 - Indian Law

Credits: 3
Max Credit (Max. 3)

Surveys the law that applies to Native Americans and tribal governments. Deals primarily with federal law because of the unique relationship between the federal government and tribes, which are sovereign entities, and because federal law controls most Native American activities. The main issues are jurisdictional; that is, they concern the allocation of legislative (or regulatory) and judicial (both civil and criminal) jurisdiction among federal, tribal, and state governments.

LAW6800 - Public Lands

Credits: 3
Max Credit (Max. 3)

Examines the law governing management of the federal public lands/national parks, national forests, wildlife refuges, BLM lands, etc. Among other laws, we study NEPA, General Mining Law of 1872, Mineral Leasing Act of 1920, National Forest Management Act of 1976, Taylor Grazing Act, Federal Land Policy and Management Act, Endangered Species Act, and Wilderness Act. In addition to examining Congress' prescriptions for public land management and the constraints it has imposed on land managers, the course also explores how the public and politics influence public land policy and decision making.

LAW6860 - Water Law and Policy

Credits: 3
Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

LAW6865 - Natural Resources Law

Credits: 3
Max Credit (Max. 3)

Comprehensive view of the general law governing natural and environmental resources. Students will learn to understand how our legal system has organized the various problems of allocation, use rights, duties and limitations, and governance, in the context of establishing rules governing human use of the earth's natural endowment.

Prerequisite: completion of first year of law school.

POLS5051 - Environmental Politics

Credits: 3
Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

POLS5475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 5475.

Dual Listed POLS 4475.

Prerequisite: graduate standing.

Natural & Physical Sciences

BOT5280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 5280.

Dual Listed BOT 4280.

Prerequisite: graduate standing.

BOT5700 - Vegetation Ecology

Credits: 4

The ecology of major vegetation types, with emphasis on patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 4700.

Prerequisite: LIFE 3400.

BOT5775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed ECOL 5775/RNEW 5775.

Dual Listed BOT 4775.

Prerequisite: LIFE 3400.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

AND

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 5285.

Dual Listed ENR 4285.

Prerequisite: graduate standing and University Studies QA.

OR

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

ENR5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 5240.

Dual Listed ENR 4240.

OR

PATB5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed ENR 5240

Dual Listed PATB 4240

GEOG5440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 4440 .

Prerequisite: Graduate standing.

GEOG5450 - Fluvial Geomorphology

Credits: 4

A systematic examination of rivers and related land forms. Emphasizes understanding how processes of flow and sediment transport influence channel form and behavior. Considers rivers systems across a range of scales, from movement of individual sediment particles to organization of continental drainage basins. Explores connections to aquatic ecosystems and human impacts.

Dual Listed GEOG 4450.

Prerequisite: GEOG 3010 or GEOL 2100 or GEOL 2150 or equivalent and graduate standing.

PLNT5120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 4120

Prerequisite: 8 hours of LIFE and/or CHEM

REWM5000 - Range Resource Management

Credits: 3

Basic concepts and theories of rangeland resource management, trends in rangeland classification, grazing management and improvement practices.

Prerequisite: graduate classification in agriculture or related natural resource subject matter areas.

REWM5400 - Community Ecology

Credits: 3

Community ecology is the study of interactions within and among groups of species. This course focuses on (1) the major classical concepts and theories in community ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

Cross Listed ECOL 5400.

Prerequisite: LIFE 3410 or equivalent.

REWM5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed ECOL 5580.

Dual Listed REWM 4580.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

REWM5750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 4750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

RNEW5500 - Stable Isotope Ecology

Credits: 3

Application of stable isotope measurements to organismal and systems ecology. Lectures address the theory underlying the use of stable isotopes at natural abundance levels as tracers and integrators of important physiological and ecological processes. Laboratory exercises provide hands on experience with stable isotope ratio measurements.

Prerequisite: graduate classification in a natural science or agriculture discipline.

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

Communication

ENR5270 - Writing and Reviewing Science

Credits: 4

This course will help students prepare a scientific manuscript for submission to a peer-reviewed journal; in so doing, students will become more effective, efficient, and confident writers. Students will learn principles of effective writing, how to prepare a manuscript for publication, navigate the peer-review process, and write a constructive review.

Cross Listed ZOO 5270.

Prerequisite: Students must have graduate standing and an analyzed dataset on which the manuscript will be based. Students must have approval from their advisors and key collaborators before embarking on this journey. Students are also encouraged to maintain this approval throughout the semester.

ENR5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 5450.

Dual Listed ENR 4450.

Prerequisite: completion of USP O requirement; junior standing.

OR

AGEC5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 5450.

Dual Listed AGEC 4450.

Prerequisite: completion of USP O/COM2 requirement; junior standing or consent of instructor.

ENR5870 - Graduate Seminar

Credits: 1

Max Credit (Max. 6)

Faculty-student discussion, reading, and study focused on a selected topic and interest.

Prerequisite: graduate standing.

Quantitative & Qualitative Methods

BOT5550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

COJO5070 - Quantitative Research Methods

Credits: 3

Design, implementation, and examination of research questions in communication with quantitative, social scientific methodologies. Attention primarily on survey design, experimental design, and quantitative content analysis. Analysis of quantitative data with statistical programs. Theories and ethical issues with quantitative research. Design and implement a quantitative study start to finish.

Prerequisite: graduate standing.

ENR5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 5550.

Dual Listed ENR 4550.

Former Course Number [5700]

Prerequisite: QA.

OR

AGEC5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 5550.

Dual Listed AGEC 4550.

Prerequisite: QA/Q.

ENR5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

OR

GEOL5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 4525.

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Former Course Number GEOG 5050] **Restricted** Grad students only

GIST5100 - Foundations of Geospatial Information Science and Technology

Credits: 3

This online and on-campus graduate-level course provides an introduction to key concepts in geospatial information science and technology (GIST) including spatial data structures, coordinate systems, cartographic principles, spatial analysis, modeling, spatial cognition, and applications of GIS in a multidisciplinary context. Lecture and project-based (poster).

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Dual Listed GIST 4130.

Former Course Number [BOT 5130; RNEW 5130]

OR

- RNEW 5130

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Plan A or Plan B Project Research:

Both Plan A and Plan B theses lead to original thought, synthesis, or integration of relevant elements of scholarship on issues pertinent to environmental and natural resources management or policy. The Plan A thesis will incorporate original research and data analysis on an applied environmental or natural resource management problem. The Plan B thesis project is somewhat more flexible and may take a variety of forms. Students will consult their major advisor and graduate committee on the form and content of the Plan A and Plan B thesis.

Other Programs

UW Credit Options for NOLS

UW recognizes the following credit options for taking a NOLS course:

Short Courses (less than 14 days)

Students may be eligible to complete 2 Hours of UW credits in the following course(s).

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

Quarter Length Courses (14-65 days)

Students may be eligible to complete up to 9 hours in the following courses.

ENR2800 - Introduction to Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. Significant focus is on self-awareness, judgment, and decision-making. The specific skills and theories students learn throughout provide a foundation for other leadership endeavors.

Cross Listed ORTM 2800

Prerequisite: consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

Semester & Year-long Courses (more than 65 days)

Students may be eligible to complete up to 12-24 hours in the following courses.

For year-long courses, independent study credits are also available.

ENR2800 - Introduction to Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. Significant focus is on self-

awareness, judgment, and decision-making. The specific skills and theories students learn throughout provide a foundation for other leadership endeavors.

Cross Listed ORTM 2800

Prerequisite: consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3

Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

Note:

**There are additional course requirements for 4000-level NOLS credit. Syllabi and course expectations will be shared upon enrollment.

***For courses with a Wilderness First Responder component only.

Information Literacy

Coe Library 304

Phone: (307) 766-5313

The University Libraries offer research assistance and information literacy instruction to students and faculty. Librarians provide customized class orientations to information sources in every discipline, as well as individual research consultations. Students needing research help may call, text, email, instant message, or visit any library branch.

The University of Wyoming addresses information competencies utilizing the Framework for Information Literacy for Higher Education as approved by the Association of College & Research Libraries (ACRL) and endorsed by the American Association for Higher Education. Librarians collaborate with teaching faculty in addressing these information competencies in course assignments or lectures. Information literacy is the ability to recognize and define the need for information, then locate, evaluate, and use that information effectively and ethically.

Information literacy learning outcomes are included in University Studies First Year Seminar (FYS) and Communication (COM) courses and are similar to the critical thinking learning outcomes in the H, PN, and V courses.

The Libraries also offer credit courses to help students improve research skills and to meet the Communications 2 requirement of the University Studies Program.

Learning Outcomes

We expect that students completing LBRY courses will become knowledgeable consumers of information through learning how to:

1. Recognize and define the need for information;
2. Efficiently locate information in the library or on the Internet;
3. Evaluate the quality of information;
4. Utilize information effectively, ethically, and legally.

Librarians

TAMSEN EMERSON HERT, B.A. Colorado State University 1979; M.L.S. Emporia State University 1984; M.A. 1988; Librarian, 2014, 1986.

DAVID D. KRUGER, B.S. South Dakota State University 1991; B.S.Ed. Minot State University 1994; M.A. Kansas State University 1996; M.L.S. University of Missouri at Columbia 1998; Librarian 2016, 1998.

LAWRENCE O. SCHMIDT, B.S. Montana State University 1987; M.S. 1995; M.L.S. Emporia State University 2002; Librarian 2020, 2008.

Associate Librarians

KAIJSA J. CALKINS, B.A. University of Washington, Bothell 2001, M.L.I.S. University of Washington, Seattle 2004; Associate Librarian 2012, 2006.

JANICE GROVER, B.A. University of Wyoming 2005; M.L.S. Emporia State University 2009; M.A. University of Wyoming 2017; Associate Librarian 2021.

Assistant Librarians

SAMANTHA PETER, B.A. University of Wyoming 2016; M.S.I.S. University of Texas at Austin 2018; Assistant Librarian 2018.

JESSICA RARDIN, B.A. Beloit College 2013; M.L.I.S. University of Wisconsin-Milwaukee 2021; Assistant Librarian 2021.

Geospatial Information Science and Technology

Wyoming Geographic Information Science Center
337 Agriculture C Building

Ramesh Sivanpillai, Program Director
(307)766-2532
Web site: www.uwyo.edu/WyGISC

The Wyoming Geographic Information Science Center (WyGISC) offers undergraduate and graduate courses, degrees, and certificates in Geospatial Information Science and Technology under the GIST prefix. These provide fundamental geospatial science education to undergraduate and graduate students from across disciplines at UW and are appropriate for science and non-science majors. They cover core and advanced geospatial concepts and subdisciplines including Geographic Information Systems (GIS), remote sensing, spatial data analysis, spatial visualization, spatial databases, cartography, programming, and other topics.

Faculty:

SHANNON E. ALBEKE, B.A. University of Colorado, Boulder 1997; Ph.D. University of Georgia 2010. Associate Research Scientist 2019, 2010.

KENNETH L. DRIESE, B.S. University of Virginia 1981; M.S. University of Wyoming 1992; Ph.D. 2004; Senior Lecturer in Geospatial Information Science and Technology 2019, 2002.

JEFFREY D. HAMERLINCK, B.S. University of North Dakota 1988; M.P. University of Wyoming 1992; Ph.D. University of Colorado - Boulder 2011; Senior Research Scientist 2004.

PADDINGTON HODZA, BSC, University of Zimbabwe, 1994; MSC, University of Zimbabwe, 1998; Ph.D. West Virginia University, 2007; Associate Research Scientist 2016, 2013.

AUSTIN MADSON, B.A. University of California, Los Angeles 2012; M.A. 2015; Ph.D. 2020; Assistant Professor of Geospatial Information Science and Technology 2021.

RAMESH SIVANPILLAI, B.Sc. Bharathiar University 1987; M.Sc. Cochin University of Science and Technology 1990; M.Phil. Bharathiar University 1992; M.S. University of Wisconsin, Green Bay 1995; Ph.D. Texas A&M University 2002; Senior Research Scientist 2012.

CHEN XU, B.S. Sichuan University, China 1999; M.S. Sam Houston State University 2005; Ph.D. Texas A&M University 2010; Associate Professor of Geospatial Information Science and Technology 2019.

DI YANG, B.S. Liaoning University of Petroleum and Chemical Technology 2011; M.S. Texas A&M 2013; Ph.D. University of Florida 2019; Assistant Professor of Geospatial Information Science and Technology 2020.

Geographic Information Science and Technology Degrees and Certificates

GIST degrees and certificates include a Bachelor of Science Degree in GIST (to launch Fall 2022 contingent on demonstration of student demand), undergraduate certificates in GIST and Remote Sensing, each of which can contribute to the B.S. degree; a Research Master's Degree (with thesis), an online Professional Master's Degree (no thesis), and three online graduate certificates, in GIST, Remote Sensing, and Unmanned Aerial Systems (UAS, a.k.a. drones).

Drawing on expertise from geography, computer science, mathematics, statistics, psychology, design, and others, geospatial information science refers to the multi-disciplinary research enterprise that addresses the nature of geospatial information and the application of geospatial technologies to scientific questions. Geospatial information technology is a specialized set of information and communication technologies that support the acquisition, management, analysis, and visualization of geo-referenced data. Examples include: geographic information systems; global navigation satellite systems; and satellite, airborne, drone-based, shipboard and ground-based remote sensing and image processing systems.

Successful students in Geospatial Information Science and Technology (GIST) combine proficiency in spatial thinking and geospatial data science analysis with fluency in geographic information systems, remote sensing, data analytics, and visualization. As professionals, graduates apply their knowledge and skills in a wide range of fields, from environmental management and public health, to civil engineering and urban planning, to economic analysis and marketing.

Any courses listed in degree plans that are not described in the GIST course list are under development and will be added in future catalogs as they are approved.

Undergraduate Certificates

Undergraduate certificates in GIS and Remote Sensing provide a means of adding credentials to your degree that reflect expertise in geospatial science.

Graduate Certificates

Graduate certificates provide a means for students and professionals to earn marketable credentials over the course of 1-2 semesters. These certificates require a combination of core and elective courses as outlined below and will be delivered primarily online.

Graduate

Geospatial Information Science with Thesis, Research M.S.

The Research Master of Science degree (with thesis) is delivered mainly on the UW campus but with many online courses. Students work with a graduate advisor who will guide their thesis research and chair their graduate committee. This degree requires a combination of core and elective courses that can be completed in 2 years.

Program Specific Admission Requirements

In addition to University of Wyoming graduate admission requirements, prospective students for the Research Master of Science Degree are required to submit a statement of purpose describing their background and interest in the degree, a CV or resume, and two letters of recommendation addressing their potential for success in this master's program. Students are encouraged to initiate correspondence with a faculty member who shares their research interests before applying.

Semester 1

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5200 - Geographic Visualization

Credits: 3

This online lecture and lab course emphasizes advanced theory and hands-on practice for creating applying interactive, dynamic, and multidimensional graphical representations of geographic data. Students will be introduced to web programming to allow them to develop mobile and online visualization tools.

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Former Course Number GEOG 5050] **Restricted** Grad students only

Semester 2

- GIST Elective Credits 6

GIST5220 - Spatial Modeling & Data Analysis

Credits: 3

Using raster modeling, hybrid vector/raster approaches, and geo-computational techniques, this course will explore a variety of modeling concepts and related issues. This course will examine a variety of both practical and theoretical issues, with special emphasis on understanding spatial questions that are not readily addressed by basic GIS. We will also consider issues related to error, resolution, scale, and a variety of other factors.

Former Course Number GEOG 5220

Semester 3

- GIST Electives Credits: 9

Semester 4

GIST5002 - Geospatial Forum

Credits: 1

Students attend a geospatial sciences speaker series and contribute by presenting their proposed or completed research to faculty and other students in a professional manner analogous to presenting scientific research at professional meetings.

- GIST 5960 - Thesis Research Credits: 4-12

Geospatial Information Science without Thesis, Professional M.S.

The Professional Master of Science Degree (no thesis) is delivered online. It provides a pathway for traditional students and professionals to earn a graduate credential in 2 years, but students may choose to take longer depending on their professional or personal time constraints.

Program Specific Admission Requirements

In addition to University of Wyoming graduate admission requirements, prospective students for the Professional Master of Science Degree are required to submit a statement of purpose describing their background and interest in the degree and a CV or resume.

Course Sequence

Semester 1

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple

software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Former Course Number GEOG 5050] **Restricted** Grad students only

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5200 - Geographic Visualization

Credits: 3

This online lecture and lab course emphasizes advanced theory and hands-on practice for creating applying interactive, dynamic, and multidimensional graphical representations of geographic data. Students will be introduced to web programming to allow them to develop mobile and online visualization tools.

GIST5280 - Navigating GIST Professions

Credits: 1

An introduction to work in the geospatial profession for online GIST master's program students. Focus is on workplace, management and occupation-specific competencies across and within specific domain application areas. Topics include evaluation and appropriate use of technology and data, developing career pathway options, the role of professional certification, and the value of continuing education and professional network connections.

Semester 2

- GIST Electives Credits: 6

GIST5220 - Spatial Modeling & Data Analysis

Credits: 3

Using raster modeling, hybrid vector/raster approaches, and geo-computational techniques, this course will explore a variety of modeling concepts and related issues. This course will examine a variety of both practical and theoretical issues, with special emphasis on understanding spatial questions that are not readily addressed by basic GIS. We will also consider issues related to error, resolution, scale, and a variety of other factors.

Former Course Number GEOG 5220

Semester 3

- GIST Electives Credits: 3

GIST5300 - Web Mapping and Internet GIS

Credits: 3

With a combination of lecture-based information and hands-on lab exercises, students learn to design, develop, and implement web- and internet-based GIS and mapping applications. Commonly used web and internet GIS tools are used, and students learn to assess the quality, utility, and legal aspects of web GIS products.

GIST5350 - Enterprise GIS

Credits: 3

This course provides a comprehensive overview of the design, development, and management of enterprise GIS platforms. In addition to learning about enterprise architecture, students set up cloud services for managing, sharing, and processing spatial data using proprietary and open source tools.

GIST5002 - Geospatial Forum

Credits: 1

Students attend a geospatial sciences speaker series and contribute by presenting their proposed or completed research to faculty and other students in a professional manner analogous to presenting scientific research at professional meetings.

Semester 4

- GIST 5780 Credits: 3

GIST5002 - Geospatial Forum

Credits: 1

Students attend a geospatial sciences speaker series and contribute by presenting their proposed or completed research to faculty and other students in a professional manner analogous to presenting scientific research at professional meetings.

Certificate

Geospatial Information Science and Technology Graduate Certificate

This 15-credit graduate certificate gives you a rigorous academic credential in GIS that includes exposure to fundamental and advanced concepts and the chance to pursue your own interests with generous elective opportunities.

Core (9 Credits)

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Former Course Number GEOG 5050]Restricted Grad students only

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5220 - Spatial Modeling & Data Analysis

Credits: 3

Using raster modeling, hybrid vector/raster approaches, and geo-computational techniques, this course will explore a variety of modeling concepts and related issues. This course will examine a variety of both practical and theoretical issues, with special emphasis on understanding spatial questions that are not readily addressed by basic GIS. We will also consider issues related to error, resolution, scale, and a variety of other factors.

Former Course Number GEOG 5220

Electives (6 Credits)

- Choose from other GIST courses (see M.S. courses) or interdisciplinary courses

Total: 15 Credits

Remote Sensing Graduate Certificate

Remote sensing scientists use data collected by satellites, aircraft, and Unmanned Aerial Systems (drones) to address questions important for agriculture, natural resource and wildlife management, global change science, energy development and other applications. From Google Earth to complex spectral analysis, remote sensing is playing an increasingly important role in many fields. This 15-credit online graduate certificate teaches you the fundamentals of remote sensing and digital image processing, and the freedom to use elective courses to pursue your own interests in related topics.

Core (6 Credits)

- BOT 5111 - Introduction to Remote Sensing of the Environment Credits: 3
OR

GIST5111 - Introduction to Remote Sensing

Credits: 3

Combined online lecture and laboratory course introduces students to fundamental principles and techniques of remote sensing and the application of digital satellite and aerial imagery to the study of the earth's surface. Includes hands-on application of digital imaging processing techniques discussed in lecture.

Former Course Number [BOT 5111; GEOG 5111]

GIST5120 - Integration of RS and GIS Data

Credits: 3

Many geospatial analyses involve combining remotely sensed (RS) data and products with other geospatial data stored in GIS. This 3-credit online course will overview the topics pertaining to the integration of RS data in raster format with GIS data stored in vector format.

Prerequisite: graduate standing.

Electives (9 Credits)

- Choose from other remote sensing and UAS courses or interdisciplinary RS courses

Total: 15 Credits

Undergraduate Certificate in GIS

Undergraduate certificate in GIS provides a means of adding credentials to your degree that reflect expertise in geospatial science.

Core (10 credits)

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

Undergraduate Certificate in Remote Sensing

Undergraduate certificate in Remote Sensing provides a means of adding credentials to your degree that reflect expertise in geospatial science.

Undergraduate Certificate in Remote Sensing Core (3 credits)

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

Electives (6 credits)

Select any remote sensing or UAS courses (6 credits)

Total: (9 credits)

Unmanned Aerial Systems Graduate Certificate

In this certificate program, you will learn to safely use Unmanned Aerial Systems (drones) and to collect and process geospatial data acquired by them. Demand for professionals trained to operate drones and process drone imagery is growing rapidly in agriculture, natural resource management, construction, energy, transportation, business, and many other fields. A significant aspect of this 11-credit online graduate certificate (with a 2-credit, field-based flight school) is to prepare you to become an FAA certified pilot and to use industry-standard image processing techniques.

Core (8 Credits)

GIST5410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 4410.

GIST5420 - UAS Mission Planning

Credits: 1

This 1-credit online course provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 4420.

GIST5430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 4430.

GIST5440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 4440.

GIST5450 - UAS Photogrammetry and Imagery Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery data acquired by unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 4450.

Prerequisite: graduate standing or approval from the instructor.

Electives (3 Credits)

(may be optional for some graduate students, depending on their program of study)

- Choose from remote sensing courses or interdisciplinary UAS applications courses

Total: 8-11 Credits

School of Energy Resources

301 Energy Innovation Center

Phone: (307)766-6879 FAX (307)766-6701

Holly Krutka, Executive Director

Website: www.uwyo.edu/ser

The School of Energy Resources facilitates interdisciplinary academic and research programs in engineering and science, economics, and environment and natural resources policy to address critical energy-related issues faced by our society.

Our mission is to leverage and add to the already significant energy-related talent and resources in the University of Wyoming colleges to develop human resources, know-how, and technical solutions to ensure a secure and sustainable energy future for the state, region, and nation.

The University of Wyoming (UW) School of Energy Resources (SER) was created in 2006 by the Wyoming Legislature through State Statute 21-17-117. Our goal is to enhance the university's energy-related education, research, and engagement. SER directs and funds cutting-edge energy research and technology development, which integrates with the formulation and conduct of academic programs at UW and bridges academics and industry through targeted engagement efforts. The bridges formed between academics and industry ensure programs are relevant, current, and deliver impact and high value to stakeholders and the state. Since its inception in 2006, SER has maintained flexibility in its focus and structure to meet the changing needs of Wyoming's energy industries and the state's economy which is now more critical than ever.

Professors:

TIMOTHY J. CONSIDINE, B.A. Loyola University 1975; M.S. Purdue University 1977; Ph.D. Cornell University 1981; SER Professor of Energy Economics 2008.

CRAIG C. DOUGLAS, A.B. Chicago University 1977; M.S. Yale University 1978; M.Phil. 1980; Ph.D. 1982; SER Professor of Mathematics 2008.

MAOHONG FAN, B.S. Wuhan University of Science and Engineering, 1984; M.S. Beijing University of Science and Technology, 1992; Ph.D. Chinese Academy of Sciences, 1997; Ph.D. Iowa State University, 2000; Ph.D. Osaka University 2003; SER Professor of Chemical Engineering 2015, 2008.

JOHN P. KASZUBA, B.S. Beloit College, 1982; M.S. Virginia Polytechnic Institute & State University 1986; Ph.D. Colorado School of Mines, 1997; SER Professor Geology & Geophysics, 2019, 2008.

SUBHASHIS MALLICK, B.Sc. Indian Institute of Technology 1976; M.Sc. 1978; Ph.D. University of Hawaii 1987; SER Professor of Geology & Geophysics 2008.

BRUCE A. PARKINSON, B.S. Iowa State University 1972; Ph.D. California Institute of Technology 1977; SER Professor of Chemistry 2008.

TARA RIGHETTI, B.A. University of Colorado Boulder 2005; J.D. 2007; SER Professor of Law 2020, 2017, 2014.

Associate Professors:

PO CHEN, B.S. Beijing University 2000; Ph.D. University of Southern California 2005; SER Associate Professor of Geology and Geophysics 2014, 2008.

DARIO GRANA, B.S. University of Pavia, 2003; M.S. 2005; M.S. University of Milano Bicocca, 2006; Ph.D. Stanford University, 2013; SER Associate Professor of Geology and Geophysics 2019, 2013.

Academic Professional:

KRISTOPHER KOSKI, B.S. Colorado School of Mines, 2005; J.D. University of Wyoming, 2008; Associate Lecturer 2017.

Accreditation

All programs at the University of Wyoming are accredited by The Higher Learning Commission, a commission of the North Central Association of Colleges and Schools Commission on Institutions of Higher Education. In addition, the Professional Land Management Concentration is one of only a few programs accredited nationally by the American Association of Professional Landmen.

Graduates from the PLM program are afforded the opportunity to sit for the Registered Landman exam. Individuals with certification can increase their salary by 20% on average. Visit landman.org to learn more.

SER Vision Statement

SER pursues the creation, sharing, and implementation of technology and knowledge for sustainable economic production of Wyoming's natural resources to generate additional employment and revenue opportunities for the state that include supply of clean energy and materials and products.

SER Mission Statement

The School of Energy Resources' academic mission is to ensure students within its interdisciplinary academic programs can illustrate a foundational understanding of fundamentals relative to energy companies and systems. In order to prepare students to meet the demands of the modern-day workforce, students will utilize critical thinking skills, negotiation techniques, and problem-solving methods applicable to a diverse array of energy projects.

Program Admission

Undergraduate students will apply for admission to the University of Wyoming and then declare a major or minor within SER at any point during their course of study. To declare a major, students must meet with the SER academic advisor. Any student can add the SER minor without meeting with an SER advisor.

One of the most important challenges of the 21st century will be to develop and manage energy resources in a sustainable manner. Projections show energy consumption worldwide will increase nearly 50 percent by 2035. And half of the leadership in the energy industries is expected to retire in the next five to ten years.

The future of energy will be characterized by increasing knowledge, relentless change, and technological innovation. As global energy industry increases in complexity, demand will dramatically grow for professionals with a multidisciplinary, entrepreneurial skillset. Future leaders must understand complex technology within the context of business, legal, social, and public policy in order to create comprehensive and sustainable solutions.

The Energy Resource Management and Development (ERMD) B.S. program is designed to fill this need through a combination of rigorous courses, real-world internships, and undergraduate research experiences. The curriculum balances depth of learning with the breadth of understanding to train graduates for sustained competitive success in the energy workforce at the frontiers of knowledge and for self-directed, life-long learning. Students learn to focus on continuous improvement, constant assessment, and the importance of a sense of urgency and consideration of profit motive in the energy industry

Our program emphasizes career planning and provides constant one-on-one guidance and assistance to ensure optimal workforce placement. Students are strongly encouraged to complete an industry internship (the minimum GPA requirement is typically 3.000). Opportunities are also available for undergraduate research, a study abroad experience, or a summer field trip. Multiple events during the year connect students to energy industry professionals.

General Policies

- A minimum 2.00 UW GPA is required to apply for the minor.
- It is the student's responsibility to monitor requirements for the minor, along with their advisor.
- Additional courses may be required to meet individual course prerequisites.
- All classes in the minor must be passed with a grade of "C" or better.

Student Learning Outcomes

The School of Energy Resources was created in 2006 to enhance the University of Wyoming's energy-related education, research, and outreach. The Energy Resource Management and Development Program is designed to meet the demands of the energy workforce and enhance social literacy related to complex energy issues. Competency-based learning that integrates problem-solving, critical analysis of uncertain and complex issues, and constant improvement in performance are overarching components of our undergraduate program.

Energy Resource Management and Development B.S. Program Learning Outcomes:

- Identify or describe fundamental concepts of energy systems.
- Illustrate a foundational understanding of business fundamentals relative to energy companies, including organizational structure, management, entrepreneurship, and international commerce.
- Make use of critical thinking and problem-solving methods within a written group energy project.

Energy and Environmental Systems Concentration Learning Outcomes:

- Outline the skills in environmental monitoring and compliance.

- Explain energy regulation and management.
- Demonstrate the necessary skills related to the physical and social science dimensions of sustainability.

Professional Land Management Concentration Learning

Outcomes:

- Apply concepts and skills to real-world problems to gain practical understanding and experience.
- Identify and navigate a valid real property transaction from contract to transfer of title.
- Define and navigate the legal and regulatory hurdles for energy development on federal, state, and fee lands.

Energy Resource Management Minor Learning Outcomes:

- Gain appreciation and understanding of fundamental concepts of energy systems.
- Acquire a foundational understanding of the commercial aspects of energy industries.
- Exhibit critical thinking and problem solving related to energy and environmental problems.
- Apply knowledge of energy technology to societal problems requiring economic and policy analysis while working in a multidisciplinary environment.

Minor

Students looking to create a focus for their coursework can add minors to the ERMD program. Courses applying towards the minor must be completed with a grade of "C" or better.

Students not already majoring in BS-Energy Resource Management and Development may add the SER minor to their program of study. More information can be found on the SER website: <http://www.uwyo.edu/ser/academic-programs/minor-erm.html>

Major

Energy Resource Management and Development, Energy & Environmental Systems Concentration, B.S.

ERMD EES Concentration

EES majors can become environmental scientists who collect samples of air, soil, & water to identify environmental impacts, resolve environmental threats, & provide guidance on quality regulation and manage natural resources.

University Studies Program Requirements

The University Studies Program 2015 develops a student's foundational knowledge to prepare them for the Bachelor of Science degree program. Some of the categories of USP will be completed by completing the degree requirements as outlined below. Students should review their degree audits carefully to ensure that USP requirements are completed. Students transferring with a qualifying associate degree will have most of

the lower division portion of the USP requirement waived. For more information about qualifying earned associate degree, see the "Articulation: Earned Associate Degrees" information in this catalog.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

EES Curriculum

Students must earn a letter grade of C or better in each course and a cumulative GPA of 2.000 or better.
Students will complete 120 credit hours for the BS in Energy Resources Management and Development.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA
USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.
USP 2003-2014 Code U3O
USP 2015 Code U5PN

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

OR

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

COM2 Elective, Pick ONE

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ERS2500 - Communication Across Topics in Energy

Credits: 3

Students will develop interdisciplinary communication skills from an Energy Resources perspective. Communication will include oral, digital, and written forms. Audiences for communication projects will often be live, and from a variety of backgrounds.

USP 2015 Code U5C2

Prerequisite: WA/COM1.

GEOL2220 - Communicating Earth Science

Credits: 3

This course will focus on communicating science to non-scientists. Students will deliver earth science information through written, digital and oral presentations to be informative and interesting to the public.

USP 2015 Code U5C2

Prerequisite: grade of C or higher in GEOL 2010, COM1.

HP2020 - Honors Colloquium II

Credits: 3

Max Credit 3

Honors Colloquium II is the second course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: WA. COM I

UWYO1600 - Veterans Transition Course

Credits: 1

Provides returning veterans skills for successful transition to college and civilian life. Reviews tools for academic success, resources available to the veteran, information on veteran related challenges, and career planning resources. Students will develop skills in written, oral, and digital communication.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3I,U3L

USP 2015 Code U5C2

Prerequisite: Students must be a U. S. military veteran or an active duty military member.

COM3 Elective-Pick ONE

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

AGRI4600 - Developing Organizational Leadership

Credits: 3

A senior capstone experience for Bachelor of Applied Science students, bringing together reading, research, writing, and communication skills to focus on a major project. Leadership skills and approaches to organizational problem-solving are deepened using the structural, human resource, political, and symbolic frames to change and improve leadership and organizational culture.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, AGRI 3000, and senior status.

BOT4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed ZOO 4100.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

A&S College Core 2015 Preference given to seniors.

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop

oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

ENGL3020 - Culture, Communication, Work

Credits: 3

Examines individual identity and group cultures, and how they influence communication in the workplace. Helps students develop strategies for working across cultural differences and for effective negotiation and conflict resolution skills.

USP 2003-2014 Code [(none)< >COM3]

Prerequisite: Completion of COM2.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4030 - Writing for Magazines

Credits: 3

Students write a variety of articles that would be appropriate for submission to a magazine. Feedback is given through class workshops and consultation with the instructor. Award-winning articles are read and discussed. The business aspect of magazine writing is also covered.

Prerequisite: COM1, COM2, and junior standing.

ENGL4040 - Rhetoric, Media, and Culture

Credits: 3

This class will guide us through the ways in which popular culture shapes the way that we view ourselves and other, and gives us a vocabulary to describe this phenomenon, critique it, and even push back against it.

USP 2003-2014 Code [(none)< >COM3]

Prerequisite: COM1 and COM2.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

Concurrent ENR majors must take ENR 4900

ESS4950 - Exploring the Earth System

Credits: 3

Conduct critical and interdisciplinary assessments on complex topics addressing physical, biological, and human components of the Earth System. Through multiple written, oral, and digital communication products, students will work independently and collaboratively to critically review existing literature, define knowledge gaps, analyze evidence, and synthesize results for multiple audiences.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ESS 1000 and either ESS 3480 or ENR 3450.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Chemistry Elective- Pick ONE (USP:PN for all listed)

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

Economics Elective- Pick ONE

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGEC4600 - Community Economic Analysis

Credits: 3

Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic analysis, fiscal impact analysis and benefit cost analysis.

Dual Listed AGEC 5600.

USP 2015 Code U5H

Prerequisite: ECON 3010, ECON 3020, and MATH 1400.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

ECON4420 - Seminar: Economics for ENR

Credits: 2-4

For students with little or no background in economics interested in economic perspectives on ENR. Emphasis is on integrated ecology-economics approach to investigate the economics environmental services, biological resources, and the ecosystems that contain them. CBEC and ECON majors cannot earn upper-division economics credit for this course.

Prerequisite: successful completion of Q and senior standing.

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

Negotiation Elective-Pick ONE

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated

outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

Data Analysis Elective-Pick ONE

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

GEOL2120 - Quantitative GeoMethods

Credits: 3

Focuses on fundamental mathematical concepts used in geosciences. This course provides the tools to solve quantitative problems in geosciences applications. Students should demonstrate mathematical skills needed to formulate, analyze, and interpret quantitative arguments in geosciences.

USP 2003-2014 Code U5Q

Prerequisite: Level 5 in Math Placement Test OR 23 in Math ACT OR 600 in Math SAT.

GEOL4250 - Mathematical Geosciences

Credits: 3

The purpose of this course is to strengthen the quantitative skills of students in geosciences by reviewing basic concepts of linear algebra, precalculus, derivation and integration through applications to real datasets and problem sets, and introducing basic concepts of inverse theory, spatial science, data analytics, and geostatistics. The examples focus on applications to practical geoscience problems.

Dual Listed GEOL 5250

Prerequisite: MATH 1400 and 1405 or consent of instructor.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students,

including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

Technical Elective- Pick ONE

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making. Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

ENR3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed REWM 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ENR3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed SOIL 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1

Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGECE 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3

Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed AMST 4030.

Dual Listed ENR 5030.

Prerequisite: 3 hours in any interdisciplinary program.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

ENR4240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 4240.

Dual Listed ENR 5240.

Prerequisite: LIFE 2022 or LIFE 2023 and STAT 2050 or STAT 2070.

ENR4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 4285.

Dual Listed ENR 5285.

Prerequisite: University Studies QA.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

ENR4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ENR4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430/CHE 4430.

Prerequisite: CHEM 1020.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

ENR4700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed COJO 4700.

Dual Listed ENR 5700.

Prerequisite: COMM 1000 or ENR 1200 or ENR 1500 or ENR 2000.

ENR4800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed AMST 4800.

Dual Listed ENR 5800.

Prerequisite: ARE 3020 or AMST 5400.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ENR4975 - Independent Study

Credits: 1-6

Max Credit (Max. 6)

Offers students the opportunity to independently complete special academic studies under direction of a faculty member. Readings, papers, and projects are completed as directed.

Dual Listed ENR 5975.

Prerequisite: 6 credits in ENR.

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

GEOG3030 - Geography and Development

Credits: 3

Examines distribution of wealth and poverty in the world; theories of development, from traditional modernization theories through Marxist critiques and sustainable development; and case studies from around the world of development successes and failures, chosen to illustrate and illuminate theories of development.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Former Course Number [G&R 3030]

Prerequisite: GEOG 1000 or GEOG 1020 or 3 credit hours of social science with global focus.

GEOG3050 - Economic Geography

Credits: 3

Economic Geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS

Former Course Number [G&R 3550]

GEOG4000 - Terrain Analysis

Credits: 3

Studies techniques for acquiring and analyzing spatial data from maps, remotely sensed imagery and field surveys for landscape assessment. Emphasizes deriving maps that describe physical suitability of landscapes for specific human activities. Field trip required.

Former Course Number [G&R 4000]

Prerequisite: Completion of USP PN requirement or consent of instructor.

GEOG4013 - Political Geography

Credits: 3

Geographic space mediates political action and is generated by it, and spatial forms are produced by governmental agencies that must respond or adapt to emerging patterns of political disruption and tendencies of social change. Students in this course learn to think about the relationship between politics and space at multiple scales and in global context. They also develop an inter-disciplinary approach to the sub-discipline of political geography in social and historical context, and, in that sense, develop a capacity to think and act as political geographers.

Cross Listed GEOG 5013 , INST 4013, INST 5013

Prerequisite: 6 hours in social science

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOG4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/1405 or MATH 1450.

REWM3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Prerequisite: LIFE 2022 or LIFE 2023.

REWM3390 - Range Judging

Credits: 2

Judging rangelands based on soil, plant and animal resources and applying science-based information to make management decisions. Participation in a field trip and UW SRM judging teams is required including Plant Team and

URME. This course is intended for members of the SRM competitive Teams.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000, REWM 2400 and REWM 3020, as well as the Team Coach permission.

REWM3500 - Rangeland Plant Ecophysiology

Credits: 3

Examines plant physiological processes that have application to ecological and land management issues. Topics include carbon assimilation, water relations, mineral nutrition as applied to plant distributions, plant and system responses to grazing, as well as plant tolerance of extreme conditions including drought, excessive temperatures and changes in climate.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 2022 or LIFE 2023.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of public and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Students prepare public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 5103.

When Offered (Normally offered spring semester)

Former Course Number [3103]

Prerequisite: C or better in REWM 2000 and CS course.

REWM4150 - Behavior Modification for Production of Grazing Herbivores

Credits: 3

Strategies for manipulation of behavior and management of the grazing herbivore will be developed from scientific and practical information. Designed to equip the student to manage for animal and natural resource production.

Dual Listed REWM 5150.

When Offered (Normally offered spring semester)

Former Course Number [3150]

Prerequisite: C or better in REWM 2000 and REWM 3020 or ANSC 3100.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 5300.

When Offered (Normally offered spring semester)

Former Course Number [3320]

Prerequisite: REWM 2500 or LIFE 2023.

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4340 - Reclamation Techniques Field Trip

Credits: 2

Provides increased comprehension of current land reclamation problems and solutions by means of a field trip to sites in region where land reclamation is occurring.

When Offered (Normally offered fall semester)

Prerequisite: REWM 4200.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

REWM4500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 5500.

Prerequisite: REWM 4285.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4540 - Problems

Credits: 1-4

Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

REWM4550 - Internship in:

Credits: 1

Max Credit (Max. 4)

Supervised field experience in range management or disturbed land reclamation. No more than 4 credits.

Prerequisite: basic course work in subject selected and consent of instructor.

REWM4600 - Drone-Based Remote Sensing

Credits: 3

This class teaches the basics of remote sensing applications in environmental sciences with a focus on unmanned aerial vehicles (UAVs, aka "drones"). Students will receive training in drone operation, data collection and analysis, and will be prepared to take the FAA Remote Pilot Certification.

Prerequisite: MATH 1400 or higher

REWM4750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration ecology for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 5750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM4810 - Experiments in Restoration

Credits: 2

Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 5810.

Prerequisite: STAT 2050 or equivalent.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

REWM4990 - Undergraduate Teaching Practicum

Credits: 1
Max Credit (Max. 2)

Teaching experience in classroom or laboratory assisting faculty instructor.

When Offered (Offered based on sufficient demand and resources)

RNEW3000 - Tropical Ecology

Credits: 3

Examines the characteristics of tropical ecosystems, how they evolved, their value to humans, their present status, and current issues relating to biodiversity, deforestation, extinction, and conservation.

Prerequisite: LIFE 1101 or LIFE 1010.

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

RNEW4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, PLNT 4400, RNEW 5400, PLNT 5400

Dual Listed RNEW 5400.

Prerequisite: LIFE 3400.

RNEW4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed BOT 4775.

Prerequisite: LIFE 3400.

RNEW4800 - Undergraduate Research

Credits: 1-3
Max Credit (Max. 18)

Undergraduate student research can be an important component in the intellectual and professional development of future scientists and land managers. Undergraduate students working with a faculty member in a research capacity can register for up to 3 credit hours per semester. The student and faculty member will identify an academic outcome that is associated with their research effort, such as a research paper, oral presentation, or poster session at an appropriate venue. Instructor's permission required.

RNEW4990 - Topics in:

Credits: 1-4
Max Credit (Max. 8)

Special topics pertaining to renewable natural resource management. Intended to accommodate instruction in various specialized subjects not offered on a regular basis. Students may enroll in more than one section of this course provided topics are different.

Dual Listed RNEW 5990.

Prerequisite: consent of the instructor to pursue study of the topic.

SOIL3000 - Irrigated Agriculture

Credits: 3
Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration, and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed PLNT 3000.

Prerequisite: MATH 1400, SOIL 2010.

SOIL3130 - Environmental Quality

Credits: 3
Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.
Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.
When Offered (Normally offered fall semester)
Prerequisite: SOIL 2010.

General Electives- Must take 13 credits, 4 credits must be upper division

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.
Dual Listed BOT 5775.
When Offered (Normally offered fall semester of odd-numbered years)
Prerequisite: LIFE 3400.

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)
Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHE4050 - Unit Operations Laboratory II

Credits: 3

Laboratory experiments examining heat transfer and process control. Also requires students to design, conduct and analyze 'open-ended' experiments. Introduces LabView and covers factorial experimental design and linear and non-linear data regression approaches. Emphasizes the preparation of a formal report describing all aspects of the experiments.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

Prerequisite: C- or better in CHE 3040. (Normally offered spring semester)

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON4430 - Energy Economics

Credits: 3

Economics of energy, particularly oil and gas. Includes a discussion of the history of the oil industry, as well as aspects of contemporary markets. Apply a variety of concepts from microeconomics, particularly related to industrial economics.

Prerequisite: ECON 3020, MATH 2200 or MATH 2350.

EDSE3040 - Energy and Power Technology

Credits: 3

A conceptual analysis and synthesis of energy requirements and sources, with emphasis on alternate energy systems. Analysis of energy conversion and the application of mechanical, fluid, thermal and electrical power systems.

When Offered (Offered through UW/CC)

Former Course Number [EDIE 3040]

Prerequisite: PHYS 1050 or PHYS 1110.

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1

Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning

and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3

Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

ENR4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ERS1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed GEOL 1650.

USP 2015 Code U5PN

ERS4960 - Energy Field Studies

Credits: 1-3

Various facets of energy resource management and development are covered by visits to oil and gas wells, coal mines, power plants, wind farms, and other energy production and research sites. A trip is normally planned for 5 to 6 days.

Prerequisite: WB; ERS 1000/ENR 1000 or ECON 1300/ERS 1300. Undergraduate Research.

ERS4970 - Internship

Credits: 1-3

Max Credit (Max. 3)

A formalized internship designed to provide students with relevant practical experience in the energy sector allowing synthesis and application of principles in energy science to energy asset management.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4975 - Global Experience in Energy

Credits: 2-4
Max Credit (Max. 4)

A 1-3 month integrative energy experience in China or Australia. Students will participate, in collaboration with partnering energy professionals, in outcomes focused education and research programs designed to address globally relevant challenges. Students will gain a global perspective within the cultural context of the partner institution.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6
Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

ESE4460 - Solar and Geothermal Engineering

Credits: 3
An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ME 4460.

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ESE4470 - Wind and Ocean Energy Engineering

Credits: 3
Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented.

Cross Listed ME 4470.

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

GEOG3050 - Economic Geography

Credits: 3
Economic Geography is the study of the location, distribution and spatial organization of economic activities across the

globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS

Former Course Number [G&R 3550]

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical

ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.
USP 2003-2014 Code U3WC
Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOG4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/1405 or MATH 1450.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

GEOG4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG/GEOL 4470/5470

Former Course Number [G&R 4470]

Prerequisite: Some basic knowledge of Earth processes GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

GEOG4550 - Geography of Wine

Credits: 3

Examine the regional influence of climate, terrain and cultural characteristics on the production of grape varieties and demonstrate the implications of this influence on the location and distribution of wines produced. Discussion will focus on the world-wide production and consumption of wine and impacts of multi-national corporations.

Prerequisite: junior standing and at least 21 years of age.

GEOG4880 - Current Topics

Credits: 1-6

Max Credit (Max. 6)

Special course on a topic of current interest.

Dual Listed GEOG 5880.

Former Course Number [G&R 4880, 4850]

Prerequisite: junior standing.

GEOG4885 - Seminar: (TOPICS)

Credits: 1-3
Max Credit (Max. 6)

Faculty-student discussion, reading, and study focused on a selected topic and interest.

Former Course Number [G&R 4885, 4900]

Prerequisite: GEOG 4750.

GEOL1001 - Earth Science and Society

Credits: 1

Introduces students to the study of Earth Science and its role in society through examination and discussion of current events, and through projects researching geologic topics of societal interest.

USP 2003-2014 Code Y3I, U3L

Prerequisite: GEOL 1100 or concurrent enrollment.

GEOL1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society.

Cross Listed ASTR 1070.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Prerequisite: Math level 3 or equivalent courses, consent of instructor, elementary education major and EDCI 1450 must be taken concurrently.

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of

resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed ERS 1650.

USP 2015 Code U5PN

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL3250 - Geosciences and Computers

Credits: 4

An integrated introduction to the basic components of modern scientific computing and to illustrate basic computing concepts through geoscience applications.

USP 2003-2014 Code [I< >(none)]

Prerequisite: One USP designated science course with lab.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4010 - Exploration Geoscience

Credits: 3

Provides students with information and skills necessary to understand the energy exploration modeling process. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, and reservoir characterization.

Cross Listed ERS 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

GEOL4060 - Rocky Mountain Field Trip

Credits: 1

Max Credit (Max. 3)

A six-day geological field trip to various classic localities in the Rocky Mountains.

Prerequisite: senior standing and GEOL 2010 and GEOL 4610 or GEOL 4050.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

GEOL4191 - Methods in Petroleum Geology

Credits: 3

Lectures and laboratory exercises are designed to give the student experience in working with various kinds of geoscientific data in relation to the exploration for and production of hydrocarbons. Most exercises utilize real data and real situations. Topics include recognition of hydrocarbons, interpretation of sample, mud and geophysical logs, geologic utilization of drill stem tests; subsurface correlation and mapping techniques; prospect generation.

Dual Listed GEOL 5191.

Prerequisite: GEOL 4190.

GIST1001 - GIST Orientation and Portfolio

Credits: 1

Introduces students to the GIST degree, the resources necessary to be successful in the program, and the broader geospatial field and its impact on society. Topics include a survey of domain applications, the ethical, legal and social implications of using geospatial data, and geospatial certifications and credentialing.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2110 - Techniques in Cartography

Credits: 3

Max Credit 3

This course covers cartographic theory, techniques, and hands-on map-making. Students design thematic and reference maps using different platforms including web mapping. Students learn principles of graphic design and data journalism for effective communication, and they evaluate map purpose, design, data quality, and cognitive and political bias in maps.

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application or remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

GIST4410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 5410.

GIST4420 - UAS Mission Planning

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 5420.

GIST4430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 5430.

GIST4440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 5440.

GIST4450 - UAS Photogrammetry and Image Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery acquired by unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 5450.

Prerequisite: Junior/Senior standing or approval from the instructor.

GIST4790 - Special Topics in Geospatial Information Science and Technology

Credits: 3

Advanced and specialized topics in GIS&T are addressed through guided student discussions of current literature and possible hands-on analyses.

Dual Listed GIST 5790.

GIST4870 - Internship in Geospatial Information Science and Technology

Credits: 1-12

Max Credit (Max. 12)

Provide undergraduates with the opportunity to receive credit for practical experience in geospatial information science and technology. Internship opportunities must be approved by faculty and work supervisors.

GIST4950 - Undergraduate Research in Geospatial Information Science and Technology

Credits: 1-6

Max Credit (Max. 6)

Undergraduate research in Geospatial Information Science and Technology (GIST) under the mentorship of UW faculty. Students are encouraged to present their research at professional meetings and to publish their work. GIST is multidisciplinary, so research problems span a wide range of topics.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

LIFE1002 - Discovering Science

Credits: 3

Integrates Biology, Chemistry, Physics, and Earth Science and is intended for non-science majors. Fundamental concepts from each discipline are discussed through lectures and in-class activities, and students learn how to understand science and its importance in larger societal issues. There is no laboratory component of this course. Meets the S requirement in USP 2003 and the PN requirement in USP 2015.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Former Course Number [BIOL 1002]

LIFE1003 - Current Issues in Biology

Credits: 4

Emphasizes central themes of biology - cell biology, genetics, evolution, ecology - and scientific methodology by focusing on current issues in biology. Fundamental concepts are addressed through classroom and laboratory activities and discussions. This course is intended for non-science majors. Students cannot receive duplicate credit for LIFE 1010 or LIFE 1020.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1003]

LIFE1020 - Life Science

Credits: 4

An integrated lab and lecture emphasizing fundamental principles of biology including cell structure and function, genetics, ecology, evolution and organismal biology. Considers applications of these principles to societal issues such as the conservation of biodiversity, overpopulation and global environmental changes, biotechnology, and human wellness and disease. If you take LIFE 1020, you cannot get duplicate credit for LIFE 1000, 1003, or 1010.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Former Course Number [BIOL 1020]

Prerequisite: elementary education majors only; concurrent enrollment in EDEL 1430.

LIFE1101 - Introduction to Ecological Research

Credits: 3

Learn science by doing science! This course-based undergraduate research experience (CURE) will focus on beaver pond ecosystems in Medicine Bow National Forest. Students will engage in outdoor fieldwork in addition to classroom learning. They will carry out hands-on projects and gain experience in ecological sampling, lab work, data analysis, and scientific writing. Students who complete the course are encouraged to continue research and are eligible for summer internships.

USP 2015 Code U5FY

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2015 - Engineering Surveying Laboratory

Credits: 1

Field surveying activities consisting of traversing, differential leveling, construction staking and gathering topographic data.

Former Course Number [CE 2073]

Prerequisite: LS 2010 or concurrent.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2410 - GIS in Surveying

Credits: 3

Covers the basic concepts of geographic information systems, the methods and software used to implement them, and their applications to surveying and analysis of other surveying problems.

Former Course Number [CE 2083]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3120 - Boundary Principles

Credits: 2

This course in boundary law addresses the fundamental principles of real property as applied to land surveying and related professions. Discussion and applications center on practical situations and concepts commonly encountered while conducting boundary surveys and the determination of the extent of ownership rights. Students explore the scope of the surveyors' judiciary role in real property ownership. Primarily offered through the Outreach School.

Former Course Number [CE 3740]

Prerequisite: CE 2070 or LS 2010, and LS 3100 and LS 2110.

LS3130 - Public Land Surveys

Credits: 3

Basic fundamentals of the Public Land Survey System (PLSS), dependent and independent resurveys, survey plats, "bona fide rights", riparian boundaries, non-rectangular entities, corner evidence and the role of the modern day surveyor.

Former Course Number [CE 2085]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3200 - Route Surveying

Credits: 3

Laying out of super elevation and circular, parabolic, and spiral curves; the difference between highway and railway horizontal curve geometry; offsets to spiral curves as boundaries; area and volumes of earthwork.

Former Course Number [CE 3710, CE 4710]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MGT4240 - Performance and Compensation

Credits: 3

In Human Resource Management the management of employee performance and compensation are key functions that drive organizational success. This course helps students become familiar with total compensation systems, including intrinsic and extrinsic rewards, base and variable pay, and benefits, and their relationship with employee performance and satisfaction.

Prerequisite: MGT 3410

MGT4260 - Training and Development

Credits: 3

In Human Resource Management training employees in the latest technical and managerial skills and helping them gain developmental experiences helps drive organizational success. Students will learn how to recognize training and developmental needs, how to develop employee training systems, and how to implement these training systems.

Additionally, students will learn about career and leader development.

Prerequisite: MGT 3410

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

MGT4370 - Employment Law

Credits: 3

Provides a comprehensive foundation for understanding the law as it relates to the employer-employee relationship. This course will provide students the legal background necessary to make better decisions both as a worker as well as a manager of other.

Prerequisite: MGT 2010 or equivalent, junior class standing.

MGT4430 - Organization Design and Change

Credits: 3

Examines organizations, what they are, how they operate and are structured and how they can be changed. Focus is on macro managerial issues in the design and change of work organizations.

Prerequisite: MGT 2100, MGT 3410, MGT 3420; advanced business standing, junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3
Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

MGT4900 - Independent Study in Management

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

PETE4860 - Energy, Environment, and Materials

Credits: 3

Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 5860.

Prerequisite: Junior standing and PETE 2050 or consent of instructor.

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT1150 - Pesticide Safety and Application

Credits: 1

Introduces various types and safe methods of pesticides application. Subsequent to completion, students may take the certification test administered by the Wyoming Department of Agriculture.

Cross Listed ENTO 1150.
Former Course Number [CROP 1150]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)
Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070
When Offered (Normally offered fall semester)
Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130
Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.
Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS4385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed INST 4385.

Dual Listed POLS 5385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4555 - Political Ecology

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST/GEOG 4555 & POLS 5555

Dual Listed INST/GEOG 4555 & POLS 5555

Prerequisite: 9 hours of international studies or social science coursework.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Prerequisite: LIFE 2022 or LIFE 2023.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM3390 - Range Judging

Credits: 2

Judging rangelands based on soil, plant and animal resources and applying science-based information to make management decisions. Participation in a field trip and UW SRM judging teams is required including Plant Team and URME. This course is intended for members of the SRM competitive Teams.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000, REWM 2400 and REWM 3020, as well as the Team Coach permission.

REWM3500 - Rangeland Plant Ecophysiology

Credits: 3

Examines plant physiological processes that have application to ecological and land management issues. Topics include carbon assimilation, water relations, mineral nutrition as applied to plant distributions, plant and system responses to grazing, as well as plant tolerance of extreme conditions including drought, excessive temperatures and changes in climate.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 2022 or LIFE 2023.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources

of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of public and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Students prepare public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 5103.

When Offered (Normally offered spring semester)

Former Course Number [3103]

Prerequisite: C or better in REWM 2000 and CS course.

REWM4150 - Behavior Modification for Production of Grazing Herbivores

Credits: 3

Strategies for manipulation of behavior and management of the grazing herbivore will be developed from scientific and practical information. Designed to equip the student to manage for animal and natural resource production.

Dual Listed REWM 5150.

When Offered (Normally offered spring semester)

Former Course Number [3150]

Prerequisite: C or better in REWM 2000 and REWM 3020 or ANSC 3100.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 5300.

When Offered (Normally offered spring semester)

Former Course Number [3320]

Prerequisite: REWM 2500 or LIFE 2023.

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4340 - Reclamation Techniques Field Trip

Credits: 2

Provides increased comprehension of current land reclamation problems and solutions by means of a field trip to sites in region where land reclamation is occurring.

When Offered (Normally offered fall semester)

Prerequisite: REWM 4200.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

REWM4500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 5500.

Prerequisite: REWM 4285.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4540 - Problems

Credits: 1-4

Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

REWM4550 - Internship in:

Credits: 1

Max Credit (Max. 4)

Supervised field experience in range management or disturbed land reclamation. No more than 4 credits.

Prerequisite: basic course work in subject selected and consent of instructor.

REWM4600 - Drone-Based Remote Sensing

Credits: 3

This class teaches the basics of remote sensing applications in environmental sciences with a focus on unmanned aerial vehicles (UAVs, aka "drones"). Students will receive training in drone operation, data collection and analysis, and will be prepared to take the FAA Remote Pilot Certification.

Prerequisite: MATH 1400 or higher

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration ecology for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 5750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM4810 - Experiments in Restoration

Credits: 2

Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 5810.

Prerequisite: STAT 2050 or equivalent.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

REWM4990 - Undergraduate Teaching Practicum

Credits: 1

Max Credit (Max. 2)

Teaching experience in classroom or laboratory assisting faculty instructor.

When Offered (Offered based on sufficient demand and resources)

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

SOIL4780 - Seminar:

Credits: 1-9

Consideration of special topics of current interest in social work. May be repeated for a maximum of 15 hours credit when the seminar topic is different.

Prerequisite: advanced major status; or consent of instructor and junior standing for non-social work majors.

Energy Resource Management and Development- Professional Land Management Concentration, B.S.

ERMD PLM Concentration

Professional Land Management majors determine ownership and title of surface and subsurface rights to negotiate leases with land/mineral owners, coordinate field exploration, and ensure compliance with governmental regulations.

University Studies Program Requirements

The University Studies Program 2015 develops a student's foundational knowledge to prepare them for the Bachelor of Science degree program. Some of the categories of USP will be completed by completing the degree requirements as outlined below. Students should review their degree audits carefully to ensure that USP requirements are completed. Students transferring with a qualifying associate degree will have most of the lower division portion of the USP requirement waived. For more information about qualifying earned associate degree, see the "Articulation: Earned Associate Degrees" information in this catalog.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

PLM Curriculum

Students must earn a letter grade of C or better in each course and a cumulative GPA of 2.000 or better.
Students will complete 120 credit hours for the BS in Energy Resources Management and Development.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ERS2010 - Introduction to Land Management

Credits: 3
Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

ERS4010 - Exploration Geoscience

Credits: 3
The purpose of this course is to provide students with information and skills necessary to understand the oil and gas modeling process from exploration to production. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, reservoir characterization, reservoir production, well planning and decision making.

Cross Listed GEOL 4010.
Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

ERS4100 - Property I

Credits: 3
Property I addresses the nature of property ownership and the rights associated with property as well as the acquisition and transfer of ownership rights in property and the sharing of ownership rights over time, including estates, future interest, and concurrent estates.

ERS4105 - Property II

Credits: 3
Property II covers rights inherent to the ownership of property and public limitations on those rights.

Prerequisite: ERS 4100.

ERS4110 - Law of Contracts

Credits: 3
The Law of Contracts addresses the formation of a contract and the meaning of agreements and the justification of non-performance and breach.

Prerequisite: MGT 1040 and WB/C

ERS4120 - Federal Public Land Law

Credits: 3
Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4130 - Oil and Gas Law

Credits: 3

Focuses on the basic legal rules and principles governing the ownership and development of oil and gas, derived from a combination of property, contract, administrative, tort, and constitutional law.

ERS4135 - Advanced Energy Law

Credits: 3

Covers oil, gas and other energy development and financing arrangements including assignments, leases, farmouts, joint operating agreements, purchase and sale agreements, service agreements and marketing agreements. Covers oil, gas and other energy development regulation, including, oil and gas conservation commission and state and federal environmental regulation. Introduces other forms of energy development, including, but not limited to, renewables, nuclear, CCUS, hydrogen, and the various agreement and regulatory nuances of such energy development. Covers ethical issues that may arise in energy development.

USP 2015 Code U5C3

Prerequisite: ERS 4130.

ERS4985 - Seminar

Credits: 1-3

Max Credit (Max. 3)

Energy professionals, including accredited professional landmen, practicing attorneys, and other energy professionals will present a colloquium styled course to bridge conceptual content with realistic workforce focused applications.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300 and WA and QB.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200, and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators

are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH2355 - Mathematical Applications for Business

Credits: 4

Primarily for students in the College of Business. Includes the mathematics of finance; systems of linear equations and matrices; linear programming; sets, counting, and probability. Students will learn to use Excel spreadsheets to solve business application problems in a computer lab that meets one day per week.

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

COM2 Elective, Pick ONE

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ERS2500 - Communication Across Topics in Energy

Credits: 3

Students will develop interdisciplinary communication skills from an Energy Resources perspective. Communication will include oral, digital, and written forms. Audiences for communication projects will often be live, and from a

variety of backgrounds.

USP 2015 Code U5C2

Prerequisite: WA/COM1.

GEOL2220 - Communicating Earth Science

Credits: 3

This course will focus on communicating science to non-scientists. Students will deliver earth science information through written, digital and oral presentations to be informative and interesting to the public.

USP 2015 Code U5C2

Prerequisite: grade of C or higher in GEOL 2010, COM1.

HP2020 - Honors Colloquium II

Credits: 3

Max Credit 3

Honors Colloquium II is the second course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: WA. COM I

UWYO1600 - Veterans Transition Course

Credits: 1

Provides returning veterans skills for successful transition to college and civilian life. Reviews tools for academic success, resources available to the veteran, information on veteran related challenges, and career planning resources. Students will develop skills in written, oral, and digital communication.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3I,U3L

USP 2015 Code U5C2

Prerequisite: Students must be a U. S. military veteran or an active duty military member.

Ethics Elective- Pick ONE

ENR2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming,

Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

USP 2003-2014 Code [CH<>(none)]

ENR2345 - Natural Resource Ethics

Credits: 3

Introduces students to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed PHIL 2345/RNEW 2345.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

LS3300 - Ethics for the Professional Surveyor

Credits: 1

Introduction to the common ethical and moral issues facing professional surveyors in modern practice.

Former Course Number [CE 2074]

Prerequisite: One of LS 3110 or LS 3120 or LS 3130.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-

making is developed through this process.

Prerequisite: sophomore class standing.

PHIL2300 - Ethics in Practice

Credits: 1-3

Alerts preprofessional students and other interested individuals to various ethical issues they will encounter and relevant professional work on those issues. Emphasis of the course concentrates one time on biomedical ethics, another on technology and engineering ethics, another on ethics in the professions.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL4300 - Topics in Ethics

Credits: 3-6

Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 5300.

Prerequisite: 6 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3

Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.

Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

Economics Elective- Pick ONE

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGEC4600 - Community Economic Analysis

Credits: 3

Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic analysis, fiscal impact analysis and benefit cost analysis.

Dual Listed AGEC 5600.

USP 2015 Code U5H

Prerequisite: ECON 3010, ECON 3020, and MATH 1400.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

ECON4420 - Seminar: Economics for ENR

Credits: 2-4

For students with little or no background in economics interested in economic perspectives on ENR. Emphasis is on integrated ecology-economics approach to investigate the economics environmental services, biological resources, and the ecosystems that contain them. CBEC and ECON majors cannot earn upper-division economics credit for this course.

Prerequisite: successful completion of Q and senior standing.

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

Negotiation Elective-Pick ONE

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

Data Analysis Elective- Pick ONE

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

GEOL2120 - Quantitative GeoMethods

Credits: 3

Focuses on fundamental mathematical concepts used in geosciences. This course provides the tools to solve quantitative problems in geosciences applications. Students should demonstrate mathematical skills needed to formulate, analyze, and interpret quantitative arguments in geosciences.

USP 2003-2014 Code U5Q

Prerequisite: Level 5 in Math Placement Test OR 23 in Math ACT OR 600 in Math SAT.

GEOL4250 - Mathematical Geosciences

Credits: 3

The purpose of this course is to strengthen the quantitative skills of students in geosciences by reviewing basic concepts of linear algebra, precalculus, derivation and integration through applications to real datasets and problem sets, and introducing basic concepts of inverse theory, spatial science, data analytics, and geostatistics. The examples focus on applications to practical geoscience problems.

Dual Listed GEOL 5250

Prerequisite: MATH 1400 and 1405 or consent of instructor.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing

techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

General Electives- 21 credits in total, 9 credits must be upper division

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and

inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON4430 - Energy Economics

Credits: 3

Economics of energy, particularly oil and gas. Includes a discussion of the history of the oil industry, as well as aspects of contemporary markets. Apply a variety of concepts from microeconomics, particularly related to industrial economics.

Prerequisite: ECON 3020, MATH 2200 or MATH 2350.

EDSE3040 - Energy and Power Technology

Credits: 3

A conceptual analysis and synthesis of energy requirements and sources, with emphasis on alternate energy systems. Analysis of energy conversion and the application of mechanical, fluid, thermal and electrical power systems.

When Offered (Offered through UW/CC)
Former Course Number [EDIE 3040]

Prerequisite: PHYS 1050 or PHYS 1110.

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH
USP 2015 Code U5H

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1

Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGECE 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3

Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

ENR4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ENR4560 - Conservation Entrepreneurship

Credits: 3
Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.
Prerequisite: ENR 3000

ENR4600 - Campus Sustainability

Credits: 3
Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600
Prerequisite: USP WB or COM2 course, junior or senior standing.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6
Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.
Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4900 - Capstone in ENR

Credits: 3
An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.
USP 2003-2014 Code U3WC
USP 2015 Code U5C3
Prerequisite: ENR 3000.

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ERS1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed GEOL 1650.

USP 2015 Code U5PN

ERS4960 - Energy Field Studies

Credits: 1-3

Various facets of energy resource management and development are covered by visits to oil and gas wells, coal mines, power plants, wind farms, and other energy production and research sites. A trip is normally planned for 5 to 6 days.

Prerequisite: WB; ERS 1000/ENR 1000 or ECON 1300/ERS 1300. Undergraduate Research.

ERS4970 - Internship

Credits: 1-3
Max Credit (Max. 3)

A formalized internship designed to provide students with relevant practical experience in the energy sector allowing synthesis and application of principles in energy science to energy asset management.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4975 - Global Experience in Energy

Credits: 2-4
Max Credit (Max. 4)

A 1-3 month integrative energy experience in China or Australia. Students will participate, in collaboration with partnering energy professionals, in outcomes focused education and research programs designed to address globally relevant challenges. Students will gain a global perspective within the cultural context of the partner institution.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6
Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

ESE4460 - Solar and Geothermal Engineering

Credits: 3
An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ME 4460.

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ESE4470 - Wind and Ocean Energy Engineering

Credits: 3
Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview

of ocean energy capture systems is also presented.

Cross Listed ME 4470.

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

FIN3310 - Investment Management

Credits: 3

Fundamental principles of investments and practical implications of financial theory. Students acquire a framework for understanding returns on financial assets, risk and return, fundamentals of portfolio theory, efficient market hypothesis, and asset pricing models. Other topics include financial statement analysis, behavioral finance, and introduction to options and futures.

Former Course Number [4310]

Prerequisite: FIN 2100 and advanced business standing.

FIN3520 - Financial Markets

Credits: 3

Portfolio and capital market theory and the analysis of risk are introduced. Integrates theory into practical aspects of financial markets.

Former Course Number [4520]

Prerequisite: FIN 2100, STAT 2010 or STAT 2050/STAT 2070, and advanced business standing.

GEOG3050 - Economic Geography

Credits: 3

Economic Geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450
Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480
USP 2003-2014 Code U3G, U3WB
A&S College Core 2015 ASG
Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS
Former Course Number [G&R 3550]

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental

matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOG4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/1405 or MATH 1450.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

GEOG4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG/GEOL 4470/5470

Former Course Number [G&R 4470]

Prerequisite: Some basic knowledge of Earth processes GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

GEOG4880 - Current Topics

Credits: 1-6

Max Credit (Max. 6)

Special course on a topic of current interest.

Dual Listed GEOG 5880.

Former Course Number [G&R 4880, 4850]

Prerequisite: junior standing.

GEOG4885 - Seminar: (TOPICS)

Credits: 1-3

Max Credit (Max. 6)

Faculty-student discussion, reading, and study focused on a selected topic and interest.

Former Course Number [G&R 4885, 4900]

Prerequisite: GEOG 4750.

GEOL1001 - Earth Science and Society

Credits: 1

Introduces students to the study of Earth Science and its role in society through examination and discussion of current events, and through projects researching geologic topics of societal interest.

USP 2003-2014 Code Y3I, U3L

Prerequisite: GEOL 1100 or concurrent enrollment.

GEOL1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society.

Cross Listed ASTR 1070.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Prerequisite: Math level 3 or equivalent courses, consent of instructor, elementary education major and EDCI 1450 must be taken concurrently.

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed ERS 1650.

USP 2015 Code U5PN

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL3250 - Geosciences and Computers

Credits: 4

An integrated introduction to the basic components of modern scientific computing and to illustrate basic computing concepts through geoscience applications.

USP 2003-2014 Code [I< >(none)]

Prerequisite: One USP designated science course with lab.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are

examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4010 - Exploration Geoscience

Credits: 3

Provides students with information and skills necessary to understand the energy exploration modeling process. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, and reservoir characterization.

Cross Listed ERS 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

GEOL4060 - Rocky Mountain Field Trip

Credits: 1

Max Credit (Max. 3)

A six-day geological field trip to various classic localities in the Rocky Mountains.

Prerequisite: senior standing and GEOL 2010 and GEOL 4610 or GEOL 4050.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

GEOL4191 - Methods in Petroleum Geology

Credits: 3

Lectures and laboratory exercises are designed to give the student experience in working with various kinds of geoscientific data in relation to the exploration for and production of hydrocarbons. Most exercises utilize real data and real situations. Topics include recognition of hydrocarbons, interpretation of sample, mud and geophysical logs, geologic utilization of drill stem tests; subsurface correlation and mapping techniques; prospect generation.

Dual Listed GEOL 5191.

Prerequisite: GEOL 4190.

GIST1001 - GIST Orientation and Portfolio

Credits: 1

Introduces students to the GIST degree, the resources necessary to be successful in the program, and the broader geospatial field and its impact on society. Topics include a survey of domain applications, the ethical, legal and social implications of using geospatial data, and geospatial certifications and credentialing.

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.
Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

GIST4410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 5410.

GIST4420 - UAS Mission Planning

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 5420.

GIST4430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 5430.

GIST4440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 5440.

GIST4450 - UAS Photogrammetry and Image Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery acquired by

unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 5450.

Prerequisite: Junior/Senior standing or approval from the instructor.

GIST4790 - Special Topics in Geospatial Information Science and Technology

Credits: 3

Advanced and specialized topics in GIS&T are addressed through guided student discussions of current literature and possible hands-on analyses.

Dual Listed GIST 5790.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2015 - Engineering Surveying Laboratory

Credits: 1

Field surveying activities consisting of traversing, differential leveling, construction staking and gathering topographic data.

Former Course Number [CE 2073]

Prerequisite: LS 2010 or concurrent.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2410 - GIS in Surveying

Credits: 3

Covers the basic concepts of geographic information systems, the methods and software used to implement them, and their applications to surveying and analysis of other surveying problems.

Former Course Number [CE 2083]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MGT4240 - Performance and Compensation

Credits: 3

In Human Resource Management the management of employee performance and compensation are key functions that drive organizational success. This course helps students become familiar with total compensation systems, including intrinsic and extrinsic rewards, base and variable pay, and benefits, and their relationship with employee performance and satisfaction.

Prerequisite: MGT 3410

MGT4260 - Training and Development

Credits: 3

In Human Resource Management training employees in the latest technical and managerial skills and helping them gain developmental experiences helps drive organizational success. Students will learn how to recognize training and developmental needs, how to develop employee training systems, and how to implement these training systems. Additionally, students will learn about career and leader development.

Prerequisite: MGT 3410

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

MGT4370 - Employment Law

Credits: 3

Provides a comprehensive foundation for understanding the law as it relates to the employer-employee relationship. This course will provide students the legal background necessary to make better decisions both as a worker as well as a manager of other.

Prerequisite: MGT 2010 or equivalent, junior class standing.

MGT4430 - Organization Design and Change

Credits: 3

Examines organizations, what they are, how they operate and are structured and how they can be changed. Focus is on macro managerial issues in the design and change of work organizations.

Prerequisite: MGT 2100, MGT 3410, MGT 3420; advanced business standing, junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

MGT4900 - Independent Study in Management

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships;

marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

PETE4860 - Energy, Environment, and Materials

Credits: 3

Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 5860.

Prerequisite: Junior standing and PETE 2050 or consent of instructor.

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT1150 - Pesticide Safety and Application

Credits: 1

Introduces various types and safe methods of pesticides application. Subsequent to completion, students may take the certification test administered by the Wyoming Department of Agriculture.

Cross Listed ENTO 1150.

Former Course Number [CROP 1150]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS4385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed INST 4385.

Dual Listed POLS 5385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4555 - Political Ecology

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST/GEOG 4555 & POLS 5555

Dual Listed INST/GEOG 4555 & POLS 5555

Prerequisite: 9 hours of international studies or social science coursework.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses.

Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4340 - Reclamation Techniques Field Trip

Credits: 2

Provides increased comprehension of current land reclamation problems and solutions by means of a field trip to sites in region where land reclamation is occurring.

When Offered (Normally offered fall semester)

Prerequisite: REWM 4200.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel

characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

REWM4500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 5500.

Prerequisite: REWM 4285.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

REWM4600 - Drone-Based Remote Sensing

Credits: 3

This class teaches the basics of remote sensing applications in environmental sciences with a focus on unmanned aerial vehicles (UAVs, aka "drones"). Students will receive training in drone operation, data collection and analysis, and will be prepared to take the FAA Remote Pilot Certification.

Prerequisite: MATH 1400 or higher

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM4750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration ecology for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 5750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM4810 - Experiments in Restoration

Credits: 2

Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 5810.

Prerequisite: STAT 2050 or equivalent.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and

vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design.

Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

SOIL4565 - Research: Soil Science

Credits: 1-4
Max Credit (Max. 6)

Library, laboratory, and/or green-house investigations on select research topics. Graduate students will be required to give a presentation to the soil science group on their final product/ report.

Dual Listed SOIL 5565.
Prerequisite: basic training in soil science research.

SOIL4780 - Seminar:

Credits: 1-9
Consideration of special topics of current interest in social work. May be repeated for a maximum of 15 hours credit when the seminar topic is different.

Prerequisite: advanced major status; or consent of instructor and junior standing for non-social work majors.

Minor

Energy Resource Management Minor

ERM Minor

The purpose of the ERM minor is to provide students at UW the opportunity to learn about energy and expand their career opportunities with this credential.

Core Courses- 6 credit hours needed

ERS1000 - Energy and Society

Credits: 3
Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ENR 1000.
USP 2003-2014 Code U3O
USP 2015 Code U5PN
OR

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

OR

ECON3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ERS 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300, and sophomore class standing.

Elective Courses- 6 credit hours needed

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

OR

ERS1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will

be investigated in case studies.

Cross Listed ECON 1300.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.
Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.
OR

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.
When Offered (Offered spring semester of odd-numbered years)
Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

INST4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 4455.
Dual Listed INST 5455.
Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.
OR

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 5350.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

OR

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ERS2010 - Introduction to Land Management

Credits: 3

Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

ERS4100 - Property I

Credits: 3

Property I addresses the nature of property ownership and the rights associated with property as well as the acquisition and transfer of ownership rights in property and the sharing of ownership rights over time, including estates, future interest, and concurrent estates.

ERS4110 - Law of Contracts

Credits: 3

The Law of Contracts addresses the formation of a contract and the meaning of agreements and the justification of non-performance and breach.

Prerequisite: MGT 1040 and WB/C

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4130 - Oil and Gas Law

Credits: 3

Focuses on the basic legal rules and principles governing the ownership and development of oil and gas, derived from a combination of property, contract, administrative, tort, and constitutional law.

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed CHEM 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

OR

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

GEOL4010 - Exploration Geoscience

Credits: 3

Provides students with information and skills necessary to understand the energy exploration modeling process. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, and reservoir characterization.

Cross Listed ERS 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

OR

ERS4010 - Exploration Geoscience

Credits: 3

The purpose of this course is to provide students with information and skills necessary to understand the oil and gas modeling process from exploration to production. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, reservoir characterization, reservoir production, well planning and decision making.

Cross Listed GEOL 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

OR

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of

resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed ERS 1650.

USP 2015 Code U5PN

OR

ERS1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed GEOL 1650.

USP 2015 Code U5PN

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

OR

GEOL5190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 4190.

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4720 - Ore Deposits

Credits: 4

Teaches principles of economic geology of ore minerals. Lectures cover geochemistry of ore minerals and environments in which various ore minerals are found. Labs include identification of ore minerals in hand sample and under microscope and methodology of economic geology.

Dual Listed GEOL 5720

When Offered (Normally offered fall semester)

Former Course Number [GEOL 4700]

Prerequisite: a grade of C or better in GEOL 2020.

OR

GEOL5720 - Ore Deposits

Credits: 4

Teaches principles of economic geology of ore minerals. Lectures cover geochemistry of ore minerals and environments in which various ore minerals are found. Labs include identification of ore minerals in hand sample and under microscope and methodology of economic geology.

Dual Listed GEOL 4720.

Prerequisite: GEOL 2010.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

OR

ESE4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ME 4460.

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

OR

ESE4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented.

Cross Listed ME 4470.

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6
Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

NAIS4340 - Natural Resource Management on Western Reservations

Credits: 3

Examines natural resource management techniques on western reservations. Focus is on the management and planning of water, grazing, extractive industries, and forestry. Fieldwork on the Wind River Indian Reservation is included.

Cross Listed GEOG 4340.

Prerequisite: 6 hours of 2000-level NAIS courses.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

OR

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

OR

AMST4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052 / ENR 4052 / GEOG 4052 / REWM 4052.

Prerequisite: POLS 1000.

OR

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

GEO4210 - Topics in Geophysics

Credits: 1-3

Max Credit (Max. 9)

Studies particular geophysics topics in-depth at undergraduate level.

Former Course Number [GEO420]

Prerequisite: senior standing and 20 hours in geology.

RNEW4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed BOT 4775.

Prerequisite: LIFE 3400.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

PETE4860 - Energy, Environment, and Materials

Credits: 3

Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 5860.

Prerequisite: Junior standing and PETE 2050 or consent of instructor.

PHYS2250 - Thermodynamic Systems in Energy Science

Credits: 4

Introduces the principles of thermodynamics and their application to energy science. Intended for students majoring in Energy Resource Science.

USP 2003-2014 Code U3SP

Prerequisite: PHYS 1210, grade of C or higher in MATH 2205.

ESE4474 - Topics in Energy Systems Engineering

Credits: 1-3

Max Credit (Max. 4)

Directed research in mechanical engineering.

Prerequisite: Completion of the ME Success Curriculum, ME 3005/ESE 3005.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4020 - Global Biogeochemistry

Credits: 3

Biogeochemistry is the exploration of the physical, chemical, and biological processes that govern the exchange of energy and elements between the biosphere and the geosphere. This course will examine pri

Prerequisite: GEOL/ESS 2000

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

ESE4060 - Energy Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience on an energy-related project. Multidisciplinary teams prepare a project proposal or Statement of Qualifications, generate a morphological study of their project, develop mathematical models of their design, and prepare project plans and specifications. Project management and methods are also presented.

USP 2015 Code U5C3

Prerequisite: Completion of the ME Success Curriculum, ESE 3040 and ESE 3360.

ERS4960 - Energy Field Studies

Credits: 1-3

Various facets of energy resource management and development are covered by visits to oil and gas wells, coal mines, power plants, wind farms, and other energy production and research sites. A trip is normally planned for 5 to 6 days.

Prerequisite: WB; ERS 1000/ENR 1000 or ECON 1300/ERS 1300. Undergraduate Research.

EDSE3040 - Energy and Power Technology

Credits: 3

A conceptual analysis and synthesis of energy requirements and sources, with emphasis on alternate energy systems. Analysis of energy conversion and the application of mechanical, fluid, thermal and electrical power systems.

When Offered (Offered through UW/CC)

Former Course Number [EDIE 3040]

Prerequisite: PHYS 1050 or PHYS 1110.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the

approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

BKCH3021 - Fundamentals of Blockchain

Credits: 3

The purpose of this course is to provide a fundamental understanding of blockchain technologies and their implications. Topics will focus on understanding how blockchain may change the way we think about money, disrupt traditional financial institutions and eliminate costly intermediaries.

Prerequisite: Requires Junior Class Standing.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

EE4510 - Power Systems

Credits: 3

Electric power distribution and transmission. Distribution systems, transmission line calculations, installation and protection; substations, corona, protective relaying and carrier current communication and telemetering. Introduction to system stability studies.

Prerequisite: ES 2210 and EE 3510.

ENR4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 4450.

Dual Listed ENR 5450.

Prerequisite: completion of USP O requirement; junior standing.

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE3510 - Electric Machines and Power Systems

Credits: 4

Polyphase AC circuits; single phase and polyphase transformers; AC synchronous and induction machines; introduction to power systems and per unit system; transmission line parameters; steady-state operations of transmission lines; power flows; transient stability; synchrophasor system and its applications.

Prerequisite: ES 2210, or ES 2215 and ES 2216.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

CE3400 - Introduction to Environmental Engineering

Credits: 3

An introduction to the major topics in environmental engineering. Focus areas include water supply, wastewater treatment, air pollution control and solid and hazardous waste management. Quantitative aspects and engineering

solutions to problems are emphasized.

Prerequisite: MATH 2205 and CHEM 1020 or equivalent.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

CHE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430 /ENR 4430.

Prerequisite: CHEM 1020.

ME3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/ equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ARE 3400

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ME3450 - Properties of Materials

Credits: 3

Mechanical, electrical, thermal and chemical properties of materials. Theoretical treatment of structure of solids and design for specified properties.

When Offered (Normally offered spring semester)

Former Course Number [ES 3450]

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3975 - Internship

Credits: 3

Students may apply for credit for extended work experience (>10 weeks; full-time) engaging in mechanical engineering work and supervised by an engineer in mechanical engineering (or closely related field). Students should apply through their adviser prior to the work experience.

Restricted Enrollment is by departmental approval only.

Prerequisite: consent of the department head.

ME4340 - Gas Turbine Engines

Credits: 3

Thermodynamic analysis and design of ground-based and aero-propulsion gas turbine engines.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ESE4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems. Cross-listed with ME 4455 and dual-listed with ME 5455.

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ARE 4430

Prerequisite: ARE 3400/ME 3400 and ARE 3360/ME 3360 or concurrent.

ME4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ESE 4455

Prerequisite/Corequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

QuickStart Program

Quickstart 3+3, School of Energy Resources + College of Law

UW offers qualified undergraduate students a fast-track to a Juris Doctorate. The 3+3 Program at UW is an opportunity for qualified undergraduate students to earn their **bachelor's degree and law degree in six years** instead of seven years.

University Studies Program Requirements (Required for both EES and PLM)

The University Studies Program 2015

The University Studies Program 2015 develops a student's foundational knowledge to prepare them for the Bachelor of Science degree program. Some of the categories of USP will be completed by completing the degree requirements as outlined below. Students should review their degree audits carefully to ensure that USP requirements are completed. Students transferring with a qualifying associate degree will have most of the lower division portion of the USP requirement waived. For more information about qualifying earned associate degree, see the "Articulation: Earned Associate Degrees" information in this catalog.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Energy and Environmental Systems (Years 1-3)

Students accepted by UW College of Law (COL) into the 3+3 program begin taking classes at COL in what would otherwise be their senior year. Year one of law school (31 credits) counts toward both the BS and the JD degrees. Students must select one path for Years 1-3, either Energy and Environmental Systems or Professional Land Management.

EES majors can become environmental scientists who collect samples of air, soil, & water to identify environmental impacts, resolve environmental threats, & provide guidance on quality regulation and manage natural resources.

Students will complete a minimum of 85-95 credits in their baccalaureate (undergraduate) program by the end of their junior year (including required general education and major courses). Students will complete 90 credits with the College of Law. Students will be granted a BS upon completion of the 120 credit hours required for the undergraduate degree in BS-ERMD (using year one of College of Law coursework), with a cumulative minimum UW GPA of 2.0 or higher. Students must complete 42 hours of upper-division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. During the Energy Resource Management and Development program (years 1-3), students will be advised by the School of Energy Resources advisor. During the College of Law program (years 4-6), students will receive advising from the College of Law.

EES Core Required Curriculum

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Technical Elective, EES, Pick ONE

Please see this list for your elective choices.

Chemistry Elective, EES, Pick ONE

Please see this list to choose your elective.

COM 2, EES Elective, Pick ONE

Please see this list to choose your elective.

COM 3, EES, Pick ONE

Please see this list to choose your elective.

Professional Land Management (Years 1-3)

Students accepted by UW College of Law (COL) into the 3+3 program begin taking classes at COL in what would otherwise be their senior year. Year one of law school (31 credits) counts toward both the BS and the JD degrees. Students must select one path for Years 1-3, either Energy and Environmental Systems or Professional Land Management.

Professional Land Management majors determine ownership and title of surface and subsurface rights to negotiate leases with land/mineral owners, coordinate field exploration, and ensure compliance with governmental regulations.

Students will complete a minimum of 85-95 credits in their baccalaureate (undergraduate) program by the end of their junior year (including required general education and major courses). Students will complete 90 credits with the College of Law. Students will be granted a BS upon completion of the 120 credit hours required for the undergraduate degree in BS-ERMD (using year one of College of Law coursework), with a cumulative minimum UW GPA of 2.0 or higher. Students must complete 42 hours of upper-division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. During the Energy Resource Management and Development program (years 1-3), students will be advised by the School of Energy Resources advisor. During the College of Law program (years 4-6), students will receive advising from the College of Law.

PLM Core Required Curriculum

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGECE 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

OR

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA
USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O
USP 2015 Code U5PN

ERS2010 - Introduction to Land Management

Credits: 3

Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

ERS4010 - Exploration Geoscience

Credits: 3

The purpose of this course is to provide students with information and skills necessary to understand the oil and gas modeling process from exploration to production. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, reservoir characterization, reservoir production, well planning and decision making.

Cross Listed GEOL 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4985 - Seminar

Credits: 1-3

Max Credit (Max. 3)

Energy professionals, including accredited professional landmen, practicing attorneys, and other energy professionals will present a colloquium styled course to bridge conceptual content with realistic workforce focused applications.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300 and WA and QB.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6
Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

FIN2100 - Principles of Finance

Credits: 3
Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

FYS-First Year - Seminar

Credits: 3
Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GEOL1100 - Physical Geology

Credits: 4
Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE
USP 2015 Code U5PN

GIST1200 - Geospatial Foundations

Credits: 3
Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH2355 - Mathematical Applications for Business

Credits: 4

Primarily for students in the College of Business. Includes the mathematics of finance; systems of linear equations and matrices; linear programming; sets, counting, and probability. Students will learn to use Excel spreadsheets to solve business application problems in a computer lab that meets one day per week.

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Data Analysis Elective, PLM, Pick ONE

Please see this list to choose your elective course.

Economics Elective, PLM, Pick ONE

Please see this list to choose your elective course.

COM 2, PLM Elective, Pick ONE

Please see this list to choose your course.

COM 3, PLM, Pick ONE

Please use this list to select your elective course.

College of Law Required Courses (Years 4-6)

Please visit the College of Law Juris Doctor Program.

University Honors College

Guthrie House

Peter Parolin, Dean

Phone: (307) 766-4110

Web site: uwyo.edu/honors

The Honors College provides academically ambitious students with a series of curricular and co-curricular opportunities. Through these opportunities, students gain the breadth of knowledge needed by citizens, professionals, and family members to be effective in a lifetime of stimulating and enriching pursuits. Honors students learn to write cogently for a variety of audiences in their academic disciplines and beyond. They learn to locate and use reliable information and trustworthy opinion. Through appropriate coursework, they learn how to become engaged citizens and to understand the ethnic and cultural diversity of America and the world. They learn the purposes and values of the arts, humanities, sciences and social sciences. The Capstone Project is a sustained research or creative activity through which students demonstrate what they have learned: to formulate a project independently, to develop the intellectual and creative means to complete it, and to write and speak effectively about their work. The Capstone Project is frequently used as evidence of critical thinking in graduate and career applications.

Honors College Learning Outcomes

Students graduating from the Honors College will be able to: (1) engage in problemsolving, research, and creative pursuits that utilize an interdisciplinary approach (2) articulate the value of international and diversity-focused perspectives (3) develop their own styles of leadership and service and identify meaningful opportunities for engagement in these areas and (4) create intentional pathways through career development, including utilizing internship opportunities.

Honors College Admissions

The Honors College seeks well-rounded, ambitious, and curious learners and leaders. Students are invited to apply to the college prior to their first year. First year applicants should apply to the Honors College when submitting their general application to UW. The Honors College admissions committee considers academic performance and test scores holistically alongside an application essay and high school transcript.

Students admitted into the Honors College who are College of Engineering majors will automatically be accepted as Honors College Engineering students.

The Honors College reviews applications on a rolling basis. Students are admitted to the Honors College only after they have been accepted to UW. Incoming, continuing, and transfer students who are interested in applying to Honors should consult our Admissions page: <https://www.uwyo.edu/honors/applications/>

The Honors College also welcomes application from new transfer students. Transfer students entering the Honors College typically have an overall college GPA of 3.25 or higher. The college also admits transfer students and current UW students with at least three semesters remaining prior to graduation.

To maintain good standing in the college, a student must achieve a 3.0 GPA at the conclusion of the student's first year of study. A 3.25 GPA at the conclusion of the student's second year of study is required, with this standard remaining throughout their academic career. Interested high school seniors and transfer students are encouraged to come by the Honors College or to write to the Dean, The Honors College, Dept. 3413, 1000 University Ave, Laramie, WY 82071. The email address is honors@uwyo.edu.

Scholarships

The Honors College supports UW in financial aid packages for students. In keeping with the vision of Honors to facilitate an international experience, Honors provides scholarships to assist with study abroad. Fellowships for supporting research or creative projects for the senior thesis may also be available.

Program Requirements

To earn a minor in Honors, Honors students must complete a total of five courses in Honors and a Capstone Project, and complete the First-Year and Advanced Honors SOAR badge requirements. They must also graduate with a 3.25 GPA. Students who transfer to UW or join Honors as continuing UW students may have some of their required Honors courses and SOAR requirements waived.

The Honors curriculum immerses students in multi-disciplinary inquiry. Students begin by taking the First Year Colloquium, a two-semester course sequence that takes a complex topic - for example, *Dreams and Reality - or- What Does it Mean to be a Human* and explores it with readings based in the humanities, arts, sciences, and social sciences. The course includes visits to the theatre, the Art Museum, and other UW resources, building community while learning about UW. Thereafter, students enroll in three additional courses: an Honors Non-Western Perspectives course and six hours of upper-division coursework in Honors that emphasize interdisciplinarity. At the upper division, it is strongly recommended that students take at least one Honors course per year. Throughout their Honors academic track, students will complete each level of the Honors SOAR Badge.

The Honors experience concludes with a Capstone Project, either a paper or project, done under faculty mentorship and presented publicly. This requirement ensures that students gain creative or research experience in an area of their interest. These projects often lead to graduate studies or a special career path.

Honors College Minor Curriculum

Specific details about required Honors College coursework can be found at:

[Honors College Minor Curriculum](#)

Honors College SOAR Badge requirements

Students are required to complete each level of the Honors SOAR Badge program. Assistance is available from the Honors College.

Honors College SOAR Badge Requirements

Capstone Project (Creative or Research-based)

- Students are not required to register for a specific course to complete the Capstone Project. There is no specific Capstone Project course; students complete the project independently in coordination with a faculty mentor.
- Honors offers optional research and capstone methods courses (i.e. HP 4990) that prepare students for independent capstone projects and in some cases work directly on those projects.
- Honors does offer an optional independent study course if desired. Up to 6 hours of credit in the optional HP4976 - Independent Study are allowed.
- HP 4976, HP 4990, and any other research methods courses contribute to the capstone projects. As such, they do not count toward required Honors coursework or USP requirements.
- Students may be pursuing a major that requires a senior or capstone project, and a major-specific project may also meet the requirement for the Honors College Capstone Project. Please contact the Capstone Project Coordinator for details. Email: honorscapstone@uwo.edu

Honors College Additional Requirements

Students must also graduate with a 3.25 cumulative UW GPA.

Successful completion of the program is indicated on transcripts and diplomas, and seniors are recognized at graduation ceremonies.

Priority registration for enrollment in Honors courses is given to Honors College students, although non-Honors students with a 3.25 GPA or with permission of the instructor are eligible and encouraged to enroll once the general registration period begins, if space is available.

Honors College Advising

The Honors College offers supplemental advising that supports the work that students do with their primary major advisors. Honors Advising instructs students on Honors curriculum requirements and helps students select their Honors courses as well as take advantage of special Honors College opportunities. Students cannot register for Fall or Spring classes without meeting with their primary major advisor.

Other Programs

Honors College Minor Curriculum

Required Courses

Honors Colloquium I (3 Hours)

HP1020 - Honors Colloquium I

Credits: 3
Max Credit 3

Honors Colloquium I is the first course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

When Offered (Offered fall semester)

USP 2003-2014 Code U3L, U3WA

USP 2015 Code U5C1

Restricted Honors College

Prerequisite: participation in UW Honors College.

Honors Colloquium II (3 Hours)

HP2020 - Honors Colloquium II

Credits: 3
Max Credit 3

Honors Colloquium II is the second course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: WA. COM I

Honors Non-Western Perspectives (3 Hours)

Honors Non-Western Perspective courses are listed as HP 3151

A single course cannot count as both the Non-Western and an Upper Division Interdisciplinary Honors Elective.

Upper Division Interdisciplinary Honors Electives (6 Hours)

Must be three unique courses to meet these requirements; a single course cannot count as both the Non-Western and an Upper Division Interdisciplinary Honors Elective.

- Any two upper division Honors courses excluding HP 4976 and HP 4990

University Studies Program Requirements

The University Studies Program 2015

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

HP 4990

UWYO

UWYO courses are designed to help students acculturate to college life and coursework and learn key academic skills. Course content is combined with training in critical reading, academic writing, research, formal presentation, and many other emphases. UWYO courses have low student-teacher ratios in an effort to help students experience richer connection with the instructor and students in the course. Most UWYO courses imbed intellectual self-awareness within the course goals. Several UWYO courses are part of UW learning communities and provide additional opportunities for students to engage with and work together in their cohort.

Major

Bachelor of General Studies (BGS)

General Studies is a multidisciplinary degree that bridges academic disciplines to facilitate degree completion. This degree is designed for students with significant college credit and/or complex curricular interests.

Learning Outcomes

Students completing the Bachelor of General Studies will:

- Demonstrate knowledge in focus areas
- Demonstrate the capacity to integrate knowledge and modes of thinking from two or more disciplines
- Demonstrate an ability to think creatively about complex problems in order to construct, evaluate, and implement innovative possible solutions
- Demonstrate an ability to communicate to academic or professional audiences in written, oral, and digital form as appropriate to specific disciplines and interdisciplinary fields
- Demonstrate higher-order thinking skills such as interpretation, analysis, evaluation, synthesis, creative generation, and innovation

The Four Year Degree Plan below demonstrates the flexibility of the Bachelor of General Studies; which is particularly valuable for transfer students with high student credit hours. However, this degree is not designed for first year students. The degree requires 60 credit hours and intensive advising before it can be declared as a major. Addendum I includes a degree check-list which may be more useful for degree planning

University Studies Program Requirements

- First Year Seminar (3)
- Communication Skills 1 (USP, C1) (3)
- Quantitative Reasoning (USP) (3)
- Physical and Natural World (3)
- Communication Skills 2 (USP C2) (3)
- Physical and Natural World (USP) (3)
- Human Culture (USP) (3)
- US and Wyo government (USP) (3)
- Human Culture (USP) (3)
- Upper Division Capstone (USP, C3) (3)

Focus Areas (Each requires 18 hours)

A minimum of 6 hours in each Focus Area must be Upper Division

Focus Areas Listed by College

College of Agriculture and Natural Resources

- Biomedical Sciences: Microbiology (MICR), Molecular Biology (MOLB), Pathobiology (PATB), Family and Consumer Science (FCSC), Animal Science (ANSC), Food Science (FDSC)
- Agricultural and Natural Resources Sciences: Animal Science (ANSC), Ecosystem Science and Management (ESM), Renewable Resources (RNEW), Entomology (ENTO), Soil Science (SOIL), Agroecology (AECL), Plant Sciences (PLNT), Agricultural Economics (AGEC)
- Human Sciences and Public Policy: Family and Consumer Sciences (FCSC), Agriculture (AGRI), Agricultural Economics (AGEC), Food Science (FDSC)

College of Arts and Sciences:

- Humanities: Art & Art History (ART), English (ENGL), Modern and Classical Languages (LANG), Philosophy (PHIL), Religious Studies (RELI), American Studies (AMST), History (HIST), Anthropology (ANTH), African American Diaspora Studies (AAST), Native American & Indigenous Studies (NAIS), Latina/o Studies (LTST), Gender and Women's Studies (GWST), International Studies (INST), Theatre and Dance (THEA)
- Fine Arts: Theatre and Dance (THEA), Music (MUSC), Art and Art History (ART), African American Diaspora Studies (AAST), Native American & Indigenous Studies (NAIS), Latina/o Studies (LTST), Gender and Women's Studies (GWST), Creative Writing (CW), English (ENGL)
- Social Sciences: Communications and Journalism (COMM/COJO), History (HIST), Anthropology (ANTH), Criminal Justice (CRMJ), Geography (GEOG), Religious Studies, (RELI), Sociology (SOC), Political Science (POLS), International Studies (INST), Native American & Indigenous Studies (NAIS), Psychology

(PSYC), Statistics (STAT), African American Diaspora Studies (AAST), Latina/o Studies (LTST), Gender and Women's Studies (GWST)

- Math & Sciences: Math (MATH), Statistics (STAT), Botany (BOT), LIFE Program (LIFE), Psychology (PSYC), Zoo/Physiology (ZOO), Chemistry (CHEM), Geology and Geophysics (GEOL), Physics and Astronomy (PHYS), Anthropology (ANTH), Geography (GEOG)

College of Business

- *Management, Marketing, and Decision Science: Management (MGT), Marketing (MKT), Decision Science (DSCI)
- *Accounting and Finance: Accounting (ACCT), Finance (FIN)
- Economics: Economics (ECON)

*Due to accreditation requirements, a student may not choose both the "Management, Marketing, and Decision Science" and the "Accounting and Finance" focus areas to comprise their Bachelor of General Studies major.

College of Education:

- +Elementary Education: Early Childhood (EDEC), Elementary Education (ELED), Curriculum and Instruction (EDCI)
- +Education and Society: Educational Studies (EDST), Exceptional Children (EDEX), Instructional Technology (ITEC), Curriculum and Instruction (EDCI)

+The Bachelor of General Studies does not satisfy the requirements for teacher licensure through the Wyoming Professional Teaching Standards Board.

College of Engineering:

- *Engineering Studies: Engineering Science (ES), Architectural Engineering (ARE), Civil Engineering (CE), Chemical Engineering (CHE), Electrical Engineering (EE), Energy Systems Engineering (ESE), Mechanical Engineering (ME), Petroleum Engineering (PETE)
- *Applied Science Studies: Atmospheric Science (ATSC), Computer Science (COSC)

*The Bachelor of General Studies does not satisfy the requirements for an ABET/EAC accredited engineering degree or an ABET/CAC accredited computer science degree.

College of Health Sciences:

- Community and Public Health: Health Education (HLED), Wyoming Institute for Disabilities (WIND)

Haub School of Environment and Natural Resources:

- Environment and Natural Resources: Environment and Natural Resources (ENR), Environmental Systems Science (ESS)

Upper Division

21 in major/42 total

Additional Information

Degree Structure: The Bachelor of General Studies is comprised of two curricular focus areas and one 3 credit capstone that fulfills the University Studies Program (USP) "Communications Skills 3" (C3) requirement. Each focus area is defined by subject area, fielded by a specific college, and comprised of at least 18 credit hours. Students can choose from a menu of 16 focus areas across the university. Of the 39 credits required for the major, 21 credits must be upper division with a minimum of 6 upper division credits in each focus area. As a university-wide degree, all USP and university-wide requirements must be met.

No course can count toward more than one area of focus. Students must earn a C or better for all credits counting toward the major. One USP "Human Culture" (H) course and one "Physical & Natural World" (PN) course may also count toward the major. No college core applies to the degree. To declare this major, students must have earned 60 credit hours and received intensive advising from the college fielding their primary focus area.

Focus Areas: Each of the focus areas identifies a knowledge domain that includes courses from a range of disciplines within a particular college. Focus areas include all courses from each of the disciplinary prefixes/subject areas or programs specified as belonging to the focus area (no course exceptions or course lists will be maintained). This will make advising for the degree manageable and will ensure access to needed coursework. Students should choose courses from within the focus area thematically to gain a breadth and depth of knowledge appropriate to the curricular or professional interest that ties together the two focus areas of the student's major. Students should work with their advisor to ensure that their coursework includes the skills and methods necessary for expertise in the substantive area of interest. Proposed focus areas are listed below by college.

Advising Career Exploratory Studies

222 Knight Hall

Richard Miller, Interim Director

Phone: (307) 766-2398 FAX: (307)766-2089

Web site: www.uwyo.edu/aces/index.html

Success and Engagement Programs

105 Coe Library

April Heaney, Director

Phone: (307) 766-3448

Web site: www.uwyo.edu/learn

STEP

USP Codes are listed in brackets by the 2003 USP code followed by the 2015 USP code (e.g. [QB><Q]).

STEP courses are housed within the Learning Resource Network (LeaRN) Program and comprise first-year and academic success courses aimed at supporting students in college research, written and professional communication, major and career exploration, and general transition strategies. STEP courses are often embedded in first-year programs including Fall Bridge, First-Year Experience, First-Year Interest Groups (FIGs), and First-Year Seminars.

English Language Center

Cheney International Center 28

Frederica Suess, Director

Phone: (307) 766-3630

Web site: www.uwyo.edu/geo/elc

Our Mission

The English Language Center serves the University of Wyoming and surrounding community by preparing non-native speakers of English linguistically, culturally, and academically to meet the requirements for success in U.S. higher education environments and to fully engage in campus life.

IEP Conditional Admission: Conditional admission is available for undergraduate applicants who are academically eligible but have low language proficiency scores. Students need to do 2 applications; one for IEP and one for a degree program for consideration. *Only one application fee is needed. Contact us directly if you are interested in this option: elc@uwyo.edu.

Other Programs

Intensive ESL Program

The Intensive ESL Program is a full-time English language study program. Students are in class 20 hours every week for one whole semester of 15 weeks. To study in the Intensive ESL Program, students must have an F-1 Student Visa. All instructors are experienced ESL professionals and qualified with a Masters Degree or higher in TESL or a relevant field of study.

Courses

Students take three classes daily, Monday through Thursday:

- **Reading & Vocabulary:** College vocabulary skills, reading strategies, and study skills.
- **Listening & Speaking:** Pronunciation/conversation, lecture listening, note-taking skills, and academic presentations.
- **Integrated Skills:** Grammar-focused reading, writing, and speaking class using top-ics from academic content areas.

University of Wyoming at Casper

University of Wyoming at Casper

Brent L. Pickett, Ph.D., Dean

125 College Drive, Casper WY 82601

(307) 268-2713

Web site: <https://www.uwyo.edu/uwcasper/>

Since 1976, the University of Wyoming at Casper (UWC), in partnership with Casper College, has offered on-site courses and a slate of university degree programs in Casper. UW-Casper is also the location in Natrona County for statewide degree programs and classes offered through Distance Credit Programs.

UW-Casper was established to meet the needs of students unable to move to Laramie. Some of these students are nontraditional students who may be older or have families, homes, or jobs in the Casper area. UW-Casper is designed to meet the academic needs of students in a setting that provides small class sizes, dedicated staff, and award-winning faculty. Courses are taught by resident and visiting faculty who are regular or part-time members of UW academic departments. A full-service student success office handles admission, registration, financial aid, and advising.

Classes are taught onsite on the Casper College campus. More than 4,000 students have received their UW degrees through UW at Casper support and programs.

UW-Casper also has the Bachelor's of Applied Science (BAS) program. This fully online program is designed to stack onto an associate's degree to help persons already in the job market further develop their skills and advance their career potential. There are two areas of concentration available in the BAS, one in Health Services Administration and the other in Organizational Leadership.

Undergraduate Majors

Organizational Leadership, B.A.S.

Biology, B.S.

Secondary Career & Technical Education, B.A.S.

Communication, B.A.

Elementary Education, B.A.

Elementary Education/Special Education, B.A.

English, B.A.

Medical Laboratory Science, B.S.

Psychology, B.S.

Secondary Science - Biological Science Education with Concurrent Major in Biology (BSSE), B.A.

Social Work, B.S.W.

Zoology, B.S. UW - Casper

Graduate Majors

Counseling, M.S., Concentration in Mental Health Counseling or Counseling, M.S., Concentration in School Counseling

Minors and Endorsements

Secondary Biology Endorsement

Biology, Minor

Secondary Chemistry Endorsement

Communication Minor

Early Childhood Endorsement

Early Childhood Education Options

Psychology Minor

Sociology Minor

Zoology Minor

For more information, contact UW at Casper at 125 College Drive, Casper, WY 82601; (307) 268-2713, (877) 264-9930; or by e-mail at uwcasper@uwoyo.edu.

Major

Organizational Leadership, B.A.S.

The Bachelor of Applied Science degree (BAS) is a completely online program designed for individuals who have completed an associate's degree and who need or desire the additional breadth in skills, knowledge, and professional expertise to enhance their capabilities in their own careers and in the organizations in which they work.

Major Requirements (12 credits)

FCSC3110 is REQUIRED for Option A.

AGRI4350 is REQUIRED for Option B.

PHCY4441 is REQUIRED for Option C.

AGRI3000 - Discovering and Utilizing Ideas and Information

Credits: 3

Learning in this area guides students to accessing, evaluating, and utilizing information and ideas; communicating information and ideas effectively and responsibly; civic engagement for individual, organizational and community problem-solving, and applying new skills, knowledge, and perspectives in a contemporary society.

USP 2003-2014 Code U3I, U3L

Prerequisite: WA and junior status.

AGRI4600 - Developing Organizational Leadership

Credits: 3

A senior capstone experience for Bachelor of Applied Science students, bringing together reading, research, writing, and communication skills to focus on a major project. Leadership skills and approaches to organizational problem-solving are deepened using the structural, human resource, political, and symbolic frames to change and improve leadership and organizational culture.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, AGRI 3000, and senior status.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

OR

COJO3190 - Cross-Cultural Communication

Credits: 3

Studies human communication processes within the context of various cultures and subcultures. Opportunity for field study of the effect of culture on communication behavior.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: COMM 1040 and junior standing.

OR

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

AGRI4350 - Problem Solving in Organizational Settings

Credits: 3

Students apply organizational leadership perspectives and methods to the resolution of a variety of simulations and real world problems. The course will emphasize leadership development as a tool for individual, organizational and community problem solving.

Prerequisite: junior or senior standing and COM2.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

PHCY4441 - Intro Health Institution Leadership

Credits: 3

Max Credit 3

This course provides undergraduates information through analysis of theory and application. The course will use discussion boards to highlight examples of leadership roles and discuss differences in types of leadership roles. Organizational, team, and individual dimensions of leadership are examined.

Restricted Selection of leadership track in BAS program

Contemporary Society Requirement (2 courses, 6 credits)

Pick **two courses** from the following courses listed:

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

CRMJ3500 - Drugs and the Criminal Justice System

Credits: 3

Focus on drugs and their impact on society. Particular interest is paid to the extent of drug use/abuse in America, and the effects of this problem on the criminal justice system and society as a whole. Strategies for controlling both supply and demand are discussed.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 5860.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400 and junior standing.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

SOC3150 - Collective Behavior and Social Movements

Credits: 3

Analyzes and explains fads, fashions, rumors, riots and mass behavior in light of theoretical frameworks. Studies social movements including blacks, women, labor, religions and students.

Prerequisite: SOC 1000.

SOC4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed INST 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 3000.

Career Electives (9 credits)

Students will work with their advisor to identify these career electives.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Option A: Community Resources (12 Credits)

The Community Resources option guides students through an examination of how managers operate effectively with stakeholders and employees in community leadership and non-profit settings.

AGEC4720 - Water Resource Economics

Credits: 3
Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3
Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.
Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGRI4350 - Problem Solving in Organizational Settings

Credits: 3
Students apply organizational leadership perspectives and methods to the resolution of a variety of simulations and real world problems. The course will emphasize leadership development as a tool for individual, organizational and community problem solving.

Prerequisite: junior or senior standing and COM2.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

Option B: Business Management (12 Credits)

The Business Management option guides students through an examination of how managers create value by understanding and developing employee and customer relationships.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

Option C: Health Services Administration (HSA) Concentration (11 Credits)

The Health Services Administration (HSA) concentration allows students to meet their career goals. This concentration:

Is designed for students who are interested in careers such as health services administrators, patient service associates, community outreach coordinators, healthcare office managers, and various positions in community health agencies and the health care industry.

Benefits students who are interested in working side by side with health care workers.

Provides an excellent option for those who want to advance in healthcare but who do not want to pursue additional clinical education.

Students pursuing this concentration must take the business management track and will substitute PHCY 4160/4441 Intro to Health Leadership in lieu of AGRI 4350.

PHCY4050 - Evolution of American Health

Credits: 2

PHCY4141 - Health Economics and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

PHCY4241 - Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

PHCY4341 - Intro to Healthcare Quality

Credits: 3

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Program Overview

Dr. Josh Valk, Director- Bachelor of Applied Science Program

jvalk@uwyo.edu

This program is available by distance delivery only. Entry into the program requires an application process. Students must apply for admission to UW first. Official transcripts from all institutions attended must be submitted to UW Admissions. Entry into this program requires an existing associate's degree. Transcripts will not be analyzed prior to application.

All students pursuing a bachelor's of applied science degree in Organizational Leadership are required to complete: a) University Studies Program (USP) requirements, b) 120 approved credits, 42 of which must be upper division (with 30 coming from UW), and c) courses within the program checklist. The program is designed to be completed in two years, but students may move at a pace that works for them.

All courses within the Bachelor of Applied Science must be completed with a grade of C or better. If you do not pass the course with a grade of C or better after three attempts you will be dismissed from your organizational leadership major.

Each student is assigned an advisor, who can be reached at (bas@uwyo.edu), and will be advised each semester. It is important that you work closely with your advisor to plan your course schedule.

University Requirement - All degrees at the University of Wyoming require 42 upper division credit hours (3000+).

Residency Requirement - All degrees must include a minimum of 30 upper division credit hours from UW

Zoology, B.S. UW - Casper

Zoology is the study of animals: their structure, physiology, development and evolution. One of the enduring fascinations of zoology is that we can learn so much about ourselves and our environment by studying what our fellow creatures do.

At the end of this program students will have a comprehensive knowledge of zoology, will be well prepared for graduate education, and will be equipped to enter any of the many employment opportunities that are available.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Foundation Courses

Foundation Courses

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit

earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM3020 - Environmental Chemistry

Credits: 3

Environment and modern environmental problems in terms of chemical structures and reactions. Chemical principles of equilibrium, kinetics, and thermodynamics are used to help understand our changing environment. Topics include toxicological chemistry, aquatic chemistry, atmospheric chemistry, and green chemistry.

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 2230; and QA course.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies.

Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Advanced Zoology Course

* if more than one of the required courses is completed, additional courses can count towards the Zoology Approved Core Electives below.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

Zoology Approved Core Electives

A minimum of 10 of 18 Zoology Approved Core Electives must be exclusive to the ZOOL major.

Choose a total of 18 credits from:

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT4664 - Special Topics in Evolution

Credits: 1-4
Max Credit (Max. 6)

Advanced topics in evolutionary biology are engaged by studying primary research and topical synthesis in the current literature.

Dual Listed BOT 5664.

Prerequisite: LIFE 3500 or equivalent.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

ENTO4682 - Insect Anatomy and Physiology

Credits: 5

Studies structure and function of the insect body, particularly emphasizing the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 5682.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: ENTO 1000.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

Course Offerings

Changes in Catalog Information

The course offerings and requirements of the University of Wyoming are under examination and revision continually. This catalog is not a contract; it merely presents the offerings and requirements in effect at the time of publication and in no way guarantees that the offerings and requirements will not change.

Not all courses are offered each term. The listing of courses does not imply a contractual obligation to offer the same during the year of publication of this catalog. The university reserves the right to offer, limit, or cancel course offerings for academic, funding, or facility considerations, and to cancel any offered course for which there is not sufficient enrollment.

The university reserves the right to change approved course listings at any time during a student's term of residence.

Preparatory Courses Taught at UW by Laramie County Community College

The University of Wyoming has contracted for Laramie County Community College to offer preparatory courses on the university campus. University students will register through the normal university registration process. Inclusion of these courses in a student's schedule will count as part of the credit load for determining full-time status; however, UW credit is not awarded. For further information, contact the LCCC coordinator, at (307) 766-2514 or go to Ross Hall, rooms 26 and 27.

Course Credits

The amount of credit offered for any course work published in this catalog is based on and governed by prior university faculty recommendation and institutional determinations.

A credit hour denotes a unit of academic work. Normally, one credit hour is earned in a course meeting one hour per week for a semester (15-16 weeks). Each credit hour unit requires an average of three hours of student-effort per week. In variable-credit courses, the efforts required of the students are proportional to the credit hours attempted.

Even if topics differ in separate sections, variable-credit courses have limits on the number of credits which can be earned in that course in a semester and/or a student's career.

Format of Course Listings

On the following pages, courses approved for offering are listed by college, program subject, and course level (number).

The heading which precedes the brief description of each course shows the current course identification number; former course number(s), if any, in brackets; course title; a designation in bold brackets ([QB<>Q], e.g. [USP 2003 designation<>USP 2015 designation]), if any, concerning applicability of the course to the University Studies Program (see below for designation); the number of semester credit hours established for the course (fixed or variable with the semester); and the career maximum of credit for successive term enrollments in the identified course, if

different from the established semester credit-hours limit. For example, “1-3 (Max.9)” means that a student may earn between 1 and 3 hours of credit for that course within one semester and a maximum of 9 hours within a degree career. The course description indicates any prerequisites for that course and if it is offered for satisfactory/unsatisfactory grading only.

Course Levels

University courses are distinguished by number indicating five levels of instruction as follows:

0000-0999	Preparatory courses (no credit)
1000-2999	Primarily for Freshmen and Sophomores
3000-4999	Primarily for Juniors and Seniors
5000-5999	Primarily for Graduate Students
6000-6999	Law courses, WWAMI courses, and Doctor of Pharmacy courses

A bracketed course number [] indicates a previous number of the same course. Double credit cannot be earned by repeating a course.

Prerequisites are the primary factor which normally govern whether a student may enroll for any particular course. However, individual departments and/or colleges may place additional restrictions on course enrollments (e.g. enrollment may be restricted by student classification).

Enrollment in engineering courses is generally limited to engineering students.

Law courses are normally open only to students approved for the program.

Graduate students may enroll in courses numbered 1000-3999 to satisfy undergraduate deficiencies but only courses numbered 4000 and above will be computed into the graduate GPA and allowed for graduate credit.

University Studies Program Designations

2015 USP Designations

C1 = Communication 1 = U5C1

C2 = Communication 2 = U5C2

C3 = Communication 3 = U5C3

FY = First-Year Seminar = U5FY

H = Human Culture = U5H

PN = Physical and Natural World = U5PN

Q = Quantitative Reasoning = U5Q

V = U.S. and Wyoming Constitutions = U5PN

A&S College Core

G = A&S College Core Global = ASG

D = A&S College Core Diversity = ASD

2003-2014 USP

I = Intellectual Community = U3I

WA = Writing 1 = U3WA

WB = Writing 2 = U3WB

WC = Writing 3 = U3WC

CH = Cultural Humanities = U3CH

CS = Cultural Social Science = U3CS

CA = Cultural Arts = U3CA

L = Information Literacy = U3L

O = Oral Communication = U3O

P = Physical Activity and Health = U3P

QA = Quantitative Reasoning 1 = U3QA

QB = Quantitative Reasoning 2 = U3QB

S = Sciences = U3S

SB = Sciences = U3SB

SE = Sciences = U3SE

SP = Sciences = U3SP

V = US & Wyoming Constitutions = U3V

D = US Diversity = U3D

G = Global Awareness = U3G

Accounting

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ACCT3070 - Tax I

Credits: 3

This class covers a broad range of the tax concepts applicable to the taxation of individual taxpayers. Special emphasis will be placed on the role of taxation of the individual and the related decision-making process.

Prerequisite: ACCT 2010 and ACCT 2020, Advance Business Standing.

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

ACCT3230 - Intermediate Accounting I

Credits: 3

First of two courses studying financial reporting. Topics include recording and reporting events in the expenditure and revenue cycles.

Former Course Number [2230]

Prerequisite: ACCT 2010 , ACCT 2020 and MATH 1400 with grades of C or better in each; sophomore class standing.

ACCT3240 - Cost Accounting I

Credits: 3

Organizational uses of information to plan, make decisions, and evaluate performance. Specific topics include job order and process costing, cost estimation and CVP analysis, budgeting and variance analysis.

Former Course Number [2240]

Prerequisite: ACCT 2010, ACCT 2020 and MATH 1400 with grades of C or better in each; sophomore class standing.

ACCT3430 - Intermediate Accounting II

Credits: 4

Second of two courses studying financial reporting. Topics include debt, equity, revenue recognition, and special issues in expense and liability recognition.

Prerequisite: ACCT 3230 with grade of C or better; advanced business standing, or special permission of Department Head.

ACCT3610 - Accounting Information Systems

Credits: 3

Provides an understanding of accounting information systems and internal controls. Emphasis on the use of current accounting technology, accounting software and internal control systems.

Former Course Number [2040, 3010]

Prerequisite: ACCT 3230 with a grade of C or better; advanced business standing.

ACCT3900 - Accounting Professional Sales

Credits: 2

This once-a-week course provides a setting for accounting students to interact directly with industry professionals and experts. Each week will include a presentation from an invited speaker who will discuss relevant topics to the accounting profession.

Restricted Open to junior accounting majors only

Prerequisite/Corequisite: ACCT 2010

ACCT3900 - Accounting Professional Studies

Credits: 2

Professional development course with guest speakers. Preferably taken in the junior year.

Restricted Open to junior accounting majors only

ACCT4060 - Auditing I

Credits: 3

A study of the scope, activities, and responsibilities of professional auditors. Topics include assurance services by public accountants and the methods and techniques used to provide these services, with a focus on the audits of financial statements and internal controls performed by external auditors.

Prerequisite: ACCT 3230 with a grade of C or better; ACCT 3610 with a grade of C or better (or concurrent enrollment)

ACCT4540 - Cost Accounting II

Credits: 3

Advanced topics in cost accounting concerning the organizational uses of information to plan, make decisions, and evaluate performance.

Prerequisite: ACCT 3240 with a grade of C or better and sophomore standing.

ACCT4600 - Professionalism and Ethics

Credits: 3

Examines professional ethics for accountants from both a philosophical and business perspective. Moral development, ethical reasoning, and ethical decision making provides a framework for examining the importance of ethics in the accounting profession. Professional guidance on ethics in accounting is also examined, including the AICPA Code of Professional Conduct, the Sarbanes-Oxley Act, and the codes for other professional accounting organizations.

Prerequisite: ACCT 3070, 3610, and ACCT 3430 (or equivalents) with grades of C or better in each; ACCT 4060 with a C or better or concurrent enrollment; advanced business standing.

ACCT4700 - CPA Exam Prep

Credits: 1

Max Credit 4

This course is designed to prepare students for taking the Uniform Certified Public Accountant Examination. The course includes intensive preparation for the CPA exam.

Prerequisite: ACCT 4060

ACCT4900 - Ind. Study in Accounting

Credits: 1-6
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Blockchain not included in other structured Accounting courses.

When Offered (Offered based on sufficient demand and resources)
Restricted Include: Juniors, Seniors Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

ACCT4910 - Topics in Accounting

Credits: 1-6
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

ACCT4960 - Volunteer Income Tax Assistance

Credits: 1-3
Max Credit 3

The Volunteer Income Tax Assistance (VITA) program is an IRS-sanctioned program designed to help low-income individuals and families file their federal and state taxes through trained volunteers. This course trains students to assist taxpayers in filing tax returns through the VITA program.

Prerequisite: ACCT 3070 (or concurrent).

ACCT5030 - Advanced Financial Accounting

Credits: 3
Advanced topics in financial reporting for students planning careers as professional accountants. Topics may include: business combinations, consolidated financial reporting, segment and interim reporting, SEC reporting, multinational accounting and reporting, and other emerging topics.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5040 - Seminar in Managerial Accounting

Credits: 3

Organizational development of financial and nonfinancial budgets, interaction between performance measurement systems and human behavior, and advanced topics in uses of information for decision making.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5060 - Auditing II

Credits: 3

An in-depth study of the financial statement audit and the professional responsibilities of public accountants. The role of professional judgment and skepticism is emphasized in case studies and research involving current auditing issues, including financial statement fraud.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5065 - Fraud Examination

Credits: 3

The study of fraud against organizations and individuals. Includes consideration of how and why fraud is committed, the basics of fraud investigation, and fraud prevention. Coverage may also include an in-depth study of specific fraud cases based on the above elements.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5066 - Seminar on Management Fraud

Credits: 3

An in-depth study and analysis of the causes, methods, and consequences of financial statements fraud committed by top management in the organization. The course covers psychological and criminological theories of management fraud, as well as detailed analysis of high-profile managements frauds. Seminar format.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5070 - Tax II

Credits: 3

Choice of entity and special tax subjects. Emphasis will be placed on the importance of ethical considerations, competent tax research, and thoughtful tax planning.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5503 - Fundamentals of Accounting in the Energy Industry

Credits: 3

Introduces students to basic financial accounting and reporting issues related to energy producing activities. Specifically, the course will investigate current accounting practices of energy producing companies related to exploration, acquisition, development, and delivery of energy products. The course will also cover financial requirements of the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and the Securities and Exchange Commission (SEC).

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

ACCT5850 - Advanced Problems in Accounting

Credits: 1-8

Max Credit (Max. 8)

An arrangement whereby students may investigate a more advanced problem area in accounting on an individual basis.

Prerequisite: consent of instructor; graduate standing.

ACCT5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ACCT5990 - Internship

Credits: 1-12

Max Credit (Max. 24)

Prerequisite: graduate standing.

Adult Education

ADED1008 - Eastern Thought Western Practice

Credits: 2

Major concepts of Eastern thought from Confucius and Osho are explored, examined, to understand eastern ways of perceiving reality, knowledge, and values. Hands-on activities are employed to experience and practice the applications of the concepts. Students are challenged to critically think, analyze, and compare with their own, increase their consciousness of diversity.

USP 2003-2014 Code U3I

ADED5050 - Learning Theories for Education

Credits: 3

Learning and development theories are essential for educators who are designing and implementing educational applications and opportunities. Topics covered include orientations toward learning, motivation, life transitions, cognition, learning how to learn, self-directed learning, and strategies for improving learning in educational contexts.

Prerequisite: graduate standing.

ADED5880 - Special Problems in Adult Education

Credits: 1-6

Max Credit (Max. 9)

Provides a broad perspective through selected reading material. Wherever possible, the student collects and uses original information from an adult education/instructional technology setting. All work is done independently under the direction of a faculty member.

Prerequisite: graduate standing.

ADED5890 - Seminar in Adult Education

Credits: 1-6

Max Credit (Max. 8)

Advanced students in education work together intensively on current issues and problems relevant to adult education and participate in systematic, critical interpersonal evaluation. Eight hours are permitted on a doctoral program.

Prerequisite: graduate standing.

Advising Career Exploratory Studies

ACES1101 - FYS: New Geography of Jobs

Credits: 3

This course will provide students with a view of the evolving world of work in the United States, with specific attention to Innovation, Manufacturing, Natural Resource Extraction, and Agriculture. The course will survey the history of jobs in the U.S. with specific attention to changes through time, location and events. We will also look ahead to the age of automation. Students will participate in a significant research project, through which they will create a case study of a

specific economic ecosystem.

USP 2003-2014 Code U5FY

ACES1105 - Academic Success Skills

Credits: 2

Designed to provide students the necessary skills to succeed at the University and beyond. Skills covered include time management, learning styles, note taking, self-motivation, and more.

When Offered (Offered each semester)

ACES1150 - Major & Career Exploration

Credits: 1

This course is for freshmen who have no idea what to major in, or who are open to investigating possibilities. Students will gain information about themselves, opportunities in higher education, and the world of work, which they can use to make an informed decision about a major.

ACES3000 - Peer Advising

Credits: 3

This course is designed to help you develop the skills, understanding, competencies, and dispositions needed to be an effective peer advisor at UW. Course content will cover student development theory, interpersonal skills, Ethics of working with college students, UW policies/procedures, UW academic requirements, and advising approaches.

When Offered (Offered Spring Semester Only)

Prerequisite: Sophomore standing and completion of USP15-C2

ACES3100 - Peer Advising Internship

Credits: 1-6

Max Credit (Max. 6)

Designed to help you apply the skills, competencies, and dispositions that were developed in ACES 3000. The course will allow you to apply and reflect upon student development theory, interpersonal skills, UW policies/procedures, UW academic requirements, and advising approaches. Each internship credit will require a minimum of 3 hours of work per week in the ACES office. Students and the peer advising supervisor will consult in establishing individual student hours.

Prerequisite: ACES 3000 and application to ACES Internship.

African and American Diaspora Studies

AAST1000 - Introduction to African American Studies

Credits: 3

Surveys African presence in America. Selected teachings are designed to give the student a concise understanding of the heritage of African people in America.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

AAST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities. Enrollment preference will be given to We The People FIG students.

Cross Listed NAIS 1030 /AMST 1030 / WMST 1030/LTST 1030.

USP 2003-2014 Code A3D, U3I

A&S College Core 2015 ASD

AAST1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

AAST2240 - Introduction to African Studies

Credits: 3

Confronts African stereotypes by exploring the continent's complex history and current affairs, with the help of different disciplinary perspectives, such as economics, political science, and anthropology. Equipped with the basics, students will be primed to tackle more advanced courses on Africa.

Cross Listed INST 2240.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

AAST2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed ENGL 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

AAST2360 - African American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed HIST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5C2

A&S College Core 2015 ASD

AAST2450 - Traditional African Religion

Credits: 3

Surveys traditional religions of Africa, both ancient and contemporary.

Cross Listed RELI 2450.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

AAST2990 - Topics:

Credits: 1-3 or 3

Accommodates seminar series and/or course offerings including those by interdisciplinary teams and visiting faculty in African American & Diaspora Studies not covered by program courses.

USP 2003-2014 Code U3D

AAST3000 - African American Studies in Music

Credits: 3

Surveys African American music from its origins in Africa to current, popular jazz, rock, soul and rap forms.

USP 2015 Code U5H

AAST3010 - The African American Aesthetic

Credits: 3

Examines interrelationship of the creative process with cultural and philosophical motifs, as well as the spiritual and the artistic amongst African people on the continent and Diaspora.

Prerequisite: AAST 1000 or any AAST 2000-level course.

AAST3130 - Global Impact of African Cultures

Credits: 3

Examines concepts of culture and value systems as applied to Africa and African-derived cultures and the impact on civilizations around the globe. Using the lens of the Diaspora, this course examines aspects of African culture on the African continent along with the traditions, experiences, socialization, and histories that continue for dispersed peoples of African descent.

USP 2003-2014 Code U3CS, U3G

Prerequisite: AAST 1000 or any AAST 2000-level course.

AAST3260 - African Spirits in the New World

Credits: 3

Begins with Yoruba roots in Africa travels with the African Diaspora focusing on spirit possession in Haitian Vodou, Cuban Santeria, Jamaican Revival Zion, Jamaican Rastafarianism, Brazilian Candomblé, and "Black Church" in the United States using ethnography and postcolonial theory of religious studies.

Cross Listed RELI 3260.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: AAST 1000 or any AAST 2000 level course or RELI 1000.

AAST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed HIST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/ HIST 2360.

AAST3933 - African Philosophy

Credits: 3

Examines the work of philosophers of Africa, of African descent and others who deal with the African diaspora. Topics include the nature of African philosophy and the African American struggle, African colonialism, philosophy, political philosophy and gender, traditional African thought.

Cross Listed INST 3933 /PHIL 3933.

USP 2015 Code U5H

A&S College Core 2015 ASG

Restricted Restricted to junior or senior class standing.

Prerequisite: A prior course in AAST, INST or PHIL.

AAST4000 - Black Freedom Movement, AAST 1955- Present

Credits: 3

Presents the struggle of African Americans for self-definition, self-development, and self-determination from the inception of the modern civil rights movements to the contemporary period.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 USD

Prerequisite: 3 hours of AAST courses.

AAST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed HIST 4020.

USP 2003-2014 Code U3D, U3CH

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

AAST4050 - Development, Africa, and Culture

Credits: 3

Focuses on the complex and checkered relationships between Western-inspired development and African cultures. Striking a balance among ethnographic case studies, theoretical lenses, and practical implications, understand what Euro-American efforts at foreign development, including contemporary globalization, look like from an African perspective. Provides an understanding of African expectations of development and developers.

Cross Listed INST 4050.

Dual Listed AAST 5050.

Prerequisite: junior standing and instructor consultation.

AAST4100 - African American Religious Culture

Credits: 3

Mid-level writing-intensive seminar. Comparative study of African American religious celebration, primarily in the context of Afro-Christianity, but touching on Islam, Candomble, "Voodoo," Santeria, and Rastafarianism.

Cross Listed RELI 4100.

USP 2003-2014 Code WC, D

USP 2015 Code COM3

A&S College Core 2015 ASD

Prerequisite: WB and one of the following: AAST 1000 or any AAST 2000-level course or RELI 1000.

AAST4160 - African American Rhetoric

Credits: 3

African American discourse and its relationship to equality and participation. Through examination of various media, music, speeches, and art this course uses the struggle of African Americans as an instructive exemplar, to come to terms with the philosophical concepts, political issues, moral complexities, and discursive characteristics of African American Rhetoric.

Cross Listed COJO 4160.

Dual Listed AAST 5160.

USP 2003-2014 Code U3D, U3CH

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 9 credit hours in AAST or COJO.

AAST4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society. Cross-listed with COJO 4233 and GWST 4233; dual-listed with AAST 5233.

USP 2003-2014 Code U3WC

USP 2015 Code U5WC, U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

AAST4250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U. S. , including Africa and the Caribbean.

Cross Listed AMST 4200.

Dual Listed AMST 5250.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Former Course Number [AAST 4200]

Prerequisite: AAST 1000, AMST 2010, AMST 2110, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

AAST4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of

American society.

Cross Listed COJO 4260.

Dual Listed AAST 5260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [AAST 4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

AAST4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed Cross list with ENGL 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

AAST4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed ENGL 4455.

Dual Listed AAST 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

AAST4675 - USWomen of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed LTST 4675 /GWST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: junior standing and/or a combination of

AAST4970 - Internship in AAST

Credits: 1-12

Designed for students to utilize the knowledge and skills obtained in their program of study to be applied at an organization or institution. Students will provide a job description, sign an internship contract, keep daily work journals, provide work samples, submit a paper, and include a final evaluation by their Internship supervisor.

Prerequisite: 9 hours in AAST courses.

AAST4975 - Independent Research

Credits: 1-3

Max Credit (Max. 6)

Independent study in African American Studies.

Prerequisite: AAST 1000 and consent of instructor.

AAST4990 - Topics:

Credits: 3

In-depth study of a topic not offered as regular course.

Prerequisite: COM1.

AAST5050 - Development, Africa, and Culture

Credits: 3

Focuses on the complex and checkered relationships between Western-inspired development and African cultures. Striking a balance among ethnographic case studies, theoretical lenses, and practical implications, understand what Euro-American efforts at foreign development, including contemporary globalization, look like from an African perspective. Provides an understanding of African expectations of development and developers.

Cross Listed INST 5050.

Dual Listed AAST 4050.

Prerequisite: junior standing and instructor consultation.

AAST5060 - NGOs, Development, and Culture

Credits: 3

Non-governmental organizations (NGOs) have grown exponentially in number and are often viewed as the new and best vehicle for international development. By focusing on international non-governmental organizations (INGOs), in the contexts of Western aid to post-colonial societies and the role they play in the international aid system, the course explores INGOs from historical, global, and cultural perspectives.

Cross Listed INST 5060.

Prerequisite: junior standing and instructor permission.

AAST5160 - African American Rhetoric

Credits: 3

African American discourse and its relationship to equality and participation. Through examination of various media, music, speeches, and art this course uses the struggle of African Americans as an instructive exemplar, to come to terms with the philosophical concepts, political issues, moral complexities, and discursive characteristics of African American Rhetoric.

Cross Listed COJO 5160.

Dual Listed AAST 4160.

Prerequisite: 9 credit hours in AAST or COJO.

AAST5233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society. Cross-listed with COJO 5233 and GWST 5233; dual-listed with AAST 4233.

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

AAST5250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U. S. , including Africa and the Caribbean.

Cross Listed AMST 4200.

Dual Listed AMST 4250.

Prerequisite: AAST 1000, AMST 2010, AMST 2110, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

AAST5260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/ social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed COJO 5260.

Dual Listed AAST 4260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

Former Course Number [AAST 5985]

Prerequisite: graduate standing.

AAST5455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed ENGL 5455.

Dual Listed AAST 4455.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

AAST5560 - Black Popular Culture

Credits: 3

Approaches African American popular culture from theoretical perspectives which include black feminist, postcolonial, and poststructuralist analyses.

Cross Listed AMST 5560.

Prerequisite: graduate standing; instructor consent for undergraduate students.

Agricultural Economics

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC1101 - First-Year Seminar

Credits: 3
USP 2003-2014 Code U5FY

AGEC1499 - Ag Business Pathways for Success

Credits: 1

We explore student pathways to success in the Agribusiness degree program through college and into careers. This course will help students grow in three focus areas: 1) Skills for program success; 2) Career opportunities afforded by a BS in Agribusiness degree; and 3) Networking with peers, faculty, and alumni.

Prerequisite: Agribusiness major.

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC2040 - Excel Applications in Ag Business

Credits: 3

From production records to financial statements, agribusiness managers must be able to manage and analyze data. The purpose of this course is to teach students how to use Microsoft Excel for common agribusiness management activities.

AGEC3030 - Applied Economic Decisions

Credits: 3

The purpose of the class is twofold: 1) To practice applying concepts, tools, and models from principles of economics to real-world problems affecting agriculture and agribusiness; and, 2) To understand the role of individual behavior in economic outcomes that particularly affect agriculture.

Former Course Number [3020]**Restricted** Restricted to AGEC majors.

Prerequisite: AGEC 1010/ECON 1010, AGEC 1020/ECON 1020, and MATH 1400.

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

AGEC3420 - Applied Equity Investing

Credits: 3

Introduces the fundamentals of understanding how the stock market works, what types of investment products are available, how to purchase them and what to look out for in making investment decisions. Students will make investment decisions on a simulated portfolio and write justifications for their purchases.

When Offered (Normally offered spring semester)

Prerequisite: COM2 and MATH 1400.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGEC3860 - World Food, Ag, & Development

Credits: 3

Explores economic approaches to improving nutrition, agriculture production, and the environment in developing regions of the world. Students gain understanding of complex conditions surrounding food security; institutions involved with food policy, aid, and production; environmental factors influencing agricultural production; inequality; and international cultural and societal food disparities.

Cross Listed INST 3860.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3G

USP 2015 Code U5H

Former Course Number [4860]

Prerequisite: AGEC 1010/ECON 1010 or AGEC 1020.

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 and MATH 1400.

AGEC4200 - Gender and Race in the Economy

Credits: 3

Focuses on the role gender and race play in the economy; specifically the way that gender and race affect economic outcomes for individuals in the United States.

Cross Listed GWST 4200.

Dual Listed AGEC 5200.

USP 2015 Code U3D

A&S College Core 2015 ASD

Prerequisite: AGEC 1020 or equivalent, or SOC 1000, or GWST 1080, and WB/COM2.

AGEC4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 4230

Dual Listed AGEC 5230

When Offered (Normally offered spring semester)

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

AGEC4280 - International Food and Farm Cultures

Credits: 3

Study-tour course in western France of lectures, fieldtrips, and other cultural activities are integrated into a curriculum to study sustainable food cultures and farming systems. Students live with host families and learn about current policies, belief systems and cultural practices that guide food production, consumption and marketing in Europe.

USP 2003-2014 Code U3G

Prerequisite: completion of WA/COM1 and I/FYS.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

AGEC4460 - Agriculture and Economic Development

Credits: 3

Examines the roles of agriculture in the transformation of the economics of underdeveloped countries. Examines development theories, case studies and analytical techniques.

Former Course Number [5460]

Prerequisite: AGEC 1010, AGEC 1020 and a G course.

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

AGEC4600 - Community Economic Analysis

Credits: 3

Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic analysis, fiscal impact analysis and benefit cost analysis.

Dual Listed AGEC 5600.

USP 2015 Code U5H

Prerequisite: ECON 3010, ECON 3020, and MATH 1400.

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

AGEC4660 - Community and Economic Development

Credits: 3

Community development from an interdisciplinary perspective, integrating theory, concepts and methods from sociology, economics, political science, and community development. Students learn how community theory can be used to design and support effective economic development programs. Includes readings, lectures, guest lectures, field trips and community analysis projects.

Dual Listed AGEC 5660.

Prerequisite: AGEC 1010/ ECON 1010, ECON 1020 , and junior standing.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECE 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGECE 1020 or equivalent; QB course, WB course; senior standing.

AGEC4830 - Agricultural Commodities and Futures Markets

Credits: 3

Economics of price determination for agricultural commodities and development of pricing strategies in cash and futures markets.

When Offered (Normally offered fall semester)

Prerequisite: AGECE 1020 or equivalent.

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

AGEC4890 - Special Topics in _____

Credits: 1-3

Accommodates seminar series or course offering by visiting faculty whose subject matter is not included in other courses.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: junior standing and/or consent of instructor.

AGEC4910 - Problems in Agricultural Economics

Credits: 1-3

Consists of supervised study and investigation on topics of current importance in agricultural economics.

Prerequisite: 12 hours in AGECE or ECON and consent of instructor.

AGEC4930 - Agricultural Economics Internship

Credits: 1-6

Provides practical agricultural business firm and/or agency experience. Develops working knowledge of how basic economic concepts are used by firms and agencies in policy and procedures development and decision making by the organization.

Prerequisite: 10 hours of AGECE and approval of faculty supervisor.

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

AGEC4970 - Technical Communication for Agribusiness

Credits: 3

This course is the senior capstone for agribusiness majors. Students will use written, oral, and digital communication appropriate for the discipline to complete a technical report and oral presentation on a complex topic affecting agriculture or natural resources.

USP 2003-2014 Code U5C3

AGEC5200 - Gender and Race in the Economy

Credits: 3

Focuses on the role gender and race play in the economy; specifically the way that gender and race affect economic outcomes for individuals in the United States.

Cross Listed WMST AGEC 5200.

Dual Listed AGEC 4200.

Prerequisite: AGEC 1020 or equivalent, or SOC 1000, or GWST 1080, and WB/COM2.

AGEC5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variables, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 5230.

Dual Listed AGEC 4230.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5310 - Theory of Producer Behavior

Credits: 3

Economic models of optimization as they apply to firm-level production decisions. Topics include the properties of production functions, theories of linear and non-linear optimization, firm decision making under perfect and imperfect competition and firm decision making under uncertainty.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5320 - Quantitative Methods in Agricultural Economics

Credits: 3

Covers mathematical programming and simulation techniques for solving applied problems in agricultural economics. Emphasizes the formulation of economic research problems in quantitative terms and the use of computer software packages to derive solutions.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 5450.

Dual Listed AGEC 4450.

Prerequisite: completion of USP O/COM2 requirement; junior standing or consent of instructor.

AGEC5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 5550.

Dual Listed AGEC 4550.

Prerequisite: QA/Q.

AGEC5600 - Community Economic Analysis

Credits: 3

Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic theory, regional economic analysis, fiscal impact analysis and benefit cost analysis.

Prerequisite: consent of instructor.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

AGEC5650 - Communicating Research

Credits: 3

Focuses on the broad methods, and written and oral communication of research in applied economics. Topics include formulating a research question, organizing a manuscript, editing for clarity and conciseness, building effective figures and tables, finding and citing literature, developing and delivering effective presentations, and upholding research ethics.

Prerequisite: graduate standing.

AGEC5660 - Community and Economic Development

Credits: 3

Community development from an interdisciplinary perspective, integrating theory, concepts and methods from sociology, economics, political science, and community development. Students learn how community theory can be used to design and support effective economic development programs. Includes readings, lectures, guest lectures, field trips and community analysis projects.

Dual Listed AGEC 4660.

Prerequisite: AGEC 1020/ ECON 1020 or SOC 2090 and junior standing.

AGEC5710 - Advanced Agricultural Market Theory

Credits: 3

Theoretical foundations of the study of agricultural markets and how business is conducted in those markets. Topics include pure competition, industrial organization concepts related to imperfect competition including game theory, principal-agent theory, transaction costs economics, intermediary theory, and welfare implications of alternative agricultural market structures.

Prerequisite: ECON 3020 and MATH 2350.

AGEC5740 - Consumer Behavior and Prices Analysis

Credits: 3

Focuses on microeconomic consumer theory and its application. Topics include utility theory, market demand theory, expected utility theory, and econometric applications.

Prerequisite: ECON 3020, MATH 2350 and STAT 2050.

AGEC5880 - Advanced Seminar

Credits: 1-2

Max Credit (Max. 2)

Involves reporting to the seminar group on research methods and results obtained in the investigation of a topic or question relevant to the field of agricultural economics.

Prerequisite: 9 credits in AGEC and/or ECON.

AGEC5890 - Advanced Problems in Agricultural Economics

Credits: 1-3

Max Credit (Max. 6)

Supervised study and research on current problems in marketing, farm and ranch management, policy prices, land economics or finance.

Prerequisite: graduate standing in AGEC or ECON.

AGEC5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

AGEC5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

AGEC5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

AGEC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

AGEC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Agricultural Education

EDAG3150 - Community Programs in Agricultural Education

Credits: 3

This course is designed to determine the resources and trends of local communities with respect to agricultural production and agribusiness. Emphasis will be placed on agricultural education program policies, FFA chapter advisement, planning and managing the instructional program, and the identification and completion of records and

reports required of a teacher of agricultural education in Wyoming.

Prerequisite: Agricultural Education major.

EDAG3160 - Principles of Agricultural Education

Credits: 3

Explores the background, scope and content of agricultural education. Specific competencies required for teacher certification including history, philosophy and trends, successful program planning, applied sciences, organization/utilization of advisory groups, adult education, curriculum, career counseling computer applications, cooperative and SAE programs, facilities and advising the FFA.

Prerequisite: Prerequisites: junior standing.

EDAG4170 - Principles of Agricultural Mechanics and Technology

Credits: 3

Content will emphasize those skills commonly taught in Wyoming agricultural education in the secondary school system with an emphasis on advanced gas and plasma welding theory, small gas engines, and advanced electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4170, EDVE 4170]

Prerequisite: EDAG 4070 or approval of instructor.

EDAG4180 - Techniques of Agricultural Mechanics and Technology

Credits: 3

Techniques of agricultural mechanics and instruction. Content will emphasize those skills commonly taught in the Wyoming school system agricultural mechanics program with emphasis on woodworking, welding theory, agricultural plumbing, and electrical wiring and practices. Designed for students preparing to teach agricultural science in the Wyoming public school system.

Former Course Number [EDAS 4180, EDVE 4180]

Prerequisite: Junior standing or consent of instructor.

EDAG4970 - Individual Problems

Credits: 1-3

Provides flexible credit for seniors who may need credit for graduation, or for students who wish to undertake intensive study of a special problem identified in a regular class. Offered in areas of vocational education, vocational agriculture, family and consumer sciences, and trade and industrial education.

Former Course Number [EDAS 4970, EDVE 4970]

Prerequisite: 12 hours of education courses.

Agriculture

AGRI1520 - Field Practices: Extension

Credits: 1-2
Max Credit (Max. 2)

Project based work that includes practice applications of Extension programming. Directed by Extension faculty around matching topics of youth development, rangeland resources, food safety and nutrition, community development, or profitable and sustainable agriculture. Local issues are addressed in the context of applied research for public good.

AGRI2100 - International Experiences in Natural Resources

Credits: 1-3
Max Credit (Max. 3)

Cultural and environmental topics in another country through classroom sessions, self study, and a visit to the host country. Topics discussed include similarities and differences in natural resource and environmental issues, history, traditions, and cultural norms, focusing on the host country and the United States.

AGRI3000 - Discovering and Utilizing Ideas and Information

Credits: 3
Learning in this area guides students to accessing, evaluating, and utilizing information and ideas; communicating information and ideas effectively and responsibly; civic engagement for individual, organizational and community problem-solving, and applying new skills, knowledge, and perspectives in a contemporary society.

USP 2003-2014 Code U3I, U3L
Prerequisite: WA and junior status.

AGRI4350 - Problem Solving in Organizational Settings

Credits: 3
Students apply organizational leadership perspectives and methods to the resolution of a variety of simulations and real world problems. The course will emphasize leadership development as a tool for individual, organizational and community problem solving.

Prerequisite: junior or senior standing and COM2.

AGRI4500 - International Experiences in Agriculture

Credits: 1
Learn about agricultural customs in another country through classroom lectures, written assignments, and a visit to the

host country during the spring break period. Topics discussed include the influence of foreign agriculture on U. S. economies and agricultural practices, focusing on the host country.

Prerequisite: completion of WA course and junior standing.

AGRI4520 - Field Practicum: Extension Work

Credits: 1-4
Max Credit (Max. 8)

Provides practical experiences to those wanting to pursue a career with Cooperative Extension Service. Interns are matched with county-based personnel for hands-on learning experiences across the state. Develop working knowledge of CES's mission to provide the citizens of Wyoming with education and applied research.

Dual Listed AGRI 5520.

Prerequisite: must pass volunteer screening process.

AGRI4600 - Developing Organizational Leadership

Credits: 3

A senior capstone experience for Bachelor of Applied Science students, bringing together reading, research, writing, and communication skills to focus on a major project. Leadership skills and approaches to organizational problem-solving are deepened using the structural, human resource, political, and symbolic frames to change and improve leadership and organizational culture.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, AGRI 3000, and senior status.

AGRI4700 - Elements of Leadership

Credits: 3

Focuses on a basic understanding of theory and practice. Will develop self-awareness and provide a foundation for continued development of leadership skill in the workplace, the community and the home.

Dual Listed AGRI 5700.

Prerequisite: Restricted enrollment. Prior approval required.

AGRI4960 - Bachelor of Applied Science Internship

Credits: 6

Provides Bachelor of Applied Science students academic credit for advanced work experiences in their area of specialization. Required to complete academic assignments such as a weekly journal, discussion and writing assignments in addition to their field-based responsibilities. Takes place in a mentored, supervised setting.

Prerequisite: Bachelor of Applied Science student, AGRI 3000, senior status, and consent of instructor.

AGRI4970 - Internship/Practicum

Credits: 1-8
Max Credit (Max. 8)

Internship or practicum experience in Agricultural Communications.

Prerequisite: COM2 or WB.

AGRI4975 - Agricultural Communications Senior Project

Credits: 1
A baccalaureate degree capstone experience incorporating self assessments of student learning, reflective writings, and an analysis, synthesis and evaluation of the agricultural communications curriculum. Students develop and present a personalized, comprehensive, professional portfolio.

Prerequisite: agricultural communication major with senior standing and WB.

AGRI4990 - Topics

Credits: 1-6
Max Credit (Max. 8)

Accommodates topics whose subject matter is not included in other College of Agriculture and Natural Resources and Natural Resources offerings. Please see the class schedule for current topic.

Prerequisite: WB.

AGRI5520 - Field Practicum: Extension Work

Credits: 1-4
Max Credit (Max 9)

Organization, teaching, and promotion of county programs.

AGRI5700 - Elements of Leadership

Credits: 3
Focuses on a basic understanding of theory and practice. Will develop self-awareness and provide a foundation for continued development of leadership skill in the workplace, the community and the home.

Dual Listed AGRI 4700.

Prerequisite: Restricted enrollment. Prior approval required.

AGRI5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max 16)

Prerequisite: advanced degree candidacy.

AGRI5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max 16)

Prerequisite: advanced degree candidacy.

AGRI5959 - Enrichment Studies:1

Credits: 3
Max Credit (Max 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: Credit in this course may not be included in a graduate program of study for degree purposes.

AGRI5960 - Thesis Research

Credits: 1
Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Air Force ROTC

AIR1000 - Leadership Laboratory

Credits: 0
The concept of leadership laboratory is to provide leadership training experiences which will improve a cadet's ability to perform as a USAF officer. Leadership laboratory is largely cadet planned and directed. All cadets must enroll in leadership laboratory.

Prerequisite: none.

AIR1010 - Heritage and Values of the Air Force I

Credits: 1-0.5
A survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.

AIR1020 - Heritage and Values of the Air Force II

Credits: 1-0.5
Continues AIR 1010.

Prerequisite: AIR 1010 or consent of instructor.

AIR2010 - Team and Leadership Fundamentals I

Credits: 1-0.5
Focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate.

Prerequisite: AIR 1010 and AIR 1020 or consent of instructor.

AIR2020 - Team and Leadership Fundamentals II

Credits: 1-0.5
Continues AIR 2010.

Prerequisite: AIR 1010, AIR 1020, and AIR 2010 or consent of instructor.

AIR3010 - Leading People/Effective Communication I

Credits: 3
Teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.

USP 2015 Code U5C2
Former Course Number [4010]

Prerequisite: AIR 1010, AIR 1020, AIR 2010, and AIR 2020 or consent of instructor.

AIR3020 - Leading People/Effective Communication II

Credits: 3
Continues AIR 3010.

USP 2003-2014 Code U3CS
Former Course Number [4020]

Prerequisite: AIR 1010, AIR 1020, AIR 2010, AIR 2020, AIR 3010 or consent of instructor.

AIR4010 - National Security Affairs/Preparation for Active Duty I

Credits: 3

Designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty.

USP 2003-2014 Code U3G

USP 2015 Code U5C3

Former Course Number [4050]

Prerequisite: AS 400, AS 100/AS200/AS300 or approval from Commander

AIR4020 - National Security Affairs/ Preparation for Active Duty II

Credits: 3

Continues AIR 4010.

Former Course Number [4060]

Prerequisite: AIR 1010, AIR 1020, AIR 2010, AIR 2020 , AIR 3010, AIR 3020, AIR 4010 or consent of instructor.

American Studies

AAST2370 - Blues and African American Lit

Credits: 3

Max Credit 3

This course examines scholarship on blues music (the first form of African American popular music) as well as literature that employs blues themes. Specific attention is given to the discourse of authenticity

Cross Listed ENGL 2370

AMST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities. Enrollment preference will be given to We The People FIG students.

Cross Listed AAST 1030/NAIS 1030/ GWST 1030/LTST 1030.
USP 2003-2014 Code U3D, U3I
A&S College Core 2015 ASD

AMST1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

AMST2010 - Introduction to American Studies

Credits: 3
Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)
USP 2003-2014 Code U3CH, U3WB
USP 2015 Code U5H

AMST2400 - Introduction to Historic Preservation

Credits: 3
Online course introduces students to historic preservation theory and philosophy, the history of the preservation movement and contemporary historic preservation as practiced in the public, nonprofit and private realms. Assignments include reading, research, online discussion and lectures (podcasts, videos or PowerPoint presentations), as well as directed field work.

AMST2700 - Introduction to Museology

Credits: 3
Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/ANTH 2700/HIST 2700.
USP 2003-2014 Code U3CH

AMST2705 - Museology II

Credits: 3
Max Credit 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger

ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes Cross listed between Anthropology, History, American Studies and Art.

Cross Listed ANTH/ART/HIST 2705

AMST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U.S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program, or instructor approval.

AMST3100 - Food in American Culture

Credits: 3

An interdisciplinary exploration of food as a medium of cultural expression, social interaction, and aesthetic experience in American life, both past and present. Examines food as, among other things, a symbolic system, a vehicle of social communication, and an arena for the performance of regional ethnic, gender, etc. identities.

USP 2003-2014 Code U3C

Prerequisite: any 2000-level course in American Studies, or ANTH 1200, or instructor approval.

AMST3400 - Popular Music and Sexualities

Credits: 3

Looks at ways in which popular music has intersected with sexual and gendered identities as a means and expression of both oppression and liberation.

Cross Listed GWST 3400.

USP 2003-2014 Code U3CH,U3D

Prerequisite: WA.

AMST3800 - Chicanas/os in Contemporary Society

Credits: 3

Focuses on three major movements within the Chicana/o community; labor, nationalism, and feminism. Students will assess these three movements to determine what role they have played in transforming the social conditions and political identity of the Chicana/o and Latina/o population in the U.S.

Cross Listed LTST 3800 /GWST 3800.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: LTST 1100 or GWST 1080 or AMST 2010.

AMST4010 - Independent Study

Credits: 1-3

Max Credit 6

For upper division students in any major who can benefit from independent study in American Studies with minimal supervision.

Dual Listed AMST 5010.

Prerequisite: 3 hours in American Studies and approval of instructor.

AMST4020 - American Folklife

Credits: 3

Introduces materials and methods of folklife research, examining both verbal and nonverbal expressions of traditional cultures in America. Topics include material culture, belief systems, traditional events and celebrations, and folk performances of many kinds.

Dual Listed AMST 5020.

Prerequisite: Any six hours from among AMST 2010, ENGL 2400, NAIS 2340, AAST 2450, AAST 2730, AAST 3000, AAST 3010.

AMST4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 4030.

Dual Listed AMST 5030.

Prerequisite: 3 hours in any interdisciplinary program.

AMST4040 - Historic Preservation and Sustainability

Credits: 3

Explores the historic preservation and sustainability movements and contemporary practices in these inter-related fields. Through reading, lectures, discussions and site visits, students will study how the historic preservation and the building industry professions can address advanced issues in sustainability related to the environment, culture and economics.

Cross Listed ARE 4040.

Prerequisite: 6 hours in AMST or ARE.

AMST4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed POLS 4051 / ENR 4051 / GEOG 4051 / REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

AMST4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052 / ENR 4052 / GEOG 4052 / REWM 4052.

Prerequisite: POLS 1000.

AMST4250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U.S., including Africa and the Caribbean.

Cross Listed AAST 4250.

Dual Listed AMST 5250.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, AMST 2010, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

AMST4300 - American Culture and the Public Sector

Credits: 3

Surveys American culture studies in the public sector. Topics include history and theory of public sector humanities and social sciences; types of public sector jobs and institutions where public humanists work; and public sector work in specific fields such as museums, arts, humanities, archives, folklife, oral history, and historic preservation.

Dual Listed AMST 5300.

When Offered (Offered once a year)

Prerequisite: 12 credits in humanities or social science courses having to do with American culture.

AMST4430 - Queer Theory

Credits: 3

Introduces students to the intellectual lens used to evaluate the messages regarding gender and sexuality of many

institutions and the way in which some actual experiences fall out of line with those norms.

Cross Listed GWST 4430.

Dual Listed AMST 5430.

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: Consent of instructor.

AMST4500 - American Civilization

Credits: 1-8

Max Credit 8

Explores various interdisciplinary approaches to the American experience, past and present. May include topical, thematic, historical, literary and cultural integrations; for a given semester, the course's precise focus will be indicated in the class schedule.

AMST4640 - Art and Ecology

Credits: 3

Focuses on the intersection of contemporary art with ecological concerns. Readings present philosophical, historical and cultural aspects of the art/ecology relationship; students reflect and question their own beliefs. Examples of art/artists are reviewed as well as how ecological artwork is developed. Students propose solutions and/ or create art in, out of, or about the environment; local sites are encouraged.

Prerequisite: 6 hours of ART and/or AMST or consent of the instructor.

AMST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed LTST 4650/INST 4650/ GWST 4650.

Dual Listed AMST 5650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

AMST4800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed ENR 4800.

Dual Listed AMST 5800.

Prerequisite: ARE 3020 or AMST 5400.

AMST4900 - Field Studies in American Culture

Credits: 1-4

Max Credit (Max. 4)

Field Studies in American Culture: Gives students hands-on field-based training and experience in researching, documenting, and presenting aspects of American culture. Topics may include historic preservation, folklife, oral history or related fields.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 6 credits in American Studies or related field. May also be taken for graduate credit.

AMST4970 - Internship

Credits: 1-3

Max Credit (Max. 6)

Gives undergraduate students practical experience by working on a project at a public institution, agency or educational/cultural organization. Offered for S/U only.

Prerequisite: junior standing, completion of AMST 2010 and 12 hours in major and consent of instructor.

AMST4985 - Senior Seminar

Credits: 3

With AMST 4010 or AMST 4970, completes the capstone coursework in AMST. Identifies a broad intellectual tradition in American Studies as foundation for student's research interests; builds a specific scholarly context appropriate to student's research; culminates in a substantial piece of written research appropriate in an identified subfield of American Studies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: senior standing in American studies or consent of program director.

AMST5010 - Independent Study

Credits: 1-6

Max Credit (Max. 6)

For graduate students in any graduate program who can benefit from independent research and writing in American Studies.

Dual Listed AMST 4010.

Prerequisite: 3 hours in American Studies and consent of instructor.

AMST5020 - American Folklife

Credits: 3

Introduces materials and methods of folklife research, examining both verbal and nonverbal expressions of traditional cultures in America. Topics include material culture, belief systems, traditional events and celebrations, and folk performances of many kinds.

Dual Listed AMST 4020.

Prerequisite: any six hours from among: AMST 2010, ENGL 2400, NAIS 2340, AAST 2450, 2730, AAST 3000 or AAST 3010.

AMST5030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed ENR 5030.

Dual Listed AMST 4030.

Prerequisite: graduate status.

AMST5200 - Material Culture

Credits: 3

Designed to introduce advanced students to the theory, methods, and practice of material culture study. A significant portion of the course will be devoted to a studio exercise in which students collectively document and analyze a material culture form that has been designated by the instructors.

Prerequisite: graduate status or consent of instructor.

AMST5250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U.S., including Africa and the Caribbean.

Cross Listed AAST 5200.

Dual Listed AMST 4250.

Prerequisite: AAST 1000, AMST 2010, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

AMST5300 - American Culture and the Public Sector

Credits: 3

A survey of American culture studies in the public sector. Topics covered include the history and theory of public sector humanities and social sciences, types of public sector jobs and institutions where public humanists work, and

public sector work in specific fields such as museums, arts, humanities, archives, folklife, oral history, and historic preservation.

Dual Listed AMST 4300.

Prerequisite: graduate status.

AMST5400 - American Built Environment

Credits: 3

Examination of America's built environment from pre-Colonial times to the present day. Factors affecting the architecture and built form of a given period are discussed together with what the material legacy says about the culture of the period.

Prerequisite: ARE 3020.

AMST5430 - Queer Theory

Credits: 3

Introduces students to the intellectual lens used to evaluate the messages regarding gender and sexuality of many institutions and the way in which some actual experiences fall out of line with those norms.

Cross Listed GWST 5430.

Dual Listed AMST 4430.

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: Consent of instructor.

AMST5500 - Topics in American Studies

Credits: 3

Selected problems in the theory, practice, and bibliography of American studies. Required of graduate majors in the program and is recommended for students with an interdisciplinary interest in American Culture.

Prerequisite: survey knowledge of American literature and history; graduate standing or consent of instructor.

AMST5510 - Readings in American Studies

Credits: 3

Selected readings in the theory, practice, and bibliography of American Studies. Surveys scholarship in the field and is designed to help graduate students develop thesis topics.

Prerequisite: graduate standing in American studies or related field; consent of instructor.

AMST5550 - Varieties of Literary Evidence

Credits: 3

Selected problems in the use of literary evidence for American studies scholarship.

Prerequisite: graduate standing in American studies or a related field; consent of instructor.

AMST5560 - Black Popular Culture

Credits: 3

Approaches African American popular culture from theoretical perspectives which include black feminist, postcolonial, and poststructuralist analyses.

Cross Listed AAST 5560.

Prerequisite: graduate standing; instructor consent for undergraduate students.

AMST5650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed LTST 5650 /INST 5650 / GWST 5650.

Dual Listed AMST 4650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

AMST5800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed ENR 5800.

Dual Listed AMST 4800.

Prerequisite: ARE 3020 or AMST 5400.

AMST5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

AMST5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

AMST5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

AMST5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: Credit in this course may not be included in a graduate program of study for degree purposes.

AMST5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

AMST5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

REWM5200 - Hierarchical Model for Ecolog

Credits: 3

Application of hierarchical models to many different types of ecological observations for the purpose of estimating and explaining abundance and occupancy of animals in JAGS and R. Statistical exploration of many common survey designs (point counts, distance sampling, repeated observations of marked animals) that imperfectly record spatial and temporal variation in the abundance and distribution of wild populations. Use of simulated and real-world data sets to draw inference when dealing with missing data, changes in survey protocols, and imperfect detection.

Cross Listed ECOL 5200

Animal Science

ANSC1009 - Introduction to Animal Science for 4-H/Youth

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses. Intended for high school undergraduates.

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

ANSC1030 - Equine Management

Credits: 3

An overview of the horse industry and proper way to manage horses.

When Offered (Normally offered spring semester)

ANSC1070 - Livestock Fitting and Showing

Credits: 1

Teaches fitting and showing techniques for domestic livestock. Students will have the opportunity to fit an animal of their choice and participate in the Little International Livestock Show at the Animal Science Livestock Center.

When Offered (Normally offered fall semester)

ANSC1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

ANSC2010 - Domestic Animal Metabolism

Credits: 3

Integrates cellular and whole-animal metabolism through introduction to metabolic regulation. Introduces students to the nomenclature, structures and functions of cellular metabolites and vitamins. Knowledge of chemical structure will

be applied to cellular reactions in various tissues of domestic animals. Ruminants and non-ruminants will be contrasted.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

ANSC2035 - Companion Animal Nutrition

Credits: 3

Nutrition and biology of digestion of companion/ pet animals. Fundamentals of nutrition and the nutrients, as well as appropriate terminology will be covered, with direct application to companion animals.

When Offered (Normally offered spring semester)

ANSC2070 - Livestock Behavior and Handling

Credits: 2

Teaches basic behavior of livestock species including cattle, swine, sheep and goats. Apply knowledge to effectively learn humane handling techniques and facility design for low-stress management.

Prerequisite: ANSC 1010.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

ANSC3250 - Equine Behavior and Welfare

Credits: 3

To familiarize students with an equine interest about behavior, learning, and welfare issues associated with management and training of equine.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 1030, ANSC 3150.

ANSC3535 - Introduction to Wool Evaluation

Credits: 2

Objectively evaluate raw wool characteristics and quality determining factors across various wool grades and breed types. Particular emphasis will be given to how quality determining factors influence replacement selection and the end product produced. Competitive wool judging format will be used to enhance organizational skills, wool judging terminology, oral articulation skills.

Prerequisite: ANSC 1010.

ANSC3540 - Collegiate Wool Judging

Credits: 1

Students representing the university in regional and national wool intercollegiate contests are selected from this course.

Prerequisite: ANSC 3535.

ANSC3545 - Introduction to Livestock Evaluation

Credits: 3

Objectively evaluate livestock species including cattle, sheep, swine, and goats for both market and breeding standards. Improve communication skills and terminology through oral and written reasons. Gain an understanding of expected progeny differences and how they relate to selection and livestock production.

Prerequisite: FDSC 2040 or instructor approval.

ANSC3550 - Advanced Livestock Evaluation

Credits: 1-2

Students representing the university in national and regional contests are selected from this course. Requires field trips.

Prerequisite: ANSC 3545.

ANSC3555 - Equine Evaluation and Selection

Credits: 3

Objectively evaluate equine for performance and breeding purposes according to breed standards and or discipline. Emphasis will be placed on learning how conformation relates to overall function and longevity of equine. Competitive horse judging team criteria will be used to build organizational skills, equine terminology, and communication skills.

Prerequisite: ANSC 1010 and ANSC 1030.

ANSC3560 - Advanced Equine Evaluation and Selection

Credits: 1-2

Max Credit (Max. 3)

Objectively evaluate equine for halter and performance according to breed standards and or discipline. Competitive horse judging team criteria will be used to build organizational skills, equine terminology, and communication skills. Students will compete as members of the Collegiate Horse Judging Team and represent University of Wyoming at national horse judging competitions.

Prerequisite: ANSC 3555.

ANSC3650 - Exploring Graduate Study in Animal Science

Credits: 1

Gives undergraduates the opportunity to explore graduate studies in Animal Science. Discussions center on graduate program searches, applications, and interviews as well as graduate student responsibilities and career possibilities. Undergraduates are paired with graduate student mentors, participate in data collection, and attend departmental seminars.

Prerequisite: consent of instructor, junior standing and 3.000 GPA or higher recommended

ANSC4050 - Animal Growth and Development

Credits: 3

Explores aspects of animal growth and development, with a focus on skeletal muscle, adipose, soft connective tissues, and bone. Addresses genetic, endocrine, nutritional, and environmental impacts on tissue development and growth.

Dual Listed ANSC 5050.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2022.

ANSC4061 - Cell Signaling

Credits: 3

Cell signaling pathways in animal growth and development. Defines how cells respond to external stimuli. Includes: G-protein couple signaling, calcium signaling, growth factor associated signaling, redox signaling, lipid related signaling, and apoptosis.

Dual Listed ANSC 5061.

When Offered (Normally offered fall semester of alternative years)

Prerequisite: MOLB 3610 or an equivalent biochemistry or cell biology course.

ANSC4100 - Nutritional Management

Credits: 3

Integration and application of the principles of nutrition. Addresses nutrient requirements, feed composition and nutritional value, in addition to feeding management strategies for various classes of farm animals. Provides practical nutritional experience through laboratory.

Dual Listed ANSC 5100.

Prerequisite: ANSC 3100.

ANSC4111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed PATB 4111.

Dual Listed ANSC 5111.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3150.

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4130 - Management of Reproduction

Credits: 3

Lecture-laboratory course. Introduces methods of manipulating reproduction within livestock management systems. Includes artificial insemination, diagnosis of pregnancy, induction and control of estrus and ovulation, induction of

parturition, embryo transfer and control and prevention of diseases.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 4120.

ANSC4132 - Equine Reproduction

Credits: 2

Introduces methods of manipulating reproduction within equine management systems. Includes artificial insemination, diagnosis of pregnancy, induction and control of estrus and ovulation, parturition, embryo transfer, and control and prevention of equine reproductive diseases.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 4120 and ANSC 1030

ANSC4150 - Physiology of Ruminant Digestion

Credits: 3

Anatomical structure, function and symbiotic relationship of ruminant digestive system.

Dual Listed ANSC 5150.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3100.

ANSC4210 - Wool Structures and Properties

Credits: 2

Chemical structure and reactions of wool fiber, as well as physical properties as related to structure.

Prerequisite: CHEM 2300 or equivalent.

ANSC4220 - Advanced Beef Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in beef production management schemes. Emphasizes analysis and decision making. Consists of two hours of lecture and two hours of lab, with approximately one-half of labs meeting at Animal Science Livestock Center.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120 , ANSC 4540 .

ANSC4230 - Advanced Sheep Production & Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in sheep production management schemes.

When Offered (Normally offered spring semester)
Prerequisite: ANSC 3100, ANSC 4120, ANSC 4540.

ANSC4240 - Advanced Swine Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in swine production management schemes. Consists of two hours of lecture and two hours of lab, with at least one-half of labs meeting at Animal Science Livestock Center.

Former Course Number [3330]

Prerequisite: ANSC 3100, ANSC 4120, or ANSC 4540.

ANSC4250 - Advanced Equine Production and Management

Credits: 3

A capstone course for students wanting to pursue a career in the equine industry with main focus on equine management. Business applications, health, facilities, and management will be explored in depth. Integrates equine breeding, nutrition, and reproductive physiology in equine production management schemes.

When Offered (Normally offered spring semester)
Prerequisite: ANSC 1030, ANSC 3100 , ANSC 4120, and ANSC 4540 .

ANSC4260 - Mammalian Endocrinology

Credits: 3

Introduces principles of endocrinology, role of endocrine systems in regulating metabolism, growth, reproduction and lactation in mammals.

Dual Listed ANSC 5260.

When Offered (Normally offered fall semester)
Prerequisite: ANSC 3010, ZOO 3115, or equivalent.

ANSC4500 - Problems in Animal Science

Credits: 1-3

Provides opportunity for students to conduct supervised research in breeding, genetics, management, nutrition and physiology.

Prerequisite: 6 hours in animal science and consent of instructor.

ANSC4540 - Principles of Animal Breeding

Credits: 3

Discusses genetic principles underlying animal improvement; introductory population genetics; heritability; systems of

mating; and selection.

Dual Listed ANSC 5540.

When Offered (Normally offered fall semester)

Prerequisite: STAT 2050 or STAT 2070.

ANSC4550 - Internship in Animal Science

Credits: 2

Provides opportunities to acquire experience in a field of interest to the student. Offers learning experiences that are difficult, if not impossible, to realize in classroom settings. Following off-campus educational experience, students are more able to evaluate potential career opportunities and select additional classes on-campus to complement career direction.

Prerequisite: sophomore standing; 2.500 GPA

ANSC4630 - Topics and Issues in Animal Science

Credits: 3

Writing-intensive course that focuses on writing projects related to current topics and issues in animal science. Emphasizes writing skills, strategies, information gathering and critical judgment. Assignments include short and long papers, resumes, letters of transmittal, and oral presentations.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: senior standing and COM2.

ANSC4900 - Undergraduate Teaching Practicum

Credits: 1-2

Max Credit (Max. 4)

Participation of undergraduates in the teaching of ANSC or FDSC courses under the supervision of ANSC faculty/staff.

Prerequisite: junior standing and consent of instructor.

ANSC5050 - Animal Growth and Development

Credits: 3

Explores aspects of animal growth and development, with a focus on skeletal muscle, adipose, soft connective tissues, and bone. Addresses genetic, endocrine, nutritional, and environmental impacts on tissue development and growth.

Dual Listed ANSC 4050.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2022.

ANSC5061 - Cell Signaling

Credits: 3

Cell signaling pathways in animal growth and development. Defines how cells respond to external stimuli. Includes: G-protein couple signaling, calcium signaling, growth factor associated signaling, redox signaling, lipid related signaling, and apoptosis.

Dual Listed ANSC 4061.

When Offered (Normally offered fall semester of alternative years)

Prerequisite: MOLB 3610 or an equivalent biochemistry or cell biology course.

ANSC5100 - Nutritional Management

Credits: 3

Integration and application of the principles of nutrition. Addresses nutrient requirements, feed composition and nutritional value, in addition to feeding management strategies for various classes of farm animals. Provides practical nutritional experience through laboratory.

Dual Listed ANSC 4100.

Prerequisite: ANSC 3100.

ANSC5111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed PATB 5111.

Dual Listed ANSC 4111.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3150.

ANSC5120 - Principles of Mammalian Reproduction

Credits: 4

In addition to attendance in the lecture component of this course, graduate students will be expected to participate in in-depth weekly discussions of the scientific literature and to prepare a research grant proposal on a specific topic.

Dual Listed ANSC 4120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 or similar course.

ANSC5150 - Physiology of Ruminant Digestion

Credits: 3

The anatomical structure, function, and symbiotic relationship of the ruminant digestive system.

Dual Listed ANSC 4150.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3100.

ANSC5180 - SAS Applications in Agriculture

Credits: 2

Use of PC Statistical Analysis (SAS) software for analysis of data generated using experimental designs common to the agricultural sciences. Course will emphasize applied programming and interpretation of results.

Prerequisite: STAT 5080 or equivalent.

ANSC5260 - Mammalian Endocrinology

Credits: 3

Introduction to the principles of endocrinology. The role of endocrine systems in regulating metabolism, growth, reproduction, and lactation in mammals are discussed.

Dual Listed ANSC 4260.

When Offered (Normally offered fall semester)

Prerequisite: graduate standing.

ANSC5300 - Stem Cell & Regenerative Bio.

Credits: 3

Max Credit 3

Stem cell types, cellular reprogramming, stem cell isolation and characterization, and generating stem cells for research and therapeutic purposes will be discussed. Practical goals are to gain an understanding of pioneering research in stem cell and regenerative biology, enhance presentation skills, critically evaluate primary literature, and develop grantsmanship skills.

Prerequisite: Graduate standing.

ANSC5510 - Mineral Metabolism

Credits: 3

Lectures on current mineral nutrition topics with student reports on recent journal articles.

Prerequisite: ANSC 3100.

ANSC5540 - Principles of Animal Breeding

Credits: 3

Discusses genetic principles underlying animal improvement; introductory population genetics; heritability; systems of mating; and selection.

Dual Listed ANSC 4540.

When Offered (Normally offered fall semester)

ANSC5550 - Investigations in Animal Nutrition

Credits: 2-3

Max Credit (Max. 6)

Special problems involving nutritional research with domestic or laboratory animals.

Prerequisite: ANSC 3100 and consent of instructor.

ANSC5620 - Wool Measurement Methods

Credits: 3

Theory and practice relating to routine and standard analytical fiber measurements.

Prerequisite: ANSC 3040 and STAT 2050 or consent of instructor.

ANSC5680 - Wool Problems Analysis

Credits: 1-5

Max Credit (Max. 10)

Scientific papers on assigned topics.

Prerequisite: STAT 2050.

ANSC5770 - Lipid Metabolism

Credits: 3

An in-depth study of lipid metabolism and regulation of genes and enzymes involved in transport, synthesis, mobilization, and oxidation of lipids with application to ruminant and non-ruminant species as well as to humans.

Cross Listed FDSC 5770.

Prerequisite: ANSC 3100 or MOLB 3610 or FCSC 4145.

ANSC5780 - Investigations in Animal Breeding

Credits: 1-3

Max Credit (Max. 6)

Assigned problems involving genetic and physiological research with domestic or laboratory animals.

Prerequisite: ANSC 4540.

ANSC5865 - Advanced Seminar in Nutrition

Credits: 1-2
Max Credit (Max. 2)

Preparation and presentation of seminars on a variety of topics relating to animal nutrition, metabolism, and livestock production.

Prerequisite: graduate standing.

ANSC5870 - Reproductive Biology Seminar

Credits: 1
A graduate seminar designed to examine a variety of topics relating to the physiological processes of reproduction in mammals.

Prerequisite: graduate standing.

ANSC5880 - Advanced Topics

Credits: 1-3
Max Credit (Max. 6)

Special topics will be offered based on interest of students and faculty. Credit hours are variable

Prerequisite: graduate standing.

ANSC5890 - Advanced Seminar

Credits: 1-2
Max Credit (Max. 6)

Preparation, presentation, and discussion of assigned reports. Invitational lectures by visiting guests.

ANSC5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ANSC5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ANSC5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ANSC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Credit in this course may not be included in a graduate program of study for degree purposes.

ANSC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

ANSC5961 - Graduate Project

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of the Plan B project.

Prerequisite: must be enrolled in Plan B program and have departmental approval.

ANSC5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

ANSC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Anthropology

ANTH1100 - Introduction to Biological Anthropology

Credits: 4
Basic concepts relating to the origin, evolution and biological nature of the human species.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN

ANTH1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3
Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

ANTH1300 - Introduction to Archaeology

Credits: 3
Explores ways in which prehistoric material remains can provide an understanding of the cultural way of life. General background in archaeological method and theory is used to examine case studies from throughout the world, based on themes such as ceramic technology and artistry development, growth of early civilizations and North American prehistory.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5PN
A&S College Core 2015 ASG

ANTH1325 - Wyoming Archaeology

Credits: 3
Max Credit 3

Wyoming's archaeological record spans 13,000 years, from stone tools left by Ice Age mammoth hunters to the wooden dwellings of native Shoshone Indians to the nation's first trans-continental railroad. Through the tools of archaeology, students learn chronology, modes of subsistence, and material remains left by human cultures in Wyoming.

USP 2015 Code U5H

ANTH1450 - World Archaeology

Credits: 3
World Prehistory. Recommended for non-majors. A survey of the archaeology of Africa, Asia, Europe, Australia, and the Americas from the evolution of humans to the origins of agriculture to the rise of civilizations such as that of Egypt, China, and Mexico.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

ANTH2000 - Introduction to Linguistic Anthropology

Credits: 3
Demonstrates the interrelationship of language, human biology, and culture at the introductory level. Linguistic anthropological methods and theories are used to examine linguistic behaviors used throughout the world.

USP 2003-2014 Code U3L
USP 2015 Code U5C2
Prerequisite: ANTH 1100, ANTH 1200 or ANTH 1300.

ANTH2200 - World Culture

Credits: 3
Provides an understanding of cultural behavior of people in various geographical areas of the world. Students read ethnographies, cultural descriptions of societies, written by cultural anthropologists.

When Offered (Normally offered at least once a year)
USP 2003-2014 Code U3G, U3CS
A&S College Core 2015 ASG

ANTH2210 - North American Indians

Credits: 3
Comparative consideration of North American Indian culture areas at European contact period.

Cross Listed NAIS 2210.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3D

USP 2015 Code U3CS

A&S College Core 2015 ASD

ANTH2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in long-distance trade.

Cross Listed HIST 2600.

USP 2015 Code U5H

ANTH2700 - Introduction to Museology

Credits: 3

Max Credit 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ART 2700/HIST 2700.

USP 2003-2014 Code U3CH

ANTH2705 - Museology II

Credits: 3

Max Credit 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes Cross listed between Anthropology, History, American Studies and Art.

Cross Listed AMST/ART/HIST 2705

ANTH3015 - Introduction to the Music of the World's Peoples

Credits: 3

Introduces music of the world's peoples. Students actively study and document living musical traditions and hear, research and study music from a wide variety of geographical areas of the world.

Cross Listed MUSC 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000.

ANTH3300 - Ethnographic Methods in Anthropology

Credits: 3

Introduces anthropology majors to ethnographic fieldwork, the fundamental method in cultural anthropology. Students conduct fieldwork and discuss research problems including ethics and the role of the researcher. Open to students in related fields of humanities and social sciences.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: ANTH 1200.

ANTH3310 - Introduction to Anthropology Research Methods

Credits: 3

Introduces anthropology majors to use of the discipline's scientific method through problem formation, research data acquisition and research techniques used by anthropologists.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, ANTH 1200, and ANTH 1300.

ANTH3400 - Hunters/Gatherers

Credits: 3

Max Credit 3

USP 2003-2014 Code UCNW

USP 2015 Code U5H

A&S College Core 2015 ASG

ANTH3410 - Maya, Aztec, and Inca Cultures

Credits: 3

An exploration of the early states and empires of the New World through the archaeological record. Compares and contrasts the Aztec, Maya, and Inca cultures with emphasis placed on origins, political and social organization, ritual beliefs, and reasons for collapse.

Prerequisite: ANTH 1300.

ANTH3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed INST 3420.

Prerequisite: ANTH 1200.

ANTH3900 - Historical Archaeology

Credits: 3

Introduces the field of historical archaeology, the archaeological and archival study of literate societies. Introduces the history of the discipline, a survey of contemporary historical archaeological practice, major theoretical debates, and multidisciplinary methods.

Prerequisite: ANTH 1300 or consent of instructor.

ANTH4000 - Conference

Credits: 1-4

Guided independent study.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: senior standing and 15 hours in anthropology.

ANTH4010 - History of Anthropological Thought

Credits: 3

Designed as the capstone course for senior majors. Surveys anthropological theory development. Explores major trends and their relationships. (Normally taken in student's final semester)

USP 2003-2014 Code U3WC

Prerequisite: ANTH 1100, ANTH 1200, ANTH 1300, ANTH 3300, and ANTH 3310.

ANTH4015 - Archaeological Theory and Method

Credits: 3

Introduces the students to past and present archaeological theories through a literature survey of significant topics. Addresses questions, such as: How do archaeologists identify and solve problems? What do they perceive to be problems? What is the logic of archaeological arguments?

Dual Listed ANTH 5015.

Prerequisite: ANTH 1200, ANTH 1300, ANTH 3310, and at least one 4000 regional course.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

ANTH4021 - Seminar in Archaeology

Credits: 3

Considers current topics of archaeological interest.

Prerequisite: ANTH 1300.

ANTH4022 - Seminar in Biological Anthropology

Credits: 3

Considers current topics of interest within biological anthropology.

Prerequisite: ANTH 1100.

ANTH4023 - Seminar in Cultural Anthropology

Credits: 3

Considers current topics of interest within cultural anthropology.

Prerequisite: ANTH 1200.

ANTH4024 - Seminar in Linguistic Anthropology

Credits: 3

Considers current topics of interest within linguistic anthropology.

Prerequisite: ANTH 2000.

ANTH4110 - Zooarchaeology I

Credits: 3

Introductory level seminar in the archaeological analysis of faunal materials. Emphasis is on identification and curation of bones from archaeological and Late Pleistocene paleontological contexts, including their use in the interpretation of prehistoric and historic human behavior, the investigation of paleoenvironmental conditions and paleoecological

relationships and problem-oriented taphonomic research.

Dual Listed ANTH 5110.

Prerequisite: ANTH 1300.

ANTH4115 - Lithic Analysis

Credits: 3

An overview of the analysis of stone tools and waste flakes from archaeological sites. Emphasizes appropriate use of typology and methods of debitage analysis.

Dual Listed ANTH 5115.

Prerequisite: ANTH 1300 and 9 additional hours in anthropology.

ANTH4120 - North American Archaeology

Credits: 3

Studies North American prehistory from the earliest evidence to historic times.

Dual Listed ANTH 5120.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1300.

ANTH4125 - Northwestern Plains Prehistory

Credits: 3

Northwestern Plains archaeology from the Paleoindian period to historic contact. A review of important sites and artifact types, ongoing UW research projects, regional and other expressions of ideology, Native American ethnohistory and contemporary perspectives, and historic preservation issues.

Dual Listed ANTH 5125.

When Offered (Normally offered every third semester)

Former Course Number [4100]

Prerequisite: ANTH 1300.

ANTH4130 - Old World Archaeology

Credits: 3

Surveys major archaeological sequences of the Old World.

Dual Listed ANTH 5130.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1300.

ANTH4135 - Quantitative Methods in Anthropology

Credits: 3

A consideration of the use of quantitative methods in anthropological research, including descriptive and inferential statistics, pattern search, mathematical modeling and computer simulation.

Dual Listed ANTH 5135.

Prerequisite: STAT 2070 or equivalent.

ANTH4140 - Archeological Field School

Credits: 2-6

Summarizes a regional prehistory and gives practical and theoretical training in archaeological field methods. Field projects are located specific areas of the world (e. g. , Wyoming, Croatia, Peru).

When Offered (Normally offered summer session)

Prerequisite: ANTH 1300 or ANTH 4120 or ANTH 4125 or ANTH 4130 or ANTH 4150.

ANTH4145 - Origins of the State

Credits: 3

This course takes a comparative approach to the study of the origins of the archaic states. Focus is given to themes in complexity such as emergence of social economic inequality, private property, power, ideology, and urbanism. Comparative civilizations/regions include China, Mesopotamia, Egypt, Central Mexico, and Peru.

Dual Listed ANTH 5145.

Prerequisite: ANTH 1300.

ANTH4150 - Seminar in Prehistory

Credits: 1-3

Max Credit (Max. 9)

Covers the prehistory of a specified region or time period within that region. Emphasizes learning prehistoric sequences, material culture, and research questions associated with the topic. Topics include, but are not limited to, Paleoindian, Archaic, Siberian, Northern Plains, Great Basin, Rocky Mountain, or Southwestern Archaeology.

Dual Listed ANTH 5150.

Prerequisite: ANTH 1300.

ANTH4155 - Computer Programming for Archaeologists

Credits: 3

Introduces the application of computer programming to the collection, management, and analysis (hypothesis testing) of archaeological data. Develop models and simulations of complex prehistoric systems. Begins with an introduction to Microsoft Excel (Visual Basic for Applications), programming structure, and applications to archaeology. Specific assignments in writing programs relevant to typical archaeological problems.

Dual Listed ANTH 5155.

Prerequisite: ANTH 1300 or consent of instructor.

ANTH4160 - GIS in Anthropology

Credits: 4

Introduction to how and why geographic information systems (GIS) are used in anthropology. Considers: 1) background, definitions, and concepts of geographic data and GIS; 2) Anthropological and archaeological approaches to GIS; and 3) hands-on-experience with GIS applications in archaeology through demonstrations, lectures, and structured inquiries.

Dual Listed ANTH 5160.

Prerequisite: ANTH 1200, or ANTH 1300.

ANTH4170 - Geoarchaeology

Credits: 3

Introduces students to theory and method in geoarchaeological research. Emphasis is placed upon geomorphical processes of archaeological site formation and paleoenvironmental reconstruction.

Dual Listed ANTH 5170.

Prerequisite: ANTH 1300.

ANTH4175 - South American Prehistory

Credits: 3

Intensive study of the archaeology of South America covering its entire prehistory from first peopling at perhaps 14,000 years ago, to the colonial period. The course focuses not only on the well known Andean cultures, but also on the archaeology of the entire continent.

Dual Listed ANTH 5175.

Prerequisite: ANTH 1300.

ANTH4190 - Public Archaeology

Credits: 3

A consideration of archaeological legislation, policies and regulations; compliance, heritage, and avocational archaeology, cultural resource management; curation; and professional archaeological ethics.

Dual Listed ANTH 5190

ANTH4210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 5210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH4215 - Hominin Evolution

Credits: 3

Surveys hominin fossil record in context of evolutionary process, stressing structure-function and the dynamics of adaptive responses.

Dual Listed ANTH 5215.

When Offered (Normally offered every third semester)

Former Course Number [4200]

Prerequisite: ANTH 1100.

ANTH4220 - Human Variation

Credits: 3

Studies human biological variation as viewed from the anthropological perspective. Focuses on populational variation among humans in terms of genetic, morphological, and acclimatized characteristics with particular focus on the interaction of biology and culture in shaping these variations.

Dual Listed ANTH 5220.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1100.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

ANTH4240 - Forensic Anthropology Laboratory

Credits: 2

Studies details of advanced osteometric procedures, particularly as applied to problems of human skeletal identification.

Dual Listed ANTH 5240.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 4210.

ANTH4255 - Bioarchaeology

Credits: 3

Study of the human skeleton in archaeological context to reveal the biological and cultural pasts of individuals and communities. Using case studies, covers the history of the field, ethics of working with human remains, theoretical and methodological approaches to mortuary archaeology. Gain hands-on experience by working with specimens from the UWyoming Human Remains Repository.

Dual Listed ANTH 5255.

Prerequisite: ANTH 1100 or ANTH 1300.

ANTH4260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 5260.

Prerequisite: ANTH 1100 or ANTH 1200.

ANTH4300 - Anthropology of Religion

Credits: 3

Provides a comparative anthropological study of religious systems, emphasizing analysis of symbolism, myth and ritual.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4320 - Political Anthropology

Credits: 3

Encompasses theories and descriptions of relationships between power and society in both less formal tribal contexts and more highly structured political institutions.

Dual Listed ANTH 5320.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4325 - Symbolic Anthropology

Credits: 3

Teaches several anthropological approaches to symbolic and cultural analysis, while reading ethnographic examples of how symbolic analysis can be used to understand different cultures. Coursework assumes a basic knowledge of social science concepts.

Prerequisite: ANTH 1200 or SOC 1000.

ANTH4330 - Social Organization

Credits: 3

Provides theories of social organization, interrelations of social institutions, and current anthropological methods of interpretation.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4340 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology.

Dual Listed ANTH 5340.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4350 - Medical Anthropology

Credits: 3

Understandings of health and illness vary widely. Taking a comparative historical approach, examines how an individual's interactions with sociocultural and physical environments influence the experiences of health and illness. Topics include symbolic healing, biomedicine as a cultural system, disease and international development, global politics of AIDS and other pandemics.

Dual Listed ANTH 5350.

Prerequisite: ANTH 1200 or SOC 1000.

ANTH4380 - Visual Anthropology

Credits: 3

Offers anthropological interpretation of visual representations and media, including analysis of the development of ethnographic films and their contemporary use. Visual representations of many cultures as well as mainstream United States examples are analyzed.

Prerequisite: ANTH 1200.

ANTH4740 - Native American Languages and Cultures

Credits: 3

Demonstrates the interrelationship of language and culture in several Native American communities. Examines anthropological and linguistic theories regarding language spread and the peopling of North America, narrative performance, translation, and the connection between linguistic structures and cultural features.

Cross Listed NAIS 4740.

Dual Listed ANTH 5740.

Prerequisite: ANTH 2000 or consent of instructor.

ANTH4765 - Language Humor and Games

Credits: 3

This course examines various forms of language play and the role of language characteristics (ambiguity, phonology, homophony, etc.) in creating humorous utterances and texts. Anthropological understandings of humor and its use also will be explored. Students will construct and analyze forms of humor throughout the course.

Dual Listed ANTH 5765.

Prerequisite: ANTH 2000 or consent of the instructor.

ANTH4785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 5785.

Prerequisite: ANTH 1200 or ANTH 2000.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

ANTH4970 - Internship

Credits: 1-12

Max Credit (Max. 12)

Allows students to gain hands-on experience, bridging the gap between anthropology as an academic discipline and anthropology as practiced in museums, public archaeology agencies, non-governmental organizations, and private consulting companies. Involves a required academic component in addition to work experience. Internship credit cannot fulfill requirements of the major.

Prerequisite: anthropology major of junior/senior standing and consent of internship director and/or department head.

ANTH4975 - Undergraduate Practicum in Anthropology

Credits: 1-4

Max Credit (Max. 6)

Affords students the opportunity to extend research projects in field or lab locations and receive additional credit for their work. Students sign up for these hours only in conjunction with another course and with the instructor's consent.

Prerequisite: 9 hours in anthropology, consent of instructor.

ANTH5000 - Special Problems

Credits: 1-4

Max Credit (Max. 12)

Conference course to allow graduate students opportunity for both guided and independent research.

Prerequisite: graduate standing and consent of instructor.

ANTH5005 - Graduate Seminar in Anthropology

Credits: 3

Prerequisite: graduate standing or consent of instructor.

ANTH5010 - 20th Century Anthropology Theory

Credits: 3

Examines major thinkers and schools of thought in anthropology of the 20th century. Emphasis is on cultural theory within the context of the four-field approach.

Prerequisite: graduate standing in anthropology.

ANTH5015 - Archaeological Theory and Method

Credits: 3

Introduces the students to past and present archaeological theories through a literature survey of most significant topics. Addresses questions, such as: How do archaeologists go about identifying and solving problems? What do they perceive to be problems? What is the logic of archaeological arguments?

Dual Listed ANTH 4015.

Prerequisite: ANTH 1200, ANTH 1300, ANTH 3310, and at least one 4000 regional course.

ANTH5020 - Biological Anthropology

Credits: 3

Offers a graduate level overview of biological anthropology. Beginning with the history of relevant areas of human biology, provides extensive discussion of such areas as paleoanthropology, primatology, and human variation. Also includes detailed theoretical examinations of topics within hominid evolution, the concept of race and sociobiology.

Prerequisite: first year anthropology graduate student standing.

ANTH5030 - Linguistic Anthropology

Credits: 3

Demonstrates interrelationships between language, human biology, and culture. In particular, the relevance of the study of language to biological anthropology, archaeology, and cultural anthropology is emphasized. Examines classic approaches in anthropological linguistics and recent controversies such as the origin of language in human evolution.

ANTH5110 - Zooarchaeology I

Credits: 3

An introductory level seminar in the archaeological analysis of faunal materials. Emphasis is on the identification and curation of bones from archaeological and Late Pleistocene paleontological contexts, including their use in the interpretation of prehistoric and historic human behavior, the investigation of paleoenvironmental conditions and paleoecological relationships and problem-oriented taphonomic research.

Dual Listed ANTH 4110.

Prerequisite: ANTH 1300.

ANTH5115 - Lithic Analysis

Credits: 3

An overview of the analysis of stone tools and waste flakes from archaeological sites. Emphasizes appropriate use of typology and methods of debitage analysis.

Dual Listed ANTH 4115.

Prerequisite: ANTH 1300 and 9 additional hours in anthropology.

ANTH5120 - North American Archaeology

Credits: 3

Studies North American prehistory from the earliest evidence to historical times.

Dual Listed ANTH 4120.

Prerequisite: ANTH 1300 or consent of instructor.

ANTH5125 - Northwestern Plains Prehistory

Credits: 3

Covers the Northwestern Plains from the Paleo-Indian to historic contact, including relationships to surrounding areas.

Dual Listed ANTH 4125.

Prerequisite: ANTH 1300.

ANTH5130 - Old World Archaeology

Credits: 3

Survey of the major archaeological sequences of the Old World.

Dual Listed ANTH 4130.

Prerequisite: ANTH 1300.

ANTH5135 - Quantitative Methods in Anthropology

Credits: 3

A consideration of the use of quantitative methods in anthropological research, including descriptive and inferential statistics, pattern search, mathematical modeling and computer simulation.

Dual Listed ANTH 4135.

Prerequisite: STAT 2070 or comparable course.

ANTH5145 - Origins of the State

Credits: 3

This course takes a comparative approach to the study of the origins of the archaic states. Focus is given to themes in complexity such as emergence of social economic inequality, private property, power, ideology, and urbanism. Comparative civilizations/regions include China, Mesopotamia, Egypt, Central Mexico, and Peru.

Dual Listed ANTH 4145.

Prerequisite: ANTH 1300.

ANTH5150 - Seminar in Prehistory

Credits: 1-3

Max Credit (Max 9)

Covers the prehistory of a specified region or time period within that region. emphasizes learning prehistoric sequences, material culture, and research questions associated with the topic. Topics include, but are not limited to, Paleoindian, Archaic, Siberian, Northern Plains, Great Basin, Rocky Mountain, or Southwestern Archaeology.

Dual Listed ANTH 4150.

Prerequisite: ANTH 1300.

ANTH5155 - Computer Programming for Archaeologists

Credits: 3

Introduces the application of computer programming to the collection, management, and analysis (hypothesis testing) of archaeological data. Develop models and simulations of complex prehistoric systems. Begins with an introduction to Microsoft Excel (Visual Basic for Applications), programming structure, and applications to archaeology. Specific assignments in writing programs relevant to typical archaeological problems.

Dual Listed ANTH 4155.

Prerequisite: ANTH 1300 or consent of instructor.

ANTH5160 - GIS in Anthropology

Credits: 4

Introduction to how and why geographic information systems (GIS) are used in anthropology. Considers: 1) Background, definitions, and concepts of geographic data and GIS; 2) Anthropological and archaeological approaches to GIS; and 3) Hands-on experience with GIS applications in archaeology through demonstrations, lectures, and structured inquires.

Dual Listed ANTH 4160.

Prerequisite: ANTH 1200 or ANTH 1300.

ANTH5165 - Advanced Archaeological Research

Credits: 3-6

Max Credit (Max. 6)

Intended for graduate students in archeology which will cover a wide range of topics in advanced research techniques.

Prerequisite: graduate standing.

ANTH5170 - Geoarchaeology

Credits: 3

Introduces students to theory and method in geoarchaeological research. Emphasis is placed upon geomorphological processes of archaeological site formation and paleoenvironmental reconstruction.

Dual Listed ANTH 4170.

Prerequisite: ANTH 1300 or consent of instructor.

ANTH5175 - South American Prehistory

Credits: 3

Intensive study of the archaeology of South America covering its entire prehistory from first peopling at perhaps 14,000 years ago, to the colonial period. The course focuses not only on the well known Andean cultures, but also on the archaeology of the entire continent.

Dual Listed ANTH 4175.

Prerequisite: ANTH 1300.

ANTH5180 - Advanced Archaeological Field Studies

Credits: 6

Covers the entire archaeological process from project planning and budgeting to professional presentation of the results with an emphasis on field methods. Up to date field techniques with electronic data collection and analysis are introduced. Interdisciplinary philosophy is emphasized with lectures, demonstrations and hand-on experience.

Prerequisite: graduate level students or upper level undergraduates with field school experience and consent of instructor.

ANTH5190 - Public Archaeology

Credits: 3

A consideration of archaeological legislation, policies, and regulations; compliance, heritage, and avocational archaeology; cultural resource management; curation; and professional archaeological ethics.

Dual Listed ANTH 4190.

Prerequisite: ANTH 1300.

ANTH5210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 4210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH5215 - Hominin Evolution

Credits: 3

Surveys hominin fossil record in context of evolutionary process, stressing structure-function and the dynamics of adaptive responses.

Dual Listed ANTH 4215.

When Offered (Normally offered every third semester)

Former Course Number [ANTH 5200]

Prerequisite: ANTH 1100.

ANTH5220 - Human Variation

Credits: 3

Studies human biological variation as viewed from the anthropological perspective. Focuses on populational variation among humans in terms of genetic, morphological, and acclimatized characteristics with particular focus on the interaction of biology and culture in shaping these variations.

Dual Listed ANTH 4220.

Prerequisite: ANTH 1100.

ANTH5240 - Forensic Anthropology Laboratory

Credits: 2

Studies details of advanced osteometric procedures, particularly as applied to problems of human skeletal identification.

Dual Listed ANTH 4240.

Prerequisite: ANTH 4210.

ANTH5255 - Bioarchaeology

Credits: 3

Study of the human skeleton in archaeological context to reveal the biological and cultural pasts of individuals and communities. Using case studies, covers the history of the field, ethics of working with human remains, theoretical and methodological approaches to mortuary archaeology. Gain hands-on experience by working with specimens from the UWyoming Human Remains Repository.

Dual Listed ANTH 4255.

Prerequisite: ANTH 1100 or ANTH 1300.

ANTH5260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 4260.

Prerequisite: ANTH 1100 or ANTH 1200.

ANTH5310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 5310.

Dual Listed ANTH 4310.

Prerequisite: ANTH 1200.

ANTH5320 - Political Anthropology

Credits: 3

Encompasses theories and descriptions of relationships between power and society in both less formal tribal contexts and more highly structured political institutions.

ANTH5340 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology.

Dual Listed ANTH 4340.

Prerequisite: ANTH 1200.

ANTH5350 - Medical Anthropology

Credits: 3

Understandings of health and illness vary widely. Taking a comparative historical approach, this class examines how an individual's interactions with sociocultural and physical environments influence the experiences of health and illness. Topics include symbolic healing, biomedicine as a cultural system, disease and international development, and the global politics of AIDS and other pandemics.

Dual Listed ANTH 4350.

Prerequisite: ANTH 1200 or SOC 1000.

ANTH5730 - Field Techniques

Credits: 3

Students work directly with the speaker of an unwritten non- Indo-European language to learn techniques for eliciting the data requisite to begin a description of the language's structure. Identical to LANG 5310.

Prerequisite: ANTH 5100 or LANG 5300.

ANTH5740 - Native American Languages and Cultures

Credits: 3

Demonstrates the interrelationship of language and culture in several Native American communities. Examines anthropological and linguistic theories regarding language spread and the peopling of North America, narrative

performance, translation, and the connection between linguistic structures and cultural features.

Cross Listed NAIS 4740.

Dual Listed ANTH 4740.

Prerequisite: ANTH 5030 or consent of instructor.

ANTH5765 - Language Humor and Games

Credits: 3

This course examines various forms of language play and the role of language characteristics (ambiguity, phonology, homophony, etc.) in creating humorous utterances and texts. Anthropological understandings of humor and its use also will be explored. Students will construct and analyze forms of humor throughout the course.

Dual Listed ANTH 4765.

Prerequisite: ANTH 5030 or consent of instructor.

ANTH5775 - Language and Gender

Credits: 3

Investigates the relationship between language use, linguistic categories, and gender categories. Examines the linguistic practices involved in the formulation, discussion, and performance of gender categories in a number of different cultures.

Dual Listed ANTH 4775.

Prerequisite: ANTH 5010, ANTH 5030, or consent of instructor.

ANTH5785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 4785.

Prerequisite: ANTH 5030 or consent of the instructor.

ANTH5795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change will be discussed. The use of linguistic data for questions of migration and cultural contact also will be explored.

Dual Listed ANTH 4795.

Prerequisite: ANTH 5030 or consent of instructor.

ANTH5875 - Graduate Practicum

Credits: 1-4
Max Credit (Max. 6)

Affords graduate students the opportunity to extend research projects in field or lab locations and receive additional credit for their work. Students sign up for these hours only in conjunction with another course and with the instructor's consent.

Prerequisite: graduate standing and consent of instructor.

ANTH5880 - Professionalism

Credits: 3
Provides an opportunity for the integration of graduate training and career choice. Examines issues of professionalism in the discipline ranging from ethical conduct to the research process and publication.

Prerequisite: admission to the doctoral program in anthropology.

ANTH5890 - Teaching Anthropology

Credits: 3
Anthropology is increasingly relevant to many audiences. Provides practical insight and examination of controversial anthropological concepts

Prerequisite: admission to the doctoral program in anthropology.

ANTH5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ANTH5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ANTH5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ANTH5959 - Enrichment Studies:

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: Credit in this course may not be included in a graduate program of study for degree purposes.

ANTH5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

ANTH5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

ANTH5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Arabic

ARBC1010 - First Year Arabic I

Credits: 4
Introduces beginning language learners to the Arabic writing system and provides opportunities for developing the four basic language skills (listening, speaking, reading, and writing) at word, phrase and sentence levels.

USP 2015 Code U5H

ARBC1020 - First Year Arabic II

Credits: 4

Introduces beginning language learners to the fundamentals of Modern Standard Arabic and provides opportunities for developing the four basic language skills (listening, speaking, reading, and writing) and practicing them in a variety of academic contexts.

USP 2015 Code U5H

Prerequisite: ARBC 1010 or LANG 1010.

ARBC2030 - Second Year Arabic I

Credits: 4

Aims to help students attain an elementary level of communication in Modern Standard Arabic through emphasis on listening, speaking, reading and writing. Students expand their vocabulary pool, gain a deeper understanding of Arabic language system, and develop their knowledge of Arab culture.

Prerequisite: ARBC 1020 or LANG 1020.

ARBC2040 - Second Year Arabic II

Credits: 3

Aims to help students attain a lower intermediate level of communication in Modern Standard Arabic with an emphasis on listening, speaking, reading, and writing. Students develop a wider vocabulary pool, gain a deeper understanding of Arabic morphological and grammatical rules, and get acquainted with different aspects of Arab culture.

Prerequisite: ARBC 2030 or LANG 2030.

ARBC3050 - Modern Arabic and its Dialects

Credits: 3

This course exposes students to a range of Arabic dialects and explores their relationship with the Standard and each other. Additionally, this course provides students with opportunities to systematically practice and simulate a variety of dialectal excerpts.

Prerequisite: ARBC 2030 or LANG 2030.

ARBC3060 - Arabic Writing

Credits: 3

This intensive, lower intermediate, Arabic writing course helps students develop the skills acquired during the second year through analyzing and producing different text genres ranging from 200 to 500 words. It will move the student from writing letters, dialogs, reports, and summaries to longer narratives, descriptions, and opinion pieces.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: ARBC 2040 or equivalent.

ARBC4990 - Topics in Arabic

Credits: 3

Max Credit (Max 9)

Accommodates seminar series and/or course offerings including those not provided by permanent course offerings.

Prerequisite: ARBC 2040 and consent of instructor.

Architectural Engineering

ARE1000 - Exploring CAECM

Credits: 1

Introduction to civil and architectural engineering professions through exploration of modern engineering challenges. Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globaliztion, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed CE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

ARE1600 - Architectural Design Studio I

Credits: 3

Freshman-level architectural design in a project-based learning environment. Introduction to Building Information Modeling (BIM); architectural presentation drawings; freehand sketching; essentials of architectural design and building code compliance.

Former Course Number [ARE 2100]

ARE2410 - Fundamentals of Building Performance

Credits: 3

Introduction to building performance measures that embrace a global notion of environmental stewardship. Emphasis on passive heating and cooling systems and daylighting strategies to manage the thermal and luminous environments over the facility life cycle.

Prerequisite: PHYS 1210.

ARE2600 - Architectural Design Studio II

Credits: 3

Sophomore-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 1600, with a new emphasis on building materials and construction methods.

Former Course Number [ARE 2200]

Prerequisite: ARE 1600.

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

ARE3110 - Professional Practice

Credits: 3

Max Credit 3

Professional practice in civil and architectural engineering including economics, ethics, professional responsibility and licensure; business and management principles; project management structure; leadership and public policy.

Cross Listed CE 3110

Prerequisite: Gateway requirement for Civil & Architectural Engineering majors

ARE3200 - Structural Analysis I

Credits: 3

Introductory design and analysis topics in stress and displacement analysis of structures, including beams, trusses and frames, classical flexibility and stiffness methods.

Cross Listed CE 3200.

Prerequisite: ES 2410.

ARE3210 - Civil Engineering Materials

Credits: 4

Laboratory investigation and design of materials used in civil engineering: metals, masonry, concrete and timber. Non-destructive evaluation of materials. Analysis and presentation of data, including various types of written reports and oral presentations.

Cross Listed CE 3210.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: COM2 and ES 2410.

ARE3300 - Building Electrical and Plumbing Systems

Credits: 3

Introduction to National Electrical Code. The topics include basic circuits, AC and DC single phase, three phase power, transients, capacitance and inductance, branch circuits. Study of plumbing systems and fixtures including wastewater, water supply, storm water, and venting systems. Study of International Plumbing Code.

Prerequisite: ARE 1600 or CE 1010, and ES 2330 or concurrent enrollment.

ARE3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ESE 3360/ME 3360.

Former Course Number [ARE 3430, ARE 4420]

Prerequisite: MATH 2310, ES 2310 and ES 2330.

ARE3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ME 3400.

Former Course Number [ARE 3800]

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ARE3600 - Architectural Design Studio III

Credits: 3

Junior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). This course builds upon skills learned in ARE 2600, with a new emphasis on the complexities that accompany mid-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 2410 and ARE 2600.

ARE3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ATSC 3890/CE 3890/CHE 3890/COSC 3890/EE 3890/ES 3890/PETE 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

ARE4040 - Historic Preservation and Sustainability

Credits: 3

Explores the historic preservation and sustainability movements and contemporary practices in these inter-related fields. Through reading, lectures, discussions and site visits, students will study how the historic preservation and the building industry professions can address advanced issues in sustainability related to the environment, culture and economics.

Cross Listed AMST 4040.

Prerequisite: 6 hours in AMST or ARE.

ARE4050 - Modern Engineering Practice

Credits: 3

Study of current professional practices in Architectural Engineering. Students will learn about leading-edge practices through guest speakers, office visits, site visits and research projects focusing on modern building innovation. May be offered as Study Abroad in London, Paris, and Barcelona, or on-campus.

Prerequisite: ARE 2000.

ARE4200 - Structural Analysis II

Credits: 3

Stress and displacement of indeterminate structures. Determination of loads on buildings. Matrix stiffness methods.

Cross Listed CE 4200

Prerequisite: ARE 3200/CE 3200.

ARE4250 - Structural Steel Design

Credits: 3

Design of structural components and applications utilizing steel.

Cross Listed CE 4250.

Prerequisite: ARE 3200/CE 3200.

ARE4260 - Structural Concrete Design

Credits: 3

Design of structural components and systems using reinforced concrete.

Cross Listed CE 4260.

Prerequisite: ARE 3200/CE 3200.

ARE4265 - Prestressed Concrete Design

Credits: 3

This is a classical course on designing prestressed and precast concrete systems. Principles and behavior of prestressed concrete build the foundation for topics that included flexure, shear, and axial load, construction and fabrication, and application. The course continues with fundamental concepts taught in ARE 4260/CE 4260.

Cross Listed CE 4265.

Dual Listed ARE 5265.

Prerequisite: ARE 4260/CE 4260.

ARE4285 - Masonry Design

Credits: 3

Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed CE 4285.

Dual Listed ARE 5285 and CE 5285.

When Offered Offered on a three semester rotation.

Former Course Number [ARE 4280]

Prerequisite: ARE 4260/CE 4260 and ARE 3200/CE 3200.

ARE4295 - Structural Timber Design

Credits: 3

Design of structural components and systems utilizing timber.

Cross Listed CE 4295.

Dual Listed ARE 5295.

Former Course Number [ARE 4290]

Prerequisite: CE 3200 or equivalent.

ARE4330 - Building Electrical Systems

Credits: 3

Analysis and design of electrical systems in buildings using the National Electrical Code. The topics include panel boards, motors, system sizing, electrical distribution in buildings, methodology of reducing the available short circuit current, transformers, capacitors in buildings, and power systems harmonics. Students will perform an electrical building design project.

Prerequisite: ARE 3300.

ARE4390 - Building Safety and Fire Protection

Credits: 3

Fundamentals of building design for fire and life safety. Emphasis is on a systematic design approach. Basic considerations of building codes, fire loading, fire resistance, means of egress design, introduction to protective systems including fire protection systems, and fundamentals of fire and smoke control.

Prerequisite: ARE 3300.

ARE4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ME 4430.

When Offered (Normally offered alternate spring semesters)

Former Course Number [ARE 3420, ARE 4810]

Prerequisite: Completion of the ME Success Curriculum, ARE 3400 and ARE 3360/ME 3360 or concurrent.

ARE4490 - Modeling and Optimization of Energy Systems

Credits: 3

Application of principles of thermodynamics, fluids, and heat and mass transfer in the component and system-level design of energy/thermal systems, including modeling, simulation and optimization techniques. Examples are drawn from building environmental control, energy conversion and thermal industrial processes. Students work on projects for integration of these components in the design of energy/thermal systems. Requires enrollment in associated laboratory session.

Cross Listed ME 4490.

Prerequisite: ARE 3400.

ARE4600 - Architectural Design Studio IV

Credits: 3

Senior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 3600, with a new emphasis on the complexities that accompany high-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 3600.

ARE4720 - Structural Systems Design Project

Credits: 3

Final course in the building structural systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's structural systems.

Prerequisite: ARE/CE 3110, ARE 4200, ARE 4250, and ARE 4260 or concurrent enrollment.

ARE4740 - Mechanical Systems Design Project

Credits: 3

Final course in the building mechanical systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's mechanical systems.

Cross Listed ARE/ME 4740

Prerequisite: ARE/CE 3110 and ARE 3400

ARE4920 - Senior Architectural Engineering Problems

Credits: 1-3

Max Credit (Max. 6)

A study of current engineering design problems that are applicable to architectural engineering either on an individual basis or for small seminar type groups. Not for graduate credit.

Prerequisite: senior standing or consent of department head.

ARE4975 - Civil and Architectural Engineering Internship

Credits: 1-3

Max Credit (Max. 3)

Students may apply for credit for extended work experience (>10 weeks; full-time) at a professional engineering or architectural firm, supervised by a licensed professional. Students should apply through their adviser prior to the work experience. Enrollment is by departmental approval only.

Cross Listed CE 4975.

When Offered (Offered summer only).

Prerequisite: consent of department head.

ARE5265 - Prestressed Concrete Design

Credits: 3

This is a classical course on designing prestressed and precast concrete systems. Principles and behavior of prestressed concrete build the foundation for topics that included flexure, shear, and axial load, construction and fabrication, and application. The course continues with fundamental concepts taught in ARE 4260/CE 4260.

Cross Listed CE 5265.

Dual Listed ARE 4265.

Prerequisite: ARE 4260/CE 4260.

ARE5285 - Masonry Design

Credits: 3

Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed CE 5285.

Dual Listed ARE 4285 and CE 4285.

ARE5295 - Structural Timber Design

Credits: 3

Design of structural components and applications utilizing timber.

Cross Listed CE 5295.

Dual Listed ARE 4295.

Prerequisite: CE 3200 or equivalent.

ARE5600 - Collaborative BIM Design

Credits: 3

An advanced comprehensive building design course integrating architectural and engineering skills, where design decisions are supported by performance simulation and analysis. Students will use Building Information Modeling (BIM) software and simulate a professional Integrated Project Delivery (IPD) experience by collaborating with a practicing architect on a real-world project.

Prerequisite: ARE 3600.

ARE5700 - Architectural Engineering Problems I

Credits: 1-3

Max Credit (Max. 6)

A special course, designed to make possible the study and investigation of problems or phases of architectural engineering selected to fit the needs of the students.

Prerequisite: consent of instructor.

Army ROTC/Military Science

ARMY1010 - Introduction to Military Science

Credits: 2

Encompasses dynamics of leadership applicable to all careers through instruction in Rifle Marksmanship; Land Navigation; Leadership Laboratory; Field Training Exercises; U. S. Army Customs, Courtesies and Career Opportunities and various leadership dimensions.

ARMY1011 - Basic Military Conditioning Level I

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY1020 - Dynamics of Leadership II

Credits: 2

Second semester of a one-year series. Continues ARMY 1010.

ARMY1021 - Advanced Military Conditioning Level I

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY2010 - Leadership Skills and Management

Credits: 2

Studies principles and theories of leadership and team dynamics. Develops student leadership potential through the study of the values and attributes of effective leaders. Students gain self-confidence through the application of principles and techniques of leadership in a military environment.

Former Course Number [2030]

Prerequisite: ARMY 1010, ARMY 1020 or consent of instructor.

ARMY2011 - Basic Military Conditioning Level II

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY2020 - Leadership Skills and Small Unit Management

Credits: 2

Studies principles in small-unit management, tactics, operations and leadership. Develops students' self-confidence in their leadership ability through progressive application of knowledge, decision making, communication and control.

Former Course Number [2040]

Prerequisite: ARMY 2010 or consent of instructor.

ARMY2021 - Advanced Military Conditioning Level II

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY2050 - Internship: Leader's Training Course

Credits: 3

A four week leadership practicum which orients students to U. S. Army, trains them in basic military skills, develops and evaluates their officer leadership potential, and qualifies them for enrollment in the ROTC Advanced Course Program. Increases confidence, self-discipline and decisiveness through physical and academic challenges.

Prerequisite: sophomore standing or above.

ARMY2060 - Competent and Confident Leadership

Credits: 2

Interdisciplinary course whose aim is to encourage assessment of our obligations, commitments, and roles in society by inquiring into the nature of leadership and the responsibilities of both leaders and followers. Examines leadership traits that transcend the military aspect of leadership.

ARMY3010 - Leadership and Tactics I

Credits: 3

Studies leadership techniques and tactical operations at the small-unit level. Instruction covers the decision-making process, troop leading procedures, land navigation and operation orders. In-depth analysis of team/squad tactical procedures and techniques. Numerous student oral presentations and practical exercises.

USP 2003-2014 Code U3O

Prerequisite: ARMY 2010, ARMY 2020, basic camp or consent of department head.

ARMY3011 - Basic Military Conditioning Level III

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY3015 - Junior Staff Office Practicum I

Credits: 1

This course provides a basic introduction to Army staff processes and the many diverse systems and processes within the Army that impact an officer's ability to successfully lead his/her unit.

Prerequisite: This course requires concurrent enrollment in ARMY 3010.

ARMY3016 - Junior Staff Office Practicum I

Credits: 1

This course provides a basic introduction to Army staff processes and the many diverse systems and processes within the Army that impact an officer's ability to successfully lead his/her unit.

Prerequisite: This course requires concurrent enrollment in ARMY 3020.

ARMY3020 - Leadership and Tactics II

Credits: 3

Studies platoon-level tactics and leadership techniques. Instruction covers the solving of complex tactical problems. Illustrates techniques for properly managing personnel, resources and time to accomplish organizational goals. Introduces Army staff functions and prepares students for successful completion of ARMY 3030.

Prerequisite: ARMY 3010.

ARMY3021 - Advanced Military Conditioning Level III

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to

commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY3025 - Conduct of Training

Credits: 1

Introduces the Army's system of conducting training exercises. Covers prerequisite training, pre-execution checks, officer/NCO responsibilities, training presentation techniques, sustainment training and training assessment.

Prerequisite: consent of instructor.

ARMY3026 - Assessment of Training

Credits: 1

Introduces the Army's system of training assessment. Covers formal and informal after-action reviews (AARs); preparation for, conduct of, and goals of an AAR; and writing of Army after-action reports.

Prerequisite: consent of instructor.

ARMY3030 - Practicum in Leadership

Credits: 3

Encompasses Leadership Development and Assessment Course, a five week test of the cadet's leadership ability. Each cadet is evaluated in ten different positions. Positions include both garrison and tactical situations. Each position requires the cadet to plan, implement and execute a wide variety of tasks. The cadet must control all personnel under this command. The cadet is extensively evaluated by cadre Tactical Officer/Non-commissioned Officer on twelve leadership dimensions. Successful completion of the Leadership Development and Assessment course is required for commissioning.

Prerequisite: successful completion of ARMY 3010 and ARMY 3020.

ARMY3050 - Army ROTC Nurse Summer Training Program

Credits: 3

Allows Army ROTC nursing cadets to obtain college credit for nursing experience gained in an army hospital during nurse summer training program. Students practice military skills, leadership, clinical nursing, administrative and interpersonal skills.

Prerequisite: ARMY 3010, ARMY 3020.

ARMY3060 - Military Skills Practicum: Ranger Challenge

Credits: 1-4

Max Credit (Max. 4)

Encompasses training and intercollegiate competition in fundamental military skills. Students learn and compete in

areas of physical conditioning training, land navigation, rifle marksmanship, rope bridging and other skills practiced during small-unit military operations.

Prerequisite: consent of department or instructor.

ARMY3070 - Cadet Professional Development Practicum

Credits: 2

Consists of attendance as an Army ROTC cadet at an Army specialty producing school including Airborne, Air Assault, Northern Warfare School or Mountain Warfare School.

Prerequisite: ARMY 1010, ARMY 1020, ARMY 2010 and ARMY 2020 and/or consent of department head.

ARMY4010 - Dynamics of the Military Organization I

Credits: 2

Studies and analyzes organization, resources and functions of military staff. Reviews formal staff problem-solving procedures, including student effective writing and briefing presentations. Introduces ethics and the military profession.

Former Course Number [4030]

Prerequisite: ARMY 3010, ARMY 3020 or consent of department head.

ARMY4011 - Basic Military Conditioning Level IV

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY4012 - Basic Military Conditioning Level V

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY4015 - Staff Officer Practicum I

Credits: 1

Gives students practical experience in serving on an Army staff. Under supervision of an Army ROTC cadre member, students undergo training and conduct practical exercises in one of the following specialties: command and control, operations, personnel or logistics.

Prerequisite: concurrent enrollment in ARMY 4010.

ARMY4016 - Staff Officer Practicum II

Credits: 1

Gives students experience in serving on an Army staff. Under the supervision of an Army ROTC Cadre member, students undergo training and conduct practical exercises in one of the following specialties: command and control, operations, personnel or logistics.

Prerequisite: concurrent enrollment in ARMY 4020.

ARMY4020 - Dynamics of the Military Organization II

Credits: 2

Introduces military law; planning and management of personal affairs; Army transportation, logistics and personnel management systems. Studies officer/NCO relations. Includes student writing and briefing presentations on assigned topics.

Former Course Number [4040]

Prerequisite: ARMY 4010 or consent of department head.

ARMY4021 - Advanced Military Conditioning Level IV

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY4022 - Advanced Military Conditioning Level V

Credits: 0.5

This class will instruct and evaluate students in military conditioning. Physical fitness and leadership expectations in the physical conditioning class increase each semester and build toward peak physical performance prior to commissioning as an Army officer upon graduation. Military leaders have always recognized that the effectiveness of Soldiers depends largely on their physical condition. Full spectrum operations place a premium on the Soldier's strength, stamina, agility, resiliency, and coordination.

ARMY4025 - Principles of Training Management

Credits: 1

Introduces students to the Army's system of training management. Covers principles and philosophy of training, training guidance, training cycles, soldiers/leader tasks, techniques for collective and multi-echelon training, as well as procedures for short-term planning.

Prerequisite: consent of instructor.

ARMY4026 - Preparation of Training

Credits: 1

Introduces the Army's system of training preparation. Covers short-range training plans, training meetings, development of timelines, publishing of training schedules, training and evaluation outlines, as well as rehearsals.

Prerequisite: consent of instructor.

ARMY4050 - Management Internship: Cadet Troop Leadership Training

Credits: 2

Conducted at an active Army installation. Students (under supervision) assume duties of and function as a junior commissioned officer for three-week period. Written evaluation of student's performance is returned.

Prerequisite: ARMY 3010, ARMY 3020 and consent of department head.

ARMY4975 - Military Science Independent Study

Credits: 1

Max Credit (Max. 2)

A continuation of ARMY 4010 and ARMY 4020. Projects and events are set at the discretion of the professor and subject to change.

Prerequisite: ARMY 4010 and ARMY 4020.

ARMY4976 - Advanced Military Science Independent Study

Credits: 1

The purpose of this course is to instill leadership ability, technical and tactical skills, and professional values necessary for your completion of the UW Military Science program. Introducing students to small unit tactics, leadership positions, and developing the student's ability to make informed decisions in any military environment.

Art

ART1001 - Art and Human Culture

Credits: 3

Max Credit 3

This course will equip students with the basic knowledge needed to understand art and visual culture which they will then apply to their understanding of the visual reality of their own lives. Students will learn about the formal aspects of art, basic theory, diverse media, and historical and cultural traditions, via reading, writing, discussion, lecture and

creative activities. This course will introduce students to the human phenomenon of art making.

USP 2003-2014 Code H

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color,

emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1140 - Foundation: Four Dimensional

Credits: 3

Foundation: Four Dimensional will introduce the basic principles of time-based media in order to expand students' temporal and spatial awareness within the art making process. Analyzing both the actual and perceived experiences of time, the course will investigate concepts such as tempo, duration, chronology, fragmentation, and memory. A historical and contemporary context will be provided, as well as a range of both physical and digital exercises. Projects will be assessed through critiques in terms of formal, technical and conceptual development.

Restricted Art Major's Only

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

ART2002 - Special Topics In:

Credits: 3

Max Credit (Max. 6)

Permits utilization of unusual faculty expertise and provides highly-specialized and particularly pertinent, timely subject matter.

Prerequisite: ART 1005; ART 1130; sophomore standing.

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient,

medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

ART2110 - Type I: Thinking with Type

Credits: 3

Max Credit 3

Examines history and structure of type as a form of communication and art. Students will reference type as visual expression, data visualization, messaging, and representative of power, political, and socio-economic movements. Explorations in type as a concept and critical expression will explore the fields of graphic design and computer visualization.

Prerequisite: ART 1115

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2122 - VCD II Visual Programming

Credits: 3

Max Credit (Max. 9)

Explores digital art principles in Web spaces through the understanding and use of design tools and techniques. Creative approaches consist of informed planning, thoughtful concepting, strategic wire frame development and creative execution. Projects include explorations of HTML, CSS, and visual programming, and time-based media and image manipulation.

When Offered (Normally offered spring semester)

Former Course Number [3110]

Prerequisite: ART 1110 and ART 1115.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular units, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

ART2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of

key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ANTH 2700/HIST 2700.
USP 2003-2014 Code U3CH

ART2705 - Museology II

Credits: 3
Max Credit 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes Cross listed between Anthropology, History, American Studies and Art.

Cross Listed ANTH/AMST/HIST 2705

ART3002 - Special Topics In:

Credits: 3
Max Credit (Max. 9)

Courses of broad general appeal will be offered from time to time under this title. Permits utilization of unusual faculty expertise and provides highly-specialized and particularly pertinent, timely subject matter. See current class schedule for topics.

Prerequisite: ART2010 - Art History I, and ART2020 - Art History II.

ART3005 - Drawing III

Credits: 3
An advanced drawing course applying the fundamentals of drawing to creative individual problems in figure, still life, and/or landscape composition. Structured yet open assignments, lectures and critiques develop formal, conceptual, expressive, and technical understanding. Course may be repeated for a maximum of 6 credit hours.

When Offered (Offered spring semester).

Prerequisite: ART 2000 and ART 2005.

ART3030 - History of Architecture

Credits: 3
A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ARE 3030.
USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
Prerequisite: WA or COM1.

ART3052 - Life Drawing I

Credits: 3

An advanced drawing course working from a life model with an emphasis on composition, monochromatic media, drawing techniques and the skeletal and muscular construction as related to action and proportion in the human figure. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding.

When Offered (Normally offered fall semester)
Prerequisite: ART 2000 and ART 2005.

ART3112 - Type: Type, Images, and Narrative

Credits: 3

Examines the experimental use of type, its history, structure and background in reference to visual expression, data visualization, messaging, representative power, and time-based and site-specific explorations. Advanced explorations in type as concept and critical expression will explore the fields of graphic design and computer visualization.

When Offered (Offered spring semester)
Former Course Number [2110]

Prerequisite: ART 2000 and ART 2112.

ART3120 - VCD III: Visual Making

Credits: 3

Studies advanced graphic design preparation, idea generation, conceptualization, and critical thinking. Sustainable design problems include print and package design and an exploration of historical impact of design for reproduction through analog and digital means. Contemporary socio-cultural issues will be emphasized along with design as an agent for positive change.

When Offered (Offered fall semester)
Prerequisite: ART 2000 and ART 2112.

ART3150 - VCD IV: Visual Imaging in Time

Credits: 3

Explores digital video, sound and site-specific experiments. Students learn and use experimental digital design tools and techniques to develop site-specific time-based individual and collaborative works. Students also collaborate and install works on campus, town and other venues. Projects include video and sound design and editing, graphic arts, computer graphics and digital art history.

Former Course Number [4140]

Prerequisite: ART 2000, and ART 2112 or ART 2122.

ART3180 - VCD VI: Visual Effects

Credits: 3

Studies specialized and advanced graphic design preparation, idea generation, conceptualization, collaboration and critical thinking, from paste-up through production. All work is executed both on and off the computer. Design problems include print and packaging design. History of graphic design and advanced production methods are discussed.

Prerequisite: ART 2000, ART 2112, and ART 3120.

ART3210 - Painting II

Credits: 3

Max Credit (Max. 6)

Investigates various painting techniques to create individual work. Emphasizes contemporary and classical treatment of formal, aesthetic and conceptual creative expression.

Prerequisite: ART 2000 and ART 2210.

ART3250 - Watercolor Painting I

Credits: 3

Investigates watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 1130, 2000 and ART 2210.

ART3260 - Illustration I

Credits: 3

This is an introductory Illustration course. This primary class objective is to develop conceptual skills through a variety of media traditionally used in fine art illustration and a variety of illustration problems and projects. This class is designed to further your interest in illustration and initiate portfolio development.

Prerequisite: ART 2000.

ART3265 - Intermediate Photography

Credits: 3

Focuses on the production of a fully realized portfolio of images. Students will be guided with a set of conceptual

projects towards exploring technical boundaries and potential of photography. Research and readings will lead towards the production of a finished and installed body of work.

Prerequisite: ART 2255 and ART 2265.

ART3310 - Sculptural Practices: Cast Form I

Credits: 3

Max Credit (Max. 6)

This intermediate sculptural practices course explores a wide variety of mold-making and processes including cold-casting (paper/fabric/resin casting) and both non-ferrous (bronze and aluminum) and ferrous metal (cast iron) casting techniques. Assigned projects will allow students to engage in the production of finished cast sculpture. Extensive sketchbook, artist research, and critique participation is required.

When Offered (Offered fall semester)

Prerequisite: ART 2310 and 2000.

ART3320 - Sculptural Practices: Mixed Media I

Credits: 3

Max Credit (Max. 6)

This intermediate course explores mixed media processes in sculptural practices including soft sculpture fabrication with fabric and fiber, found object manipulation, and digital processes involving 3D printing and laser cutting. Assigned projects will engage students in the production of artwork related to the topic. Extensive sketchbook, artist research, and critique participation is expected.

When Offered (Normally offered fall semester of every other year)

Prerequisite: ART 2310 and ART 2000.

ART3330 - Sculptural Practices: Assembled Form I

Credits: 3

Max Credit (Max. 6)

Investigates constructed and assembled form as an essential means of sculptural expression. Emphasizes wood construction, assembled metals and mixed media. Utilizes general carpentry techniques, a variety of welding methods (oxyacetylene, arc, M. I. G. and T. I. G.) and other means of assembling materials. Includes investigation of concepts in assemblage and exposure to classic and contemporary forms of assembled sculpture.

When Offered (Offered spring semester)

Prerequisite: ART 2310 and ART 2000.

ART3345 - Sculptural Practices: Special Topics

Credits: 3

Max Credit (Max. 9)

This course addresses specific areas of contemporary sculptural practices such as: Installation, Video/Sound manipulation, kinetic sculpture, and figure modeling. Assigned projects will engage the students in production of artwork related to the topic. Extensive sketchbook work, artist research, and critique participation is expected.

Prerequisite: ART 2310 and ART 2000.

ART3350 - Metalsmithing II

Credits: 3

Introduces intermediate approaches to fabricating small scale, non-ferrous metals through hammer-raised forming, lost-wax casting, enameling and hardware fabrication. Historical and innovative contemporary applications are fostered through sculptural objects and jewelry-based pieces. Individual studio projects, critical discussion and presentations address aesthetic, conceptual, and technical aspects of metalsmithing.

Prerequisite: ART 2000 and ART 2350.

ART3410 - Ceramics III/I

Credits: 3

Studies development of ceramic form through multiple construction methods. Problems are designed to develop fluidity and versatility in the different processes introduced in the beginning class. Glaze exploration and development are introduced. Emphasizes design, conceptual development, and professional practices.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: completion of Foundation Core, ART 2000, ART 2410, ART 2420 and consent of instructor based on portfolio review.

ART3420 - Ceramics III/II

Credits: 3

A second semester continuation of the development of ceramic form through multiple construction methods. Problems are designed to develop fluidity and versatility in the different processes introduced in the beginning classes. Glaze exploration and development are introduced. Emphasizes design, conceptual development, and professional practices.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: completion of Foundation Core, ART 2000, ART 2410, ART 2420, and consent of instructor based on portfolio review.

ART3430 - Methods I

Credits: 3

Students investigate ways to translate art making practices and media into K-12 arts curricula and develop effective approaches to teaching these to the K-12 learner. Students create and teach lesson plans based on what they learn through their explorations; they also create their own artwork inspired by their studio investigations.

Restricted Restricted to junior class standing.

Prerequisite: ART 2000.

ART3490 - Philosophy, Theory and Issues

Credits: 3

Students explore the foundational elements involved in the history and philosophies of Art Education and the key issues that shape contemporary approaches to teaching in the field. These investigations are undertaken to support students' developing teaching philosophies and inform the connections between their teaching and creative practices.

USP 2003-2014 Code U3CH

USP 2015 Code U5C2

Restricted Restricted to junior class standing.

Prerequisite: ART 2000.

ART3500 - Book Arts

Credits: 3

Introduction to the history of the book as an object and the traditional crafts associated with book construction through the exploration of the book as a vehicle for artistic expression. A basic knowledge of technical processes pertaining to book construction, a general familiarity with the history of the book and a conceptual exploration of image making will be gained through demonstrations, hands-on studio work, slide lectures, visits to the museum and archives and through assigned readings.

Prerequisite: ART 2000 and completion of WB or junior standing.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

ART3550 - Art Education Practicum

Credits: 1-3

Max Credit (Max. 3)

Practicums are integral to an art education student's development as a teacher. They offer opportunities for immersion and hands-on teaching experiences in art classrooms guided by experienced teachers in the field and the UW faculty. Students develop skills and teaching strategies that complement classroom learning and strengthen their teaching practices.

Prerequisite: ART 3430 and ART 3490.

ART3710 - Gender: Humanities Focus

Credits: 3

Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity and class.

Cross Listed ENGL 3710/GWST 3710.

When Offered (Offered once a year)

USP 2003-2014 Code [CH<> COM2]

Prerequisite: GWST 1080 or ENGL 1010.

ART3720 - Art and Architecture of Medieval Islam

Credits: 3

Studies the art and architecture produced by Islamic societies from the time of the Prophet Mohammed to the time of the Crusades (7th-14th centuries CE), and the geographic scope surrounds the Mediterranean Sea, including the Near Middle East, northern Africa, and Spain.

Former Course Number [2720]

Prerequisite: USP WA and WB courses.

ART3760 - American Art History

Credits: 3

Addresses American art within the continental United States from first European encounters with the New World to 1900. Will investigate painting, sculpture, and architecture, but will also include some photography, prints, and the decorative arts.

Prerequisite: ART 2020.

ART4000 - Post Baccalaureate Seminar

Credits: 1

Enhance and formalize the Post Baccalaureate experience while creating a creative community across artistic disciplines. Students will read and respond to relevant text, discuss pedagogical concerns, critique their creative research, and develop a professional dossier in support of their future career goals.

Prerequisite: Completion of all BA/BFA degree requirements and acceptance into the Department of Art Post Baccalaureate program.

ART4005 - Drawing IV

Credits: 3

An advanced drawing course exploring conceptual, expressive, personal and technical limits of process and media.

Individually proposed projects lead to a coherent body of work. Open discussion and structured critiques develop personal and technical understanding. Repeatable for a maximum of 9 credit hours.

Prerequisite: ART 2000 and ART 3005.

ART4010 - Contemporary Art: Theory/Practice

Credits: 3

Max Credit 3

Taught from the perspective of a studio artist, this course enables students to situate their art within a theoretical context. Students examine how issues in contemporary art relate to philosophical concerns through reading, discussion, and critique. Emphasis is placed on an interdisciplinary framework through which students can discuss their work.

USP 2015 Code U5C3

Prerequisite: ART 2000 , and junior standing.

ART4052 - Life Drawing II

Credits: 3

An advanced drawing course building upon figure construction fundamentals with heavy emphasis on composition, personal expression, wet and dry media, and color with pastels. Lectures, drawing sessions and critiques develop formal, conceptual, expressive and technical understanding. May be repeated for a maximum 9 credit hours.

When Offered (Normally offered spring semester)

Prerequisite: ART 2000 and ART 3052

ART4060 - VCD V: Visual Interactivity

Credits: 3

Explores digital art in 3D - 4D spaces, through the experimental use of digital design tools and techniques. Students develop and build digital projects in AR/VR/MR spaces. Projects include explorations in graphic design, 3D modeling and motion graphics design, multi-media manipulation and image manipulation.

Prerequisite: ART 2000 and ART 2112 or ART 2122.

ART4110 - Computer Graphics II

Credits: 3

Advanced work on current computer graphic design software. Presents graphic design problems to augment working knowledge of the programs. Lab/lecture. Second course in a two semester sequence.

When Offered (Normally offered spring semester)

Prerequisite: ART 2000 and ART 3120.

ART4120 - VCD VI: Senior Design Studio

Credits: 3

Specialized research for the advanced design student who will develop a mature voice and sense of design. Individual projects are determined by student interest with the instructor in order to best prepare students for industry careers and graduate school. Students are encouraged to explore new to them, and emerging approaches.

When Offered (Normally offered fall semester)

Prerequisite: ART 2000, ART 2112, ART 2122.

ART4210 - Painting III

Credits: 3

Prerequisite: ART 2000 and ART 3210.

ART4220 - Painting Topics

Credits: 6

This is an advanced painting course that will cover specific painting approaches for an entire semester. Examples of topics can include Abstraction and color field, figuration, narrative painting, experimental painting media and surfaces, etc. This course will enable students to experience a more comprehensive and targeted set of painting problems for the semester. Topics will vary based on the instructor.

Prerequisite: ART 2000, ART 2210, ART 3210.

ART4250 - Watercolor Painting II

Credits: 3

Advanced investigation of watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000 and ART 3250.

ART4260 - Illustration II

Credits: 3

This is the second level Illustration course for students who have had ART 3350. Students will continue to develop conceptual skill in creating narrative illustrations for a variety of projects. The majority of the semester will be dedicated to developing a single project: Graphic Novelization or book illustrations. Students will be focusing on character development, narrative arc, and compelling imagery using materials appropriate for their project.

A&S College Core 2015 ASG

Prerequisite: ART 2000 and ART 3260.

ART4265 - Photography III

Credits: 3

An advanced photography class focusing on the production of a fully realized portfolio of images. Students interests

will help shape a course dedicated to providing them with additional technical tools (traditional printing techniques, high level photoshop tools) and readings and discussions designed to push them beyond the comfortable boundaries of their photographic world.

Prerequisite: ART 2000.

ART4310 - Sculptural Practices: Cast Form II

Credits: 3

This course is an advanced investigation in mold making, cold casting, and metal casting as an essential means of sculptural expression. Emphasis is placed on personal expression and portfolio building at this level. Extensive sketchbook work, artist research, and critique participation is required.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [5310]

Prerequisite: ART 2000, ART 2310, ART 3310, and portfolio review by instructor.

ART4330 - Sculptural Practices: Assembled Form II

Credits: 3

This course is an advanced investigation in assemblage including wood and metal fabrication as an essential means of sculptural expression. Emphasis is placed on personal expression and portfolio building as this level. Extensive sketchbook work, artis research, and critique participation is expected.

Prerequisite: ART 2000, ART 2310, ART 3310, and portfolio review by instructor.

ART4355 - Metalsmithing III

Credits: 3

Introduces advanced fabrication and surface techniques which build on skills developed in Metalsmithing I and II. Students propose a body of work for the semester based on individual aesthetic, conceptual and technical interests. Professional practices including resume writing, documenting, presenting and exhibiting artwork are addressed at this advanced level.

Prerequisite: ART 2000 and ART 3350.

ART4360 - Metalsmithing: Special Topics

Credits: 3

Focuses on a specific technique in the field of Metalsmithing for an in-depth exploration into topics such as lost-wax casting, chasing and repoussé, enameling, etc. Individual projects and critical discussion will address the special topic aesthetically, technically and conceptually.

Prerequisite: ART 2000 and ART 2350.

ART4400 - Internship

Credits: 1-3
Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

ART4410 - Ceramics IV/I

Credits: 3
Studies and develops traditional and experimental forms. Applies wide range of three-dimensional decorative and conceptual approaches. Continuation of technical and glaze research and professional practices. Introduces kiln operation. Given studio problems accompany individually directed exploration.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000, ART 3320, ART 3410, and consent of instructor based on portfolio review.

ART4420 - Ceramics IV/II

Credits: 3
A second semester continuation of the development of traditional and experimental forms. Applies wide range of three-dimensional formal and conceptual approaches. Continuation of technical and glaze research. Introduces kiln operation. Given studio problems accompany individual directed exploration.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000, ART 3320, ART 3410, and consent of instructor based on portfolio review.

ART4425 - Graphics Internship

Credits: 3
This course allows graphic design students to better understand real-world design practices, learn about industry standards, and discuss career opportunities and preparedness. Students will be expected to secure internships and meet with an intern advisor regularly, to gain a strong understanding of the graphic design industry.

Prerequisite: ART 2000, ART 2112, and ART 2122.

ART4440 - Methods II

Credits: 3
Students incorporate their understanding of the stages of artistic development with essential components of curriculum design to create lesson plans that engage the K-12 student in student-directed, holistic learning in the visual arts. Another component of the course is professional practice that includes classroom management and preparing

professional portfolios.

Restricted Restricted to senior class standing.

Prerequisite: ART 3430 and ART 3490.

ART4460 - Curriculum Design

Credits: 3

Students develop a thorough knowledge of all the components of curriculum design in Art Education and will create a unit of instruction that includes a focus on enduring understandings, clarity of learning objective, assessment for the visual arts, instructional strategies, differentiation, and alignment with standards.

Restricted Restricted to senior class standing.

Prerequisite: ART 3430 and ART 3490.

ART4510 - Printmaking II

Credits: 3

Continues development of printmaking skills gained in introductory printmaking and focuses in particular on the relationship between process and image. Through demonstrations and studio work, slide lectures, visits to the museum and archives, and readings and discussions, technical processes will be refined, print history will be further explored and image making will continue to be developed.

Prerequisite: completion of Foundation Core, ART 2000 and ART 3510.

ART4520 - Advanced Printmaking II : Exhibition and Professional Preparation

Credits: 3

Preparation to continue as exhibiting artists. Students further develop their work as artist-printmakers in preparation for a solo or two-person exhibition at the completion of the semester. Presentation and execution of slides, resume, artist statement, locating opportunities and correspondence will be developed throughout the term.

Prerequisite: ART 2000, ART 4510 and portfolio approval from instructor.

ART4600 - Professional Practices and Strategies

Credits: 3

This course offers information to junior/senior level art majors in regards to: finding jobs in art, finding/applying for exhibition opportunities, applying/finding grant opportunities, furthering education including finding/applying for a Masters in art, and overall life possibilities after the completion of an undergraduate art degree. Writing is expected in the form of cover letters, resumes, artist statements, and project proposals.

USP 2015 Code U5C3

Prerequisite: ART 2000, junior or senior standing.

ART4620 - Problems in Art

Credits: 1-3

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000 and 6 hours in art.

ART4635 - Preparation for International Study in Art

Credits: 1

An introductory course to international study in art. Specifically focusing on various issues of culture, language, history, art and archeology the student may encounter while traveling abroad. Also provides time for the coordination of practical issues of travel, necessary documentation and insurance. Issues specific to the country of travel will also be addressed.

Prerequisite: 6 hours in Art, WA, junior standing.

ART4650 - International Study of Art

Credits: 3

Students will respond creatively to the historical, cultural and aesthetic experience in the country of travel and will use journaling, drawing, and collection of visual material to continue a more in-depth response upon return. Course sections will vary regarding structure/context. All sections will include studio and/or art historical curriculum.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: ART 4635.

ART4655 - Outdoor Studio

Credits: 3

The emphasis in this course will be on the expressive nature of outdoor creative work. Students will need to be responsive to the natural environment through a variety of media, including watercolor, oil sticks, drawing, sculpture, photography, video, etc. This course involves travel and day trips to a variety of sites throughout the county and state.

Prerequisite: ART 2000.

ART4670 - Completion International Study in Art

Credits: 1

A completion course to international study in art. Students will compile and complete their response to their experiences encountered in the culture, language, history, art and archeology while traveling abroad. Concise structured critiques will provide time for discussion and digestion of their individual and shared experiences. When possible an exhibition of creative work will be included as a culmination of the program.

Prerequisite: ART 4650.

ART4720 - 15th Century Renaissance Art

Credits: 3

Explores artistic developments of the 15th century, primarily in Italy, in order to appreciate the relationships between artistic production and innovation and other aspects of the social and cultural environment.

When Offered (Normally offered spring semester)

Prerequisite: ART 2010, ART 2020.

ART4730 - 19th Century European Art

Credits: 3

Studies 19th-century European painting, prints, and literature, covering Neoclassicism, Romanticism, Realism, Impressionism, and Post-Impressionism. Artists include Elisabeth Vigee-Lebrun, court portraitist; Mary Cassatt and Edgar Degas, famed Impressionists; Edouard Manet, controversial and troubled; Honore Daumier, jailed for incendiary political cartooning; and the eccentric Paul Gauguin and Vincent Van Gogh.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: ART 2020.

ART4740 - 20th Century European Art

Credits: 3

Studies 20th-century European art from 1900 to 1945. Covers the 2-D and 3-D art of Expressionism, Cubism, the Bauhaus, Dada and Surrealism, and other important movements in the first half of the 20th century.

When Offered (Normally offered spring semester)

Prerequisite: ART 2010 and ART 2020.

ART4760 - American Art in the 20th Century

Credits: 3

Max Credit 3

Studies 2-D and 3-D art in 20th-century America. Topics will include art of the Gilded Age, the Jazz Age, the Progressive Era, the Great Depression, the World Wars, etc. Styles include American Impressionism, the Ashcan School, American Modernism, Social Realism, the Harlem Renaissance, Regionalism, Abstract Expressionism, and more.

When Offered (Normally offered spring semester of every other year)

Prerequisite: Prerequisites: ART 2010 and 2020.

ART4770 - Contemporary Arts Seminar

Credits: 3

Studies the major movements in the visual arts from 1945 to the present. Investigate major theories, stylistic movements, and key artists since WWII with a special focus on the increasing globalization of art during this era.

When Offered (Normally offered fall semester of every other year)

Prerequisite: ART 2010 and ART 2020.

ART4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the 20th century.

Cross Listed GWST 4780.

When Offered (Normally offered fall semester)

Prerequisite: ART 2010 or ART 2020 or 3 hours of WMST courses; and WB.

ART4790 - Art Seminar

Credits: 1-3

Special topic in art history and criticism for advanced students.

When Offered (Offered based on sufficient demand and resources)

USP 2015 Code U5C3

Prerequisite: 6 hours in art history.

ART4800 - BFA Capstone I

Credits: 3

BFA Capstone I course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by creating work for their BFA exhibition.

Prerequisite: ART 2000 and 6 credits of a studio beyond Art 2000; 3.0 overall gpa; 3.25 gpa in Art/Art History; major acceptance into the BFA VCD degree or BFA in Studio Art degree.

ART4810 - Residency for Elementary

Credits: 6

This is an eight-week residency for teaching art full time at the elementary level. Students team-teach with an experienced mentor teacher, taking on considerable responsibility for all aspects of teaching art. Upon successful completion of this course and ART 4820, students are certified in Wyoming to teach K-12 Art. Satisfactory/Unsatisfactory only.

Prerequisite: ART 4440 and ART 4460

ART4820 - Residency for Secondary

Credits: 6

This is an eight-week residency for teaching art full time at the secondary level. Students team-teach with an experienced mentor teacher, taking on considerable responsibility for all aspects of teaching art. Upon successful completion of this course and ART 4810, students are certified in Wyoming to teach K-12 Art.

Prerequisite: ART 4440 and ART 4460.

ART4830 - Victorian Women's Lives: Their Art, Literature and Culture

Credits: 3

Interdisciplinary approach to study of women's issues in art. Uses literary/cultural texts to reinforce/contradict and/or expand/enlarge the art historical basis. Topics include domestic goddess, working women, prostitution, education, marriage and divorce.

Cross Listed ENGL 4830/GWST 4830.

When Offered (Normally offered every sixth semester)

USP 2003-2014 Code U3CA

A&S College Core 2015 ASG

Prerequisite: Either ART 2020 or GWST 1080/ENGL 1080.

ART4840 - BFA Capstone II

Credits: 3

Max Credit 3

BFA Capstone II course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by finishing work for their BFA exhibition and defending it once the artwork is completed.

Restricted BFA in Studio Art

Prerequisite: Successful completion of ART 2000 and ART 4800 , 3.0 overall GPA, 3.25 GPA in Art/Art History, and acceptance into BFA program.

ART4975 - Independent Study and Research

Credits: 1-3

Research options in all creative areas. Students work independently and provide demonstrated ability and background knowledge to carry out self-directed research or creative activity in the research area. Arrangements regarding curricular obligations and meeting times are made with the instructor in advance.

Prerequisite: ART 2000 and 12 hours of art in research area and prior consent of instructor.

ART5430 - Lo-Tech Ceramics

Credits: 3

Exploration of elementary forming, decorating, firing processes developed by various pottery cultures. Examination of basic geology, clay prospecting, kiln design and construction. Includes historical overview and contemporary survey.

Prerequisite: 12 hours of humanities/ GED/USP.

ART5650 - Art and Ideas

Credits: 3

Students in this seminar explore the literatures of art. Each seminar has a reading list and a thematic structure. Major critical papers are written during the course of the seminar. Required for M. A. and M. A. T. program Plan B option.

Prerequisite: 30 hours in art.

ART5670 - Term Creative Project

Credits: 1-5

Max Credit (Max. 15)

For M. F. A. candidates only; professional creative achievement in painting, drawing, printmaking, ceramics, or sculpture, leading to presentation of graduate exhibition. Typically, student will consult a single professor in major area for crediting this course.

Prerequisite: admission to candidacy for M. F. A. degree and consent of instructor.

ART5710 - Medieval Art

Credits: 3

Studies the unique qualities of art of this intriguing era of transition between classical and renaissance times.

Prerequisite: ART 1010, ART 2010.

ART5740 - 20th Century European Art

Credits: 3

Studies European art from 1900 to present.

Dual Listed ART 4740.

Prerequisite: ART 2010 and ART 2020, consent of instructor.

ART5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ART5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ART5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

ART5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

Arts and Sciences/ Special Courses

AS2000 - Study Abroad

Credits: 1-18
Max Credit (Max. 18)

Students may register through the University of Wyoming for up to two semesters of academic work abroad with the approval of the academic adviser, head of the major department and coordinator of the Study Abroad Program.

Former Course Number [ENGL 2110]

AS2400 - Lower-Division Internship in ____

Credits: 1-12
Max Credit (Max. 12)

Allows students to gain hands-on experience that will help to bridge the gap between the theory of academia and the practicality of the work world. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Planning will involve the internship agency, the student's academic adviser and the associate dean of the college.

Prerequisite: sophomore standing and the approval of the adviser, head of the major department and an associate dean of A&S.

AS2490 - Special Topics in __

Credits: 1-3
Max Credit (Max. 6)

Courses of broad general appeal and an interdepartmental flavor will be offered from time to time under this title. Permits utilization of unusual faculty expertise and provides highly-specialized and particularly pertinent, timely subject matter. See current class schedule for topics.

Prerequisite: sophomore standing.

AS4400 - Upper-Division Internship in ____

Credits: 1-12
Max Credit (Max. 12)

Permits students to contribute in the areas of their expertise and gain hands-on experience that will help to bridge the gap between academia and the real world of work. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will involve the internship agency, the student's academic adviser and the associate dean of the college.

Prerequisite: approval of adviser, head of the major department and the college advising coordinator.

AS4900 - Special Topics in _____

Credits: 1-3
Max Credit (Max. 6)

Courses of broad general appeal and an interdepartmental flavor will be offered from time to time under this title. Permits utilization of unusual faculty expertise and provides highly-specialized and particularly pertinent, timely subject matter. See current class schedule for topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: junior standing.

AS4975 - Independent Study

Credits: 1-3
Max Credit (Max. 6)

Offers the advanced student the opportunity to pursue an individualized topic of interest with the assistance and direction of an instructor.

Prerequisite: junior/senior standing and consent of instructor.

Astronomy

ASTR1000 - Descriptive Astronomy

Credits: 3
Covers essential features of the solar system, stellar astronomy and time measurement.

USP 2003-2014 Code U5PN, U3SE
USP 2015 Code U5PN

A&S College Core 2015 Students who have taken ASTR 2310 may not earn credit in ASTR 1000, and not more than 4 credit hours may be earned by taking both ASTR 1000 and ASTR 1050.

ASTR1050 - Survey of Astronomy

Credits: 4
Consists of 3 lecture periods and a two-hour laboratory in observational and laboratory astronomy. Observing sessions are scheduled after dark and held when weather permits. Designed primarily for non-science majors.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

ASTR1070 - The Earth: Its Physical Environment

Credits: 4
Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society. Cross listed with GEOL 1070. Prerequisites: MATH 1100 or equivalent; enrollment reserved for elementary and elementary/special education majors, or consent of instructor.

Cross Listed GEOL 1070.
USP 2003-2014 Code [SE< >PN]
Prerequisite: MATH 1100

ASTR2310 - General Astronomy I

Credits: 4
[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy.

Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR2320 - General Astronomy II

Credits: 4

Covers the properties of stars, stellar atmospheres and stellar evolution, interstellar matter, galaxies and cosmology including models of the universe, the Big Bang, and dark energy. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR4000 - Astronomy for Teachers

Credits: 1-5

Specifically designed for elementary school teachers. Presents basic concepts (time, seasons, light and its properties); planetary systems of the sun; the sun and stars; the Milky Way and galaxies; and cosmology and relativity. Emphasizes presenting these concepts to elementary school children. Half the class is devoted to laboratory and workshop activities to develop techniques for presenting these concepts through visual aides, demonstrations and films. Students may receive a maximum of 5 credits in a combination of ASTR 4000 and ASTR 4100.

When Offered (Offered summer session)

Prerequisite: 6 hours of physical or biological science, junior standing in education.

ASTR4100 - Astrophysics for Secondary Teachers

Credits: 1-3

Discusses modern physics, emphasizing obtaining and analyzing real data. Adaptable to junior and senior high school science classrooms. Special projects include analysis of planetary positions and images; direct observations of the sun; predictions of eclipses and tides; analyses of basic astronomical data of stars, star clusters, galaxies and clusters of galaxies; and cosmological modeling. Students may receive a maximum of 5 credits in a combination of ASTR 4000 and 4100.

When Offered (Offered summer session)

Prerequisite: junior standing in secondary science education.

ASTR4610 - Introduction to Astrophysics

Credits: 3

Includes astrophysical sources of radiation, radiation transport, nonequilibrium processes, stellar atmospheres, stellar interiors and the interstellar medium.

Prerequisite: ASTR 2310, PHYS 2310 and concurrent registration in PHYS 4210 and PHYS 4410.

ASTR4620 - Modern Research in Astrophysics

Credits: 3

Taught jointly by astrophysics faculty and others. Includes several topics of current research in astrophysics.

Prerequisite: ASTR 4610.

ASTR4860 - Problems in (TOPIC)

Credits: 1-4

Independent, in-depth study of selected problems in astronomy and astrophysics. Entirely laboratory-oriented investigations of astronomical objects.

Prerequisite: ASTR 2310 and PHYS 2310.

ASTR5150 - Astronomical Techniques

Credits: 4

Discusses selected topics in observational astronomy such as applications of the Fourier transform, design of optical instruments, properties of various detectors of electromagnetic radiation, sources of uncertainty in astronomical data, reduction techniques for these data, and techniques of image processing.

Prerequisite: graduate standing in astrophysics.

ASTR5160 - Data Mining in Large Astronomical Surveys

Credits: 4

Aimed at an understanding of how to manipulate and analyze catalog-level data from large astronomical surveys. Students will address realistic problems in data mining large astronomical surveys using one or more programming languages.

Prerequisite: graduate standing.

ASTR5420 - Stellar Evolution and Structure

Credits: 4

The life cycle of stars forms the basis for this course, including formation and early evolution, hydrostatic structure, and late stages of evolution. In addition, energy generation and transport are presented.

Prerequisite: graduate standing in astrophysics.

ASTR5460 - Galactic Structure and Evolution: Cosmology

Credits: 4

Presents material describing current cosmological models and their application to areas of extragalactic astronomy. Topics include cosmic dynamics, introduction to relativistic models, measuring parameters, dark matter, dark energy,

the cosmic microwave background radiation, big bang nucleosynthesis.

Prerequisite: Graduate standing in astrophysics.

ASTR5465 - Galaxies

Credits: 4

Presents material necessary for study of the Milky Way, galaxies, active galaxies, and the large-scale structure of the universe. Topics include stellar populations, kinematics and dynamics in the Milky Way and other galaxies, galaxy classification and properties, and active nuclei and quasars.

Prerequisite: graduate standing in astrophysics.

ASTR5470 - Interstellar Medium and Diffuse Matter

Credits: 4

The material between stars is the primary topic, including the chemistry, energetics, and evolution of interstellar matter. The formation of molecules and dust grains, and their composition, are also discussed. Emission processes characteristic of the ISM are described.

Prerequisite: ASTR 5460.

ASTR5490 - Planets and Their Stars

Credits: 4

Reviews recent and current research in planets and exoplanets. Topics may include planet formation, known properties of exoplanets, comparisons to Solar System planets, properties of planet-hosting stars, and evolution of planetary systems.

Prerequisite: graduate standing or permission of the instructor.

ASTR5630 - General Relativity and Cosmology I

Credits: 3

Presents a detailed study of Einstein's theory of the gravitational field with emphasis on the geometric structure of space-time, and selected topics in general relativity.

Prerequisite: PHYS 5320, PHYS 5420.

ASTR5860 - Independent Study

Credits: 1-4

Max Credit (Max. 24)

Investigations on the level of original graduate research in astrophysics.

Prerequisite: ASTR 4860 or equivalent.

ASTR5870 - Special Topics in Astronomy

Credits: 1-4
Max Credit (Max. 20)

Prerequisite: graduate standing

ASTR5960 - Thesis Research

Credits: 1-9
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ASTR5980 - Dissertation Research

Credits: 1-9
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate degree program.

Atmospheric Science

ATSC1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

ATSC2000 - Introduction to Meteorology

Credits: 4

First course in meteorology for students with minimal background in math and science. Provides general and practical understanding of weather phenomena. Emphasizes observational aspects of the science, meteorological view of the physical world and the impact the science has on life and society. Includes three hours of lecture and one laboratory per week. Includes atmospheric composition and structure, radiation, winds and horizontal forces, stability and vertical motions, general circulation, synoptic meteorology, clouds and precipitation, severe storms and atmospheric optics.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

ATSC2200 - Severe and Unusual Weather

Credits: 3

A nontechnical course on severe and unusual weather events that occur around the globe. The focus of the course is on a wide range of weather events that have profound impacts on societies, economics, and cultures, and the material is presented in a qualitative manner such that is highly accessible by students coming from all backgrounds.

USP 2003-2014 Code U5PN

ATSC3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ARE 3890/CE 3890/CHE 3890/COSC 3890/EE 3890/ES 3890/PETE 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

ATSC4009 - Objective Data Analysis

Credits: 3

Max Credit 3

Techniques for extracting information from data as used in the physical science literature such as compositing, time series analysis, singular value decomposition, principle component analysis, and filtering. More recent techniques from machine learning such as artificial neural networks, self-organizing maps, and traceable AI will be presented.

Cross Listed ATSC 5009

Prerequisite: MATH 2210 and MATH 2250 OR PERMISSION OF INSTRUCTOR

ATSC4320 - The Ocean Environment

Credits: 3

Focuses on the ocean as a system. Objective is the development of interdisciplinary understanding of marine processes, especially those processes occurring along coastal margins. Emphasis is on the development of quantitative models and their use in understanding anthropogenic impact on ocean resources.

Dual Listed ATSC 5320.

Prerequisite: MATH 2310, PHYS 1310, CHEM 1030, ES 3060 (or ES 3070), LIFE 1010, senior standing or higher.

ATSC4580 - Honors Undergraduate Research

Credits: 3

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/ faculty partnership to the appropriate staff in their home department. Must be in the Engineering Honors Program.

Cross Listed BE 4580/CE 4580/CHE 4580/COSC 4580/ES 4580/ESE 4580/PETE 4580.

Prerequisite: junior or senior standing.

ATSC4650 - Undergraduate Research in Atmospheric Science

Credits: 2-6

Max Credit (max 9)

Course Description and

Prerequisite: Independent research in atmospheric science under supervision of an atmospheric science faculty member. Projects are possible in the fields of cloud and aerosol physics, radar meteorology, mesoscale dynamics, and stratospheric chemistry. Participation in field work, involving the UW aviation or stratospheric ballooning facilities, is a possibility. Research results are summarized in a report.

ATSC4900 - Problems in Atmospheric Science

Credits: 1-3

Max Credit (Max. 10)

Independent study of a particular problem or phrase of atmospheric science, or presentation of reviews and discussion of current advances in atmospheric science investigations.

Prerequisite: ATSC 4010, 4031, and 4035.

ATSC5005 - Objective Analysis in Geosci.

Credits: 3

Techniques for extracting information from geophysical data directly, such as compositing, time series analysis,

singular value decomposition, principal component analysis, and filtering as well as some specialized topics such as wavelet analysis.

Prerequisite: Calculus III (such as MATH 2210) and Differential equations (such as MATH 2310).

ATSC5008 - Mesoscale Meteorology

Credits: 3

Fundamental dynamics of mesoscale motions including departures from hydrostatic balance. Mesoscale energy sources. Boundary layer circulations. Convective initiation. Structure and dynamics of deep convection and mesoscale organized convection. Atmospheric waves. Thermally and dynamically forced flow over mountains.

Prerequisite: permission of the instructor.

ATSC5009 - Objective Data Analysis

Credits: 3

Max Credit 3

Techniques for extracting information from data as used in the physical science literature such as compositing, time series analysis, singular value decomposition, principle component analysis, and filtering. More recent techniques from machine learning such as artificial neural networks, self-organizing maps, and traceable AI will be presented.

Cross Listed ATSC 4009

Prerequisite: MATH 2210 and MATH 2250 OR PERMISSION OF INSTRUCTOR

ATSC5010 - Physical Meteorology I

Credits: 4

First and second law of thermodynamics applied to energy transformations in the atmosphere, including dry, moist, and saturated processes and atmospheric stability. Fundamentals of radiation including blackbody, planetary budget, and propagation and how these drive the thermodynamics of the earth's atmosphere.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5011 - Physical Meteorology II

Credits: 4

Quantitative description of cloud particle nucleation, growth by condensation, and growth by deposition and collection. Ties to other atmospheric processes, e. g. , radiation budgets and cloud dynamics, are also emphasized. Course material is presented in lecture and computer-based laboratory settings. A numerical cloud model is developed and analyzed in the laboratory.

Prerequisite: ATSC 5010.

ATSC5014 - Dynamic Meteorology

Credits: 4

Development and interpretation of the atmospheric equations of motion, scales of motion, horizontal atmospheric winds, thermal wind equation, circulation and vorticity, mesoscale motions. Introduction to planetary boundary layer flows. Data visualization software is also introduced and used to develop understanding of dynamical processes.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5016 - Synoptic Meteorology

Credits: 4

Large-scale vertical motion as viewed from quasigeostrophic and isentropic potential vorticity perspectives. Baroclinic instability, and the structure and evolution of extratropical cyclones. Identification and development of fronts, jet streams and associated weather features. Role of topography on large-scale circulations.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5018 - Ethics and Research Methods

Credits: 1

Ethics and ethical dilemmas in research and academia and how to address them are discussed. This course also covers general research methodology and describes processes for research funding and disseminating research findings and the peer-review process.

Prerequisite: graduate standing.

ATSC5040 - Climate Science and Climate Change

Credits: 3

Global climate system components, and their interactions. Radiative, dynamic, thermodynamic, chemical, and feedback processes affecting the climate system. Natural and anthropogenic drivers of climate change. Past and present climate variability and sensitivity, and its simulation. Structure of climate models, their components, parameterizations, and attributes. Current climate modeling results and predictions of future climate.

Prerequisite: ATSC 5001, ATSC 5016.

ATSC5155 - Weather Analysis & Forecasting

Credits: 1

Max Credit 3

Analysis of operational meteorological data, including observations and 3D NWP model output. Use of python tools for meteorological interpretation, using fundamental understanding of atmospheric processes, gained in the core graduate ATSC classes. All scales are relevant, but emphasis is placed on mesoscale processes, including those driven by terrain or by deep convection.

Prerequisite: ATSC 5010 , ATSC 5014

ATSC5210 - Cloud and Precipitation Systems

Credits: 3

Types of clouds and precipitation systems, and the precipitation mechanisms in those systems; structure of convective, orographic, and frontal systems and severe storms. Schematic and numerical models of clouds and storms with emphasis on hailstorms.

Prerequisite: ATSC 5011 and ATSC 5014.

ATSC5310 - Atmospheric Dynamics II

Credits: 3

Introduction to the dynamic energetics of the atmosphere, wave motions, atmospheric instabilities. Introduction to numerical modeling, applications.

Prerequisite: ATSC 5014.

ATSC5320 - The Ocean Environment

Credits: 3

Focuses on the ocean as a system. Objective is the development of interdisciplinary understanding of marine processes, especially those processes occurring along coastal margins. Emphasis is on the development of quantitative models and their use in understanding anthropogenic impact on ocean resources.

Dual Listed ATSC 4320.

Prerequisite: MATH 2310, PHYS 1310, CHEM 1030, ES 3060 (or ES 3070), LIFE 1010, senior standing or higher.

ATSC5330 - Boundary Layer Meteorology

Credits: 3

A quantitative and descriptive study of the thermodynamics and dynamics of the planetary boundary layer, including budgets (heat, moisture, momentum, turbulent kinetic energy, radiation), stability, turbulence and turbulent fluxes, convection, terrain effects, phenomenology, and measurement and analysis techniques.

Prerequisite: ATSC 5010, ATSC 5014.

ATSC5340 - Radar Meteorology

Credits: 3

The theory of radar and the application of radars to studies of the atmosphere, including basic radar design, distributed targets, attenuation, polarization, Doppler velocities, analysis techniques, and examples of radar studies of clear air, clouds, and precipitation.

Prerequisite: ATSC 5010, ATSC 5011.

ATSC5350 - Atmospheric Chemistry

Credits: 3

Origin and composition of the atmosphere. Sources, lifetimes, transport of gases and aerosols. Cycles of C, S, N and trace elements. Removal processes: precipitation, and dry deposition. Homogenous and Heterogeneous kinetics. Anthropogenic influences: effect of air pollution on radiation balance and cloud processes.

Prerequisite: graduate standing in a physical science or engineering.

ATSC5360 - Aircraft Instrumentation

Credits: 3

An introduction to instrumentation used on research aircraft to measure properties of the atmosphere. Topics include measuring atmospheric state, atmospheric particles, and other constituents (i. e. trace gases) from aircraft. Principles of measurement techniques are described, complexities due to clouds are presented, and resulting uncertainties and limitations are explored.

Prerequisite: Graduate student in Atmospheric Science or consent of instructor.

ATSC5370 - Satellite Remote Sensing

Credits: 3

Physical principles of atmospheric remote sensing, with a breadth of applications in passive and active remote sensing of the atmosphere. Offers a solid understanding of remote sensing instrumentation and retrieval approaches for a variety of atmospheric parameters.

Prerequisite: graduate student in Atmospheric Science or consent of instructor.

ATSC5600 - Advanced Cloud Microphysics

Credits: 3

Analysis of the processes involved in cloud and precipitation formation. Detailed treatments of the condensation, ice nucleation, vapor growth, and collection processes. Emphasis is on reviewing the current state of knowledge in the field and on surveying directions of research.

Prerequisite: ATSC 5010 and ATSC 5011.

ATSC5700 - Numerical Modeling of Atmosphere

Credits: 3

Governing equations and assumptions, finite differencing, subgrid-scale processes, cloud processes, aerosol and atmospheric chemistry, boundary layer processes, radiative transfer, cumulus parameterizations, parcel models, kinematic models, large-eddy simulating (LES) models, cloud-resolving models (CRMs), large-scale regional and global climate models (GCMs).

Prerequisite: ATSC 5010 or ATSC 5011 or ATSC 5014 or consent of instructor.

ATSC5880 - Atmospheric Science Problems

Credits: 1-3
Max Credit (Max. 6)

A special course for graduate students in atmospheric science only, designed to make possible the study and investigation of problems or phases of atmospheric science selected to fit the needs of students.

ATSC5890 - Atmospheric Science Seminar

Credits: 1-3
Max Credit (Max. 6)

A seminar-type class furnishing motivation for advanced study of current problems by means of library research, study of current literature, and carefully guided class discussions.

Prerequisite: consent of department head.

ATSC5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ATSC5920 - Continuing Registration: On Campus

Credits: 1-12
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ATSC5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ATSC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

ATSC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

ATSC5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

ATSC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/ faculty partnership to the appropriate staff in their home department. Must be in the Engineering Honors Program.

Bioengineering

BE4580 - Honors Undergraduate Research

Credits: 3
An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/ faculty partnership to the appropriate staff in their home department. Must be in the Engineering Honors Program.

Cross Listed ATSC 4580/CE 4580/CHE 4580/COSC 4580/ES 4580/ESE 4580/PETE 4580.

Prerequisite: junior or senior standing.

BE4810 - Bioinstrumentation

Credits: 3
Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 5810.

Prerequisite: EE 2210 or similar electric circuit course.

BE4820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from experimental data.

Dual Listed BE 5810.

Prerequisite: EE 3220, basic course, or equivalent.

BE5410 - Rehabilitation Engineering

Credits: 3

This course covers the engineering principles of multiple rehabilitation technologies, including rehabilitation robots, exoskeletons, wearable sensors, electrical stimulators, implants, and virtual reality. Students will learn the technical and biological principles of all of these technologies via lectures, projects, and literature reviews.

Prerequisite: graduate standing.

BE5810 - Bioinstrumentation

Credits: 3

Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 4810.

Prerequisite: EE 2210 or similar electric circuit course.

BE5820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from experimental data.

Dual Listed BE 4820.

Prerequisite: EE 3220, basic course, or equivalent.

BE5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics. Note: credit in this course may not be included in a graduate program of study for degree purposes.

Biomedical Science

BMS5880 - Biomedical Sciences Research Ethics

Credits: 2

Introduction to the field of bioethics, including major ethical theories and principles, with an emphasis on understanding the ethical issues that may arise while conducting biomedical research and potential strategies for properly addressing these ethical issues.

BMS5920 - Continuing Registration: On Campus,

Credits: 1-12

Max Credit (Max. 24)

Prerequisite: graduate standing.

BMS5940 - Continuing Registration: Off Campus,

Credits: 1-24

Max Credit (Max. 24)

Prerequisite: graduate standing.

BMS5960 - Thesis Research,

Credits: 1-24

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

BMS5980 - Dissertation Research,

Credits: 1-24

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

BMS5985 - Seminar

Credits: 1
Max Credit (Max. 3)

A series of weekly seminars presented by faculty from other universities, private or public sector health industries or by Biomedical Science Program faculty and students. Examines current topics and research in biomedical sciences through oral presentations and discussion.

Prerequisite: graduate standing and consent of instructor.

Botany

BOT1101 - First-Year Seminar

Credits: 3
USP 2003-2014 Code U5FY

BOT3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4
Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Cross Listed Cross listed with: REWM 3000.

Prerequisite: LIFE 2022 or LIFE 2023.

BOT3100 - Plants and Civilization

Credits: 3
Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L
A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

BOT3600 - Plant Diversity and Systematics

Credits: 4
A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

BOT4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed ATSC/ESS 4001/GEOL 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

BOT4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

BOT4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed ZOO 4100.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

A&S College Core 2015 Preference given to seniors.

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

BOT4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences. Preference given to seniors.

Cross Listed ZOO 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

BOT4200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 5200.

Prerequisite: LIFE 1010 and LIFE 2021.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

BOT4360 - Mushrooms of the Rocky Mountains

Credits: 3

A broad introduction to the biology of mushrooms, with emphasis on identification, ecology, and safety for consumption. Lab emphasizes learning major mushroom families and genera and their features, use of keys and manuals, and mushroom collections with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023 or equivalent.

BOT4395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and

fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 5395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

BOT4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed ENR 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT4640 - Flora of the Rocky Mountains

Credits: 3

Field course. Acquaints students with the flora of the surrounding region. Emphasizes field identification and collection from plant communities encompassing a wide range of environments, such as grasslands, forests and alpine tundra.

When Offered (Normally offered summer session)

Prerequisite: LIFE 2023.

BOT4664 - Special Topics in Evolution

Credits: 1-4

Max Credit (Max. 6)

Advanced topics in evolutionary biology are engaged by studying primary research and topical synthesis in the current literature.

Dual Listed BOT 5664.

Prerequisite: LIFE 3500 or equivalent.

BOT4680 - Taxonomy of Vascular Plants

Credits: 4

A study of classification principles, nomenclature rules and systematic botany literature. Plants of the Rocky Mountain region are used primarily as examples, but the course gives a comprehensive view of the characteristics and relationships of the principal plants families.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2023.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

BOT4730 - Plant Physiological Ecology

Credits: 4

Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms.

Cross Listed RNEW 4730.

Dual Listed BOT 5730.

When Offered (Normally offered spring semester)

Prerequisite: one course in physiology and one course in ecology.

BOT4745 - Terrestrial Ecosystem Ecology

Credits: 3

Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. We study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Cross Listed ECOL 5745.

Dual Listed BOT 5745.

Prerequisite: 1 course in ecology.

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

BOT4965 - Undergraduate Research in Botany

Credits: 1-10

Max Credit (Max. 10)

Undergraduate research or study in botany done under the guidance of a Botany Faculty Member. Encouraged to present their research at local, regional, or national scientific meetings, and, when appropriate, submit a manuscript for publication.

Prerequisite: LIFE 2023, undergraduate status in good academic standing; consent of a botany faculty research mentor.

BOT4970 - Internship

Credits: 1-12

Max Credit (Max. 12)

Provides undergraduate students with academic credit for approved work experiences in the fields of botany and biology. Must be arranged in consultation with a botany faculty member and the work supervisor.

Prerequisite: junior or senior standing,

BOT5000 - Graduate Seminar

Credits: 1-3
Max Credit (Max. 6)

Selected topics on current research in the botanical sciences.

Prerequisite: 15 hours of botany or biology.

BOT5060 - Fundamental Concepts in Evolution

Credits: 3
Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/ZOO 5060.

Prerequisite: graduate student in good standing.

BOT5150 - Research in Remote Sensing

Credits: 1-6
Max Credit (Max. 6)

Independent research into problems on the remote sensing of vegetation using satellite technology.

Prerequisite: graduate standing and consent of instructor.

BOT5200 - Plant-Microbe Interactions

Credits: 3
This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 4200.

BOT5235 - Marine Biology

Credits: 3
This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 5235.

Dual Listed BOT 4235.

Prerequisite: graduate standing.

BOT5280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 5280.

Dual Listed BOT 4280.

Prerequisite: graduate standing.

BOT5320 - Research in Mycology

Credits: 1-3

Max Credit (Max. 6)

Prerequisite: graduate standing or consent of instructor.

BOT5395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 4395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

BOT5420 - Research in Physiology

Credits: 1-6

Max Credit (Max. 6)

Prerequisite: graduate standing and consent of instructor.

BOT5480 - Spatial Information Sciences Seminar

Credits: 1

There are many earth science technologies, remote sensing, GIS and GPS. Synergism among these technologies increase the range of solutions for research and management. This course is a forum for presentation of these solutions or questions requiring solutions.

Cross Listed GEOL 5480.

Prerequisite: a course in remote sensing, GIS, GPS, and graduate standing.

BOT5550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT5555 - Computational Biol Practicum

Credits: 3

Students will perform computational analysis of data to address contemporary biology questions for clients. Teams of students will work together, with consultation and direction from the instructor, to perform analyses, answer scientific questions, and report findings to a client, using best practices in report generation and reproducible research.

Prerequisite: BOT 4550/BOT 5550.

BOT5600 - Ecological Modeling

Credits: 3

Course will immerse students in the most important and fundamental statistical modeling techniques for data analysis. Each class will include theoretical content delivered through a brief lecture and the immediate application of the theory through activities using R software.

Prerequisite: STAT 2050, STAT 3050, or an equivalent course.

BOT5610 - Research in the Taxonomy of Vascular Plants

Credits: 1-6

Max Credit (Max. 6)

The University of Wyoming is especially well equipped for research on the classification of native plants. The Rocky Mountain Herbarium offers an abundance of material for study and the library is especially rich in taxonomic literature. Monographic work may be done on an assigned genus or on the plants of a limited area. Cytological, anatomical, and biochemical techniques may be employed in the solution of certain problems.

Prerequisite: graduate standing and consent of instructor.

BOT5650 - Readings in Plant Systematics

Credits: 1

Max Credit (Max. 6)

Centered on readings involving selected topics in the current plant systematics literature.

Prerequisite: BOT 4680.

BOT5664 - Topics: Evolution

Credits: 1-4
Max Credit (Max. 12)

Advanced topics in evolutionary biology are engaged by studying primary research and topical syntheses in the current literature.

Dual Listed BOT 4664.

Prerequisite: LIFE 3500 or equivalent.

BOT5665 - Research in Evolutionary Biology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing and consent of instructor.

BOT5690 - Special Topics in Systematics

Credits: 1-4
Max Credit (Max. 12)

Designed to acquaint students with various topics not covered in regular courses. Emphasis is placed on recent developments in the journal literature.

Prerequisite: BOT 4680 or 5680 or equivalent.

BOT5700 - Vegetation Ecology

Credits: 4
The ecology of major vegetation types, with emphasis on patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 4700.

Prerequisite: LIFE 3400.

BOT5710 - Research in Ecology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing and consent of instructor.

BOT5720 - Research in Physiological Ecology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing and consent of instructor.

BOT5730 - Plant Physiological Ecology

Credits: 4
Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms. Lecture with inclusive hands-on laboratory.

Cross Listed RNEW 5730.

Dual Listed BOT 4730.

Prerequisite: one course in ecology and one in physiology.

BOT5745 - Terrestrial Ecosystem Ecology

Credits: 3
Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. Study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Dual Listed BOT 4745.

Prerequisite: one course in ecology.

BOT5750 - Seminar in Ecophysiology

Credits: 1-3
Max Credit (Max. 8)

Prerequisite: 1 course in physiology and 1 course in ecology.

BOT5775 - Forest Ecology

Credits: 4
Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed ECOL 5775/RNEW 5775.

Dual Listed BOT 4775.

Prerequisite: LIFE 3400.

BOT5780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 5780.

Dual Listed BOT 4780.

Prerequisite: Consent of instructor.

BOT5790 - Special Topics in Ecology

Credits: 1-3

Max Credit (Max. 6)

Designed to acquaint advanced students with various topics not covered in other courses. Emphasis is placed on recent developments appearing in the journal literature.

Dual Listed BOT 4790.

Prerequisite: two courses in ecology.

BOT5900 - Practicum in College Teaching1

Credits: 3

Max Credit (Max 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

BOT5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

BOT5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

BOT5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

BOT5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

Business

BKCH3021 - Fundamentals of Blockchain

Credits: 3

The purpose of this course is to provide a fundamental understanding of blockchain technologies and their implications. Topics will focus on understanding how blockchain may change the way we think about money, disrupt traditional financial institutions and eliminate costly intermediaries.

Prerequisite: Requires Junior Class Standing.

BKCH4021 - Business Applications of Blockchain

Credits: 3

This course provides advanced concepts underpinning the applications of global blockchain technologies for business and their use cases. Students will learn about the underlying technologies to be well-prepared to develop blockchain applications in the business world.

Prerequisite: BKCH 3021.

BKCH4121 - Case Studies in Block Chain

Credits: 3

This experiential learning focused course is targeted toward understanding the creation and development of blockchain ventures. Besides course lecture materials, students will study and support new blockchain ventures in a real-world setting.

Prerequisite: BKCH 3021.

BKCH4900 - Ind. Study in Blockchain

Credits: 1-6
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Blockchain not included in other structured Blockchain courses

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

BKCH4910 - Topics in Blockchain

Credits: 1-6
Max Credit 3

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing and consent of instructor

BUSN1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

BUSN2600 - Internship in Business

Credits: 3
Max Credit 6

Provides students with practical business knowledge and a perceptual basis for later coursework. Students work as interns in operating organizations.

Prerequisite: Approved internship application through the Peter M. & Paula Green Johnson Student Success Center and 2.5 GPA.

BUSN4600 - Advanced Internship in Business

Credits: 3
Max Credit 6

Provides students with practical business knowledge, policy, procedure, and decision making. Students work as interns in operating organizations.

Prerequisite: MKT 2100, MGT 2100, FIN 2100, advanced business standing, approved internship application through the Peter M. & Paula Green Johnson Student Success Center.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Chemical Engineering

CE5430 - Environmental Engineering Chem

Credits: 3

Environmental Engineering Chemistry, focusing on water quality questions and the effects of water on engineered infrastructure. When students complete this course they will be able to use chemistry more effectively to solve environmental engineering problems and will also have sufficient background for further graduate study in environmental engineering.

Cross Listed ENVE 5430, CHE 5430

Prerequisite: CHEM 1020 and CE 3400, or graduate standing.

CHE1005 - Introduction to Chemical Engineering

Credits: 1

Provides an overview of chemical engineering and its role in the current technological importance: energy, biotechnology, production of chemicals, and materials processing. Introduces strategies for solving engineering problems, including ethical considerations and teamwork, discusses process variables, units, mass balance, and data analysis, and incorporates active learning exercises using spreadsheet to solve chemical engineering problems.

Prerequisite: concurrent enrollment in MATH 2200.

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHE2060 - Chemical Engineering Computing

Credits: 3

Introduces fundamental concepts in linear algebra, numerical methods and applied statistics needed to solve engineering problems. In this context, this course also introduces and reinforces computational tools that will be useful for other CHE classes.

Prerequisite: C or better in CHE 1005 or ES 1060; C or better in CHE 2005; concurrent enrollment in MATH 2310.

CHE2070 - Chemical Thermodynamics

Credits: 3

Discusses first and second laws of thermodynamics applied to chemical processes, production of power from heat, refrigeration, and liquefaction processes, develops thermodynamic relations for calculating thermodynamic properties of fluids, including the use of equations of state, and introduces heat effects, Gibbs-energy change of reaction, and chemical-reaction equilibria.

Prerequisite: C- or better in CHE 2005, PHYS 1210; C or better in MATH 2210.

CHE2080 - Chemical Engineering Fluid Mechanics

Credits: 3

Introduces the fundamental aspects of macroscopic fluid mechanics, including physical properties, fluid statics, mass, energy, and momentum balances, momentum transport, and flow through pumps, pipes, and other chemical engineering equipment for both incompressible and compressible fluids, and of microscopic fluid mechanics, including differential mass and momentum balances.

Prerequisite: C- or better in CHE 2005, PHYS 1210, and C or better in MATH 2210.

CHE2090 - Practical Fundamentals of Process Control

Credits: 2

Introduces students to sensors, valves, actuators and the assembly of process control components. Provide hands-on practical experience with level control, flow control, temperature control and pressure control processes. This course consists of one (1) hour of lecture and two (2) hours of laboratory per week.

Prerequisite: C or better in MATH 2205.

CHE3015 - Chemical Thermodynamics II

Credits: 3

Introduces mixture properties, such as chemical potentials, excess properties, partial molar properties, heats of mixing, fugacities, and practical tools for estimating them from solution theories and equations of state. These tools and concepts are applied to phase and chemical equilibria.

When Offered (Normally offered fall semester)

Former Course Number [3010]

Prerequisite: C or better in CHE 2060, and CHE 2070 or ES 2310.

CHE3026 - Heat Transfer

Credits: 3

Introduces the theory and application of energy transport (e. g. conduction, convection, radiation), discusses in depth fundamentals of microscopic energy transport, and applies the knowledge to macroscopic chemical engineering processes and systems.

Prerequisite: C- or better in CHE 2060, and CHE 2080 or ES 2330.

CHE3028 - Mass Transfer

Credits: 3

Introduces mass transfer concepts, including molecular diffusion, convective mass transfer, and mass transfer between phases, and the development of mathematical models of these physical phenomena, applicable to the analysis and design of chemical processes.

Prerequisite: C- or better in CHE 2005, CHE 2060, and CHE 2080 or ES 2330.

CHE3035 - Separation Processes

Credits: 3

Applies transport and equilibrium concepts and models to the analysis and design of separation processes, such as distillation, absorption, extraction, leaching, adsorption, crystallization, and membrane separation processes.

Prerequisite: C or better in CHE 2060, and CHE 2070 or ES 2310.

CHE3040 - Unit Operations Laboratory I

Credits: 3

Laboratory experiments examining settling, pump performance, heat transfer, adsorption, gas transfer, and distillation. Introduces topics in statistics including: probability distributions, mean, median, mode, variance and standard deviation, systematic and random error, confidence intervals, and t-tests, F-tests and ANOVA. Emphasizes the preparation of formal laboratory reports including experimental error analysis.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: C- or better in CHE 3026 and CHE 3028 and CHE 4060. (Normally offered fall semester)

CHE3050 - Unit Operations Laboratory I

Credits: 3

Laboratory experiments examining settling, pump performance, heat transfer, adsorption, gas transfer, and distillation. Introduces topics in statistics including: probability distributions, mean, median, mode, variance and standard deviation, systematic and random error, confidence intervals, and t-tests, F-tests and ANOVA. Emphasizes the preparation of formal laboratory reports including experimental error analysis. Prerequisites: C- or better in CHE 3026 and CHE 3028 and CHE 4060. (Normally offered fall semester)

When Offered Fall Semester

CHE3090 - Applying Simulation to Dynamic Processes

Credits: 1

Introduces students to dynamic simulation software for controlling individual chemical engineering processes. This course consists of two (2) hours of laboratory per week.

Prerequisite: C or better in CHE 2005.

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE3200 - Fundamentals of Solids Handling

Credits: 3

Introduces students to particle technology (solids-handling) including particle rate processes, fundamentals of particle transport, mathematics of particle systems, particle properties and characterization and processing operations. This course consists of three hours of lecture and one hour of laboratory per week and an introduction to ASPEN modeling of solids handling.

Prerequisite/Corequisite: C or better in MATH 2205

CHE3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ATSC 3890/ARE 3890/CE 3890/COSC 3890/EE 3890/ES 3890/PETE 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

CHE3900 - Undergraduate Research

Credits: 1-6

Students carry out research appropriate to undergraduates, under faculty supervision. May be taken more than once.

When Offered (Normally offered each semester)

Prerequisite: junior standing in chemical engineering.

CHE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Examines social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed PETE 4000.

Prerequisite: junior standing and completion of two lab sciences.

CHE4050 - Unit Operations Laboratory II

Credits: 3

Laboratory experiments examining heat transfer and process control. Also requires students to design, conduct and analyze 'open-ended' experiments. Introduces LabView and covers factorial experimental design and linear and non-linear data regression approaches. Emphasizes the preparation of a formal report describing all aspects of the experiments.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

Prerequisite: C- or better in CHE 3040. (Normally offered spring semester)

CHE4060 - Reaction Engineering

Credits: 3

Introduces chemical process kinetics, catalysis and reactor design. Includes homogeneous and heterogeneous reaction kinetics; design of batch, stirred-tank and tubular reactors; and nonisothermal operation.

When Offered (Normally offered spring semester)

Prerequisite: C- or better in CHE 3015 and CHE 3026 and concurrent enrollment in CHE 3028.

CHE4070 - Process Simulation & Economics

Credits: 4

Max Credit 4

Introduces simulation software used to model chemical processing. Techniques used to determine economic feasibility

of chemical plants are described.

When Offered (Normally offered fall semester)

Prerequisite: C or better in CHE 3028 and CHE 4060

CHE4080 - Senior Design

Credits: 4

Max Credit 4

Intended for the senior year. Applies all previous courses to the design of safe, economical and environmentally benign processes.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: COM-2, concurrent enrollment in CHE 4070

CHE4090 - Process Dynamics and Control

Credits: 3

Encompasses analysis and design control systems for the chemical process industry including steady-state approximation, types of controllers, simple unsteady-state analysis, use of mathematical models and process dynamics under control.

Prerequisite: C- or better in CHE 3028 and CHE 4060.

CHE4092 - Controlling Process Systems

Credits: 3

Capstone process control course. Students will design process control for systems of linked processes including sensing and transmission, final control elements, and controller. This course consists of two (2) hours of lecture and three (3) hours of laboratory per week.

Prerequisite: C or better in CHE 3090 and concurrent enrollment in either CHE 4090, EE 4620, or EE 4621.

CHE4100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 5100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

CHE4200 - Industrial Chemical Production

Credits: 3

Integration of chemical engineering and chemistry as practiced in modern industry. Engineering of chemical reactions and processes for commodity chemicals, petroleum-based fuels, petrochemicals, intermediates, specialty chemicals, pharmaceuticals, and engineered materials. Environmental strategies for waste minimization and pollution prevention.

Prerequisite: CHEM 2420 and CHE 3015 (may be taken concurrently).

CHE4210 - Natural Gas Processes and Modeling

Credits: 3

After a quick introduction to the Hysys simulation program, the main chemical processes used to convert well-head gas to products will be reviewed and modeled (fractionation train, sulfur recovery, tail gas clean-up, dehydration, refrigeration, nitrogen rejection) in high detail, including appropriate property models to use.

Prerequisite: CHE 3070.

CHE4220 - Metabolic and Protein Engineering

Credits: 3

An introduction to the design of biological systems for conversion of a feedstock to product, with emphasis on synthetic biology and directed evolution design principles, evolutionary mechanisms and tradeoffs. Metabolic pathways and molecules of industrial importance will be discussed, as well as ethics as applied to synthetic biology and bioengineering.

Dual Listed CHE 5220.

Prerequisite: MOLB 2021 or concurrent enrollment in CHE 3100.

CHE4270 - Advanced Process Simulation

Credits: 3

Advanced topics for a commercial process simulation software that is routinely used in industry will be covered. Topics will include: electrolyte systems, physical property methods and regression of parameters, petroleum industry component selection and distillation, solids handling capabilities including coal processing, advanced recycle stream convergence techniques, and equation-oriented solution methods.

Prerequisite: CHE 3070.

CHE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430 /ENR 4430.

Prerequisite: CHEM 1020.

CHE4580 - Honors Undergraduate Research

Credits: 3

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/faculty partnership to the appropriate staff in their home department. Must be in the Engineering Honors Program.

Cross Listed ATSC 4580/BE 4580/CE 4580/COSC 4580/ES 4580/ESE 4580/PETE 4580.

Prerequisite: junior or senior standing.

CHE4970 - Internship in Chemical Engineering

Credits: 1-6

Max Credit (Max. 6)

Enables credit for students in appropriate engineering activities while serving as interns in an industrial, government, or other setting.

Prerequisite: must be involved in a chemical engineering co-op/internship experience.

CHE4972 - Internship in Process Control Engineering

Credits: 1-6

Max Credit (Max. 6)

Enables credit for students serving as interns with an approved organization that provides process control and instrumentation experience.

Prerequisite: Be enrolled in the Process Control and Instrumentation minor.

CHE4990 - Topics in Chemical Engineering

Credits: 1-6
Max Credit (Max. 6)

Features topics not included in regularly offered classes. Section I is individual study. Other sections are group study by seminar or in class format.

Prerequisite: CHE 3000 or concurrent enrollment.

CHE5010 - Transport Phenomena

Credits: 3
Examines the modeling of momentum, heat and mass transport.

Cross Listed PETE 5010.

Prerequisite: ES 2330, MATH 2310, and graduate standing in Chemical or Petroleum Engineering.

CHE5020 - Thermodynamics

Credits: 3
Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed PETE 5020.

Prerequisite: graduate standing.

CHE5030 - Reaction Kinetics

Credits: 3
An analysis of reactions involving phase boundaries, heterogeneous catalysis, gas-solid systems, and gas-liquid systems.

Prerequisite: CHE 4060.

CHE5060 - Flow through Porous Media

Credits: 3
Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate Solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing

of oil and gas reservoirs, including drawdown, build-up faulted systems, interference, drillstem tests, and isochronal test analysis.

Dual Listed PETE 5060.

Prerequisite: graduate standing.

CHE5090 - Graduate Teaching and Research: Theory and Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, careers with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific methods, developing hypotheses, grant proposal, and paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

CHE5100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 4100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE5150 - Topic in Chemical Engineering

Credits: 1-3

Max Credit 12

Selected topics in chemical engineering.

Prerequisite: Consent of instructor

CHE5160 - Biomedical Engineering - Transport Processes

Max Credit 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. This will involve topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Dual Listed CHE 4160

Prerequisite: Consent of instructor and grade of C or better in at least 3 courses counting no more than 2 from CHEM

1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2020, MATH 2200, KIN 2040, MOLB 2240, CHE 3000, ES 2310, graduate standing.

CHE5165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastin, and silk.

Dual Listed CHE 4165

Prerequisite: LIFE 1010 and CHEM 2420 or permission of instructor.

CHE5190 - Polymeric Chemistry Engineering

Credits: 3

This course discusses basic methods in the synthesis of polymers (polymerization) as well as their applications toward to common and new promising polymer products. In addition, the kinetics of these methods, the synthetic processing techniques and the end products will be addressed together with applications and characterization of various polymers

Prerequisite: CHE 3015, CHE 4060, and CHEM 2440.

CHE5220 - Metabolic and Protein Engineering

Credits: 3

An introduction to the design of biological systems for conversion of a feedstock to product, with emphasis on synthetic biology and directed evolution design principles, evolutionary mechanisms and tradeoffs. Metabolic pathways and molecules of industrial importance will be discussed, as well as ethics as applied to synthetic biology and bioengineering.

Prerequisite: MOLB 2021 or concurrent enrollment in CHE 3100.

CHE5230 - Advanced Catalysis and Characterization

Credits: 3

Focus on modern ideas and techniques used to describe gas-solid interactions, including adsorption and chemical reactions. The usefulness of photon and electron spectroscopies for evaluating the structure of real catalysts will be discussed. Catalysis of important classes of chemical reactions will be related to results obtained by various materials characterization methods.

Prerequisite/Corequisite: CHE 5030.

CHE5355 - Mathematical Methods in Chemical Engineering

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs):

the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Dual Listed PETE 5355

Prerequisite: MATH 2210, CHE/PETE 3025 or equivalent.

CHE5410 - Advanced Biological Wastewater Treatment

Credits: 3

Theory and practice of advanced biological treatment processes for municipal and industrial wastewaters, sludges, groundwater bioremediation and solid waste. Emphasis is on fundamental principles applied to the design and control of existing processes and the development of innovative systems

Cross Listed CE/ENVE 5410

Prerequisite: Consent of instructor.

CHE5440 - Fluid Mechanics

Credits: 3

Lagrangian and Eulerian descriptions, conservation laws, stress and rate-of-stress tensors, Navier-Stokes equations, energy equations, vorticity and circulation inviscid and potential flows, laminar flows, turbulent flows, boundary-layer theory.

Cross Listed ME 5440

CHE5600 - Research Data Management

Credits: 3

A general approach to research data management for graduate students and researchers. Topics include: the case for data management, data management planning, meeting grant requirements, formatting and organizing, storing and transferring, legal and ethical issues, strategies for research teams, sharing data, and publishing, citing, and rights to research data.

Cross Listed ES/GRAD/LBRY/PETE 5600

CHE5700 - Fundamentals of Coal Utilization

Credits: 3

Following introduction to coal structure, constituents and classification, fundamental principles of coal utilization technologies will be examined. The topics to be covered include behavior of coal stockpiles, drying, pyrolysis, combustion/gasification of coal. Reactor models for utilization of coal will be discussed with reference to current environmental issues and remediation.

Prerequisite: Graduate standing

CHE5880 - Problems in Chemical Engineering

Credits: 1-6
Max Credit 6

A special course designed to make possible the study and investigation of problems or phases of chemical engineering selected to fit the needs of the student.

Prerequisite: Graduate standing in engineering

CHE5890 - Chemical Engineering Seminar

Credits: 1
Max Credit 9

Departmental seminar on current research with formal training for student presentation of technical papers.

Cross Listed PETE 5890

Prerequisite: Graduate standing

CHE5900 - Practicum in College Teaching

Credits: 1-3
Max Credit 3

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience

Prerequisite: Graduate Status

CHE5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit 16

Prerequisite: Advanced Degree Candidacy

CHE5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit 16

Prerequisite: Advanced degree candidacy

CHE5960 - Thesis Research

Credits: 1-12
Max Credit 24

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis

Prerequisite: Enrolled in a graduate degree program.

CHE5980 - Dissertation Research

Credits: 1-12
Max Credit 48

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: Enrolled in a graduate level degree program.

CHE5990 - Internship

Credits: 1-12
Max Credit 48

Prerequisite: Graduate standing

Chemistry

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

CHEM1001 - The Chemical Community

Credits: 1

A survey of chemistry both as a major and a discipline. Chemistry's historical role, the scientific method, scientific ethics, as well as current challenges in the major fields of chemistry are discussed. Information literacy is strongly emphasized, both by familiarization with university resources as well as specialized chemical databases.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3I, U3L

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

CHEM2000 - Special Topics in the Laboratory

Credits: 1
Max Credit (Max. 4)

Introduces students to laboratory experience in chemistry.

Prerequisite: special permission from the chemistry department.

CHEM2230 - Quantitative Analysis

Credits: 5
Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.
When Offered (Normally offered spring semester)
Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2300 - Introductory Organic Chemistry

Credits: 4
Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)
Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4
First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.
When Offered (Normally offered fall)
Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4
Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM3020 - Environmental Chemistry

Credits: 3

Environment and modern environmental problems in terms of chemical structures and reactions. Chemical principles of equilibrium, kinetics, and thermodynamics are used to help understand our changing environment. Topics include toxicological chemistry, aquatic chemistry, atmospheric chemistry, and green chemistry.

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 2230; and QA course.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

CHEM4000 - Career Skills

Credits: 3

Max Credit 3

This class will help students develop their communication and job seeking skills for a professional career in chemical sciences. Additionally, it will help build their problem solving, chemical literature, laboratory safety, teamwork and ethical skills that are necessary to succeed in their professional careers in chemical sciences.

When Offered (Normally offered fall semester)

Prerequisite: At least 6 credit hours of Chemistry (CHEM) classes.

CHEM4040 - Chemical Literature

Credits: 1-2

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 4507 or CHEM 3550 or concurrent enrollment.

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM4508 - Physical Chemistry II

Credits: 3

Second semester of a one year sequence, emphasizes kinetic theory of gasses and non-ideal solutions, chemical equilibrium, electrochemistry, statistical thermodynamics, and reaction kinetics. Uses multivariable calculus and differential equations.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4507.

CHEM4515 - Applied Mathematics in Physical Chemistry I

Credits: 3

Designed to introduce the necessary mathematical background and essential computer programming tools for students of physical and theoretical chemistry. This includes an introduction into linear algebra, multivariate calculus, differential equations, analysis and modeling of experimental data, use of Matlab software and mathematical analysis of physical chemistry problems.

Dual Listed CHEM 5515.

Prerequisite: MATH 2200 and MATH 2205, CHEM 1020/CHEM 1030 or CHEM 1050/CHEM 1060.

CHEM4516 - Applied Mathematics in Physical Chemistry II

Credits: 3

Covers the advanced mathematical techniques in physical and theoretical chemistry. This includes introduction into probability and stochastic processes, infinite series, vector and tensor calculus, Fourier transforms and partial differential equations. Includes practical numerical problem solutions using MatLab software and applications of the mathematical analysis to specific physical chemistry problems.

Dual Listed CHEM 5516.

Prerequisite: CHEM 4515.

CHEM4525 - Physical Chemistry Lab I

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with an emphasis on quantum mechanical (spectroscopic) methodologies.

Prerequisite: CHEM 4507 or concurrent enrollment.

CHEM4530 - Physical Chemistry Laboratory II

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with

emphasis on thermodynamics and kinetics.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4508 or concurrent enrollment.

CHEM4560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical, density functional, semi-empirical and molecular mechanics methods.

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 5560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

CHEM4920 - Special Problems in Chemistry

Credits: 1-3

Probes deeply into special areas of chemistry through library or laboratory work. Taken under supervision of faculty in the area of the investigation.

When Offered (Offered every semester)

Prerequisite: consent of instructor.

CHEM4930 - Undergraduate Research

Credits: 1-3

Research activities on a chemical project of limited scope or as part of a laboratory project of great scope. A written report is submitted to the department each semester of enrollment.

When Offered (Offered every semester)

Prerequisite: chemistry major and consent of instructor.

CHEM5000 - Seminar in Chemistry

Credits: 1

Max Credit (Max. 3)

This class will help students develop their communication and job seeking skills for a professional career in chemical sciences. Additionally, it will help build their problem solving, chemical literature, laboratory safety, teamwork and ethical skills that are necessary to succeed in their professional careers in chemical sciences.

Prerequisite: graduate standing in chemistry or biochemistry.

CHEM5100 - Special Topics in Advanced Inorganics

Credits: 1-9
Max Credit (Max. 12)

A course designed for students with an interest in contemporary inorganic chemistry. Recent problems in the literature and techniques for their solution will be addressed.

When Offered (Normally offered during Summer Session)

CHEM5111 - Advanced Inorganic Chemistry

Credits: 3
A graduate-level course on theoretical and descriptive inorganic chemistry. Topics will include molecular symmetry, spectroscopy, electronic structure/bonding, magnetism, electron transfer, and catalysis.

Former Course Number [5110]

Prerequisite: CHEM 2420, CHEM 4110 and CHEM 3550 or CHEM 4507.

CHEM5115 - Descriptive Inorganic Chemistry

Credits: 3
Advanced survey of inorganic chemistry, emphasizing the synthesis, structural, and reactivity properties of inorganic compounds. Emphasis will be placed on the application of bonding theory and periodic principles to the chemistry of main-group, d-block, and f-block elements.

Prerequisite: CHEM 4110, CHEM 5110 or CHEM 5111.

CHEM5140 - Organometallic Chemistry

Credits: 3
A survey of bonding and synthetic reactions of transition metal organometallic chemistry.

Prerequisite: CHEM 4110/5110.

CHEM5150 - Inorganic Group Seminar

Credits: 1
Max Credit (Max. 9)

Course designed for students with an interest in contemporary inorganic chemistry. Recent problems in the literature and techniques for their solution are addressed.

CHEM5190 - Research in Inorganic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4110/5110.

CHEM5200 - Special Topics in Analytical Chemistry

Credits: 1-6
Max Credit (Max. 12)

Material selected from chromatography, electroanalytical chemistry, ion exchange, chemical separations, optical methods of analysis, polarography and other areas.

When Offered (Normally offered during Summer Session)

Prerequisite: CHEM 4230, CHEM 4507.

CHEM5220 - Modern Electroanalytical Methods

Credits: 3

An advanced survey of electroanalytical chemistry including ion selective potentiometry, electrolysis, coulometry, polarography and voltammetry.

CHEM5240 - Optical Methods of Chemical Analysis

Credits: 3

An advanced survey of the theory, instrumentation and applications of optical methods of chemical analysis.

Prerequisite: CHEM 4230, CHEM 4507.

CHEM5250 - Advanced Chemical Instrumentation

Credits: 3

Introduces chemistry students to the basic elements of electronics. Specific topics include networks, passive and active filters, digital electronics, logic gates, counters, flip-flops, and converters. Second half of course introduces students to experimental design, pattern recognition, factorial analysis, and multivariate statistical methods.

Prerequisite: CHEM 4230 or its equivalent.

CHEM5260 - Separation Methods

Credits: 3

A detailed survey of the theoretical and practical aspects of modern separation methods with emphasis on chromatography.

Prerequisite: CHEM 2230, CHEM 2440, and CHEM 4508.

CHEM5290 - Research in Analytical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 2230, CHEM 4507.

CHEM5300 - Special Topics Synthetic

Credits: 1-6
Max Credit (Max. 9)

Material will be selected from one of the following areas: heterocycles, organometallics, natural products, physical and chemical methods of structure elucidation, organic photochemistry, and other special areas of organic chemistry.

When Offered (Normally offered during Summer Session)

Prerequisite: CHEM 5330.

CHEM5310 - Organic Group Seminar

Credits: 1
Max Credit (Max. 9)

Designed for students with an interest in organic reaction mechanisms. A problem solving approach using electron pushing techniques will be emphasized.

Prerequisite: CHEM 5340.

CHEM5320 - Spectroscopic Methods of Structure Determination

Credits: 3
Provides theoretical and practical treatment of spectroscopic methods for application in research. Topics include ultraviolet, infrared, and nuclear magnetic resonance spectroscopy and mass spectrometry.

Prerequisite: CHEM 2440, CHEM 4507.

CHEM5330 - Advanced Organic Chemistry

Credits: 3
Treatment of organic chemistry from the viewpoints of structure and mechanism with emphasis on structural theory of bonding, stereochemistry and the general classes of organic reactions.

Prerequisite: CHEM 2440 and CHEM 4507.

CHEM5340 - Synthetic Methods in Organic Chemistry

Credits: 3
Surveys and applies the important synthetic methods of organic chemistry with particular attention to recent developments.

Prerequisite: CHEM 5330.

CHEM5390 - Research in Organic Chemistry

Credits: 1-3

Max Credit (Max. 12)

Prerequisite: CHEM 5320.

CHEM5400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 4400.

Prerequisite: CHEM 2440 or consent of instructor.

CHEM5500 - Special Topics in Physical Chemistry

Credits: 1-6

Max Credit (Max. 9)

Material will be selected from one of the following fields: electrochemistry, surface chemistry, catalysis, colloids, photochemistry, and other special fields of physical chemistry.

When Offered (Normally offered during Summer Session)

Prerequisite: CHEM 4507 and 5510.

CHEM5501 - Physical Group Seminar

Credits: 1-9

Max Credit (Max. 9)

Designed for students with an interest in theoretical and experimental physical chemistry. Students are required to give presentations on current literature and research topics.

Prerequisite: graduate standing.

CHEM5515 - Methods of Applied Mathematics in Physical Chemistry I

Credits: 3

Designed to introduce the necessary mathematical background and essential computer programming tools for students of physical and theoretical chemistry. Includes an introduction into linear algebra, multivariate calculus, differential equations, analysis and modeling of experimental data, use of Matlab software, and mathematical analysis of physical

chemistry problems.

Dual Listed CHEM 4515.

Prerequisite: MATH 2200 and MATH 2205, 1 yr. CHEM 1020/CHEM 1030 or CHEM 1050/CHEM 1060.

CHEM5516 - Applied Mathematics in Physical Chemistry II

Credits: 3

Covers the advanced mathematical techniques in physical and theoretical chemistry. This includes an introduction into probability and stochastic processes, infinite series, vector and tensor calculus, Fourier transforms and partial differential equations. Includes practical numerical problem solutions using Matlab software and applications of the mathematical analysis to specific physical chemistry problems.

Dual Listed CHEM 4516.

Prerequisite: CHEM 4515/CHEM 5515.

CHEM5530 - Quantum Chemistry

Credits: 3

The quantum mechanical description of time-dependent and independent processes, including discussions of the Schrodinger equation, wave packets, approximate methods, and interaction of matter with radiation.

Prerequisite: two semesters of undergraduate physical chemistry.

CHEM5540 - Molecular Spectroscopy

Credits: 3

Introduction to the relationships among quantum mechanical formulations, experimentally determinable quantities obtained via spectroscopic methods, and physical parameters related to the structure of molecular systems.

Prerequisite: CHEM 5530.

CHEM5560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical,

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 4560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

CHEM5590 - Research in Physical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4507.

CHEM5790 - Research in Biological Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: consent of instructor.

CHEM5820 - Advanced Problems in Chemistry

Credits: 1-3
Max Credit (Max. 3)

A graduate level course for students desiring to probe more deeply into a special area of chemistry. Taken under the supervision of a faculty member in the field of investigation.

Prerequisite: consent of instructor.

CHEM5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

CHEM5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

CHEM5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

CHEM5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

CHEM5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

CHEM5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

CHEM5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Chinese

CHIN1010 - First Year Chinese I

Credits: 4
Fundamentals of grammar, conversation, and reading. Introduction to Chinese culture through the language.

USP 2015 Code U5H

CHIN1020 - First Year Chinese II

Credits: 4
Fundamentals of grammar, conversation, and reading. Introduction to Chinese culture through the language.

USP 2015 Code U5H

Prerequisite: CHIN 1010 or equivalent.

CHIN1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

CHIN2030 - Second Year Chinese I

Credits: 4

Grammar, composition, conversation and more vocabulary in Chinese.

Prerequisite: CHIN 1020 or equivalent.

CHIN2040 - Second Year Chinese II

Credits: 4

Further studies in grammar composition, conversation and more vocabulary in Chinese.

Prerequisite: CHIN 2030 or CHIN equivalent.

CHIN2041 - Contemporary and Traditional Chinese Culture

Credits: 3

Designed to provide those with a serious interest in China and Chinese language with a cultural context for learning Chinese language. Incorporates economic and social material to give students a clear view of Chinese culture with an emphasis on Chinese language instruction.

Prerequisite: CHIN 2030.

CHIN3050 - Intermediate Composition and Conversation

Credits: 3

Develop abilities to read and write complex Chinese texts with an intermediate level of understanding, including texts in both conversational and narrative styles. Reading and writing skills will build considerably on the skills learned in two years of university study in Chinese language.

Prerequisite: CHIN 2040 or equivalent.

CHIN3055 - Business Chinese

Credits: 3

Comprehensive course on business language skills. For students with proficiency in Mandarin at the Intermediate Mid level or higher. Focus is on language functions for the workplace. Productive skills, both spoken and written, will

include the composition of extended frequently-used business documents

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: CHIN 3050 or equivalent.

CHIN3065 - Intermediate Composition and Conversation II

Credits: 3

Students will not only understand and construct complex speech and writing but will gain the ability to do so effectively to persuade, discuss and communicate accurately with native Chinese speakers. Students will be able to relate topics such as personal experience, daily routine, reports, opinions and judgment in well-written Chinese paragraphs.

Prerequisite: CHIN 3050 or equivalent.

CHIN3160 - See Movies, Touch China

Credits: 3

This course combines exploration of classical and contemporary Chinese cultures through prominent Chinese films. The audio-video materials selected will be discussed in their historical context. Students will explore the transformations China has undergone, and will seek to understand the Chinese mindset.

USP 2003-2014 Code [(none)< >H]

Prerequisite: COM1.

CHIN4070 - Business Chinese II

Credits: 3

Apply previously acquired skills in complex Chinese language and business topics to the thorough analysis of case studies in Chinese business scenarios. Students will be able to read, discuss, and reach conclusions based on case studies of international companies in China and Chinese companies in international markets.

Prerequisite: CHIN 3055.

Civil Engineering

CE1000 - Exploring CAECM

Credits: 1

Introduction to civil and architectural engineering professions through exploration of modern engineering challenges. Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globalizability, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed ARE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE1010 - Civil Engineering Tools

Credits: 3

This course is an introduction to computing tools commonly used in civil engineering practice including 3-D Computer Aided Drafting, Spreadsheets and Presentation Software. Tools will be introduced through design work on typical civil engineering design projects.

Prerequisite/Corequisite: of MATH 2200.

CE2070 - Engineering Surveying

Credits: 3

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Traverse field techniques and office calculations. Basic principles of surveying and map making.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE3110 - Professional Practice

Credits: 3

Max Credit 3

Professional practice in civil and architectural engineering including economics, ethics, professional responsibility and licensure; business and management principles; project management structure; leadership and public policy.

Cross Listed ARE 3110

Prerequisite: Gateway requirement for Civil & Architectural Engineering majors

CE3200 - Structural Analysis I

Credits: 3

Introductory design and analysis topics in loads on building, stress and displacement analysis of structures, including beams, trusses and frames, classical flexibility and stiffness methods.

Cross Listed ARE 3200.

USP 2003-2014 Code [WB<>(none)]

Prerequisite: ES 2410.

CE3210 - Civil Engineering Materials

Credits: 4

Laboratory investigation and design of materials used in civil engineering: metals, masonry, concrete and timber. Nondestructive evaluation of materials. Analysis and presentation of data, including various types of written reports and oral presentations.

Cross Listed ARE 3210.
USP 2003-2014 Code U3WB
USP 2015 Code U5C3
Former Course Number [2210]

Prerequisite: COM2 and ES 2410.

CE3300 - Hydraulic Engineering

Credits: 3

Develops analysis, design and modeling techniques for incompressible pipe flow, steady uniform and gradually varied open channel flow, and hydraulic structures.

Former Course Number [4320]

Prerequisite: ES 2330.

CE3400 - Introduction to Environmental Engineering

Credits: 3

An introduction to the major topics in environmental engineering. Focus areas include water supply, wastewater treatment, air pollution control and solid and hazardous waste management. Quantitative aspects and engineering solutions to problems are emphasized.

Prerequisite: MATH 2205 and CHEM 1020 or equivalent.

CE3500 - Transportation Engineering

Credits: 4

Introduction to the major topics in Transportation Engineering. The topics covered include human, vehicle and roadway characteristics and performance, traffic characteristics and flow theory, roadway capacity and Level of Service (LOS) concepts, intersection and traffic signal design, public transportation, transportation planning, geometric design of highways, traffic safety, highway materials, and pavement design

Former Course Number [4500]

Prerequisite: CE 1010.

CE3600 - Soil Mechanics I

Credits: 4

A study of soil and the properties which influence its usefulness as an engineering material. Principles governing movement of soil, water and propagation of stresses through soil masses are studied.

Former Course Number [4600]

Prerequisite: ES 2410.

CE3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ATSC 3890/ARE 3890/CHE 3890/COSC 3890/EE 3890/ES 3890/PETE 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

CE4010 - Civil Engineering Design

Credits: 3

Students will prepare final civil engineering documents including construction plans, specifications, and engineering estimates for a civil engineering project. Concepts of standard specifications and sustainability measures will also be applied to the design.

Former Course Number [3010]

Prerequisite: STAT 2050.

CE4200 - Structural Analysis II

Credits: 3

Stress and displacement of indeterminate structures. Determination of loads on buildings. Matrix stiffness methods.

Cross Listed ARE 4200

Prerequisite: ARE 3200/CE 3200.

CE4250 - Structural Steel Design

Credits: 3

Design of structural components and applications utilizing steel.

Cross Listed ARE 4250.

Prerequisite: ARE 3200/CE 3200.

CE4260 - Structural Concrete Design

Credits: 3

Design of structural components and applications utilizing reinforced concrete.

Cross Listed ARE 4260.

Prerequisite: ARE 3200/CE 3200.

CE4265 - Prestressed Concrete Design

Credits: 3

This is a classical course on designing prestressed and precast concrete systems. Principles and behavior of prestressed concrete build the foundation for topics that included flexure, shear, and axial load, construction and fabrication, and application. The course continues with fundamental concepts taught in RE/CE 4260.

Cross Listed ARE 4265.

Dual Listed CE 5265.

Prerequisite: ARE 4260/CE 4260.

CE4285 - Masonry Design

Credits: 3

Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed ARE 4285.

Dual Listed ARE 5285 and CE 5285.

When Offered Offered on a three semester rotation.

Former Course Number [4280]

Prerequisite: ARE 4260/CE 4260 and ARE 3200/CE 3200.

CE4295 - Structural Timber Design

Credits: 3

Design of structural components and applications utilizing timber.

Cross Listed ARE 4295.

Dual Listed CE 5295.

Former Course Number [4290]

Prerequisite: CE 3200 or equivalent.

CE4400 - Design of Water Treatment Facilities

Credits: 3

A theoretical and practical design course for municipal potable water treatment systems. Major emphasis includes health criteria, operational control procedures, primary and secondary drinking water regulations, as well as the latest treatment design standards for production of drinking water.

Prerequisite: CE 3400.

CE4410 - Design of Wastewater Treatment Facilities

Credits: 3

A theoretical and practical design course for treatment of municipal wastewaters. Major areas of emphasis include waste characterization and physical, chemical and biological unit processes.

Prerequisite: CE 3400.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

CE4441 - Solid Waste Engineering

Credits: 3

Municipal solid waste characteristics and quantities, collection, landfills, processing of municipal solid waste, materials separation, combustion and energy recovery, and biochemical processes with an emphasis on materials flow. Integrated solid waste management principles are also discussed.

Former Course Number [4440]

Prerequisite: CE 3400.

CE4510 - Pavement Design for Airports and Highways

Credits: 3

Designing flexible and rigid pavements for highways and airports. Topics include pavement materials and common uses, soil stabilization, quality control of materials, pavement design procedures.

Dual Listed CE 5510.

Former Course Number [5510]

Prerequisite: CE 3500 or CE 3600.

CE4530 - Traffic Engineering: Operations

Credits: 3

Basic characteristics of traffic, such as drivers, vehicles, volumes, speeds, delay, origins and destinations, intersection performance, capacity, termination and accidents; techniques for making traffic engineering investigations; traffic laws and ordinances, regulations, design and application of signal systems; curb parking control; enforcement and traffic administration; and public relations.

Dual Listed CE 5530.

Prerequisite: CE 3500.

CE4555 - Geometric Design of Highways

Credits: 3

Criteria controlling geometric design of highways including design speed, design volume, vehicle requirements and capacity design standards for different highway types; design of sight distance, alignment, grade; cross-section design; access control, frontage roads; intersection design elements, and design of intersections and interchanges.

Dual Listed CE 5555.

A&S College Core 2015 Students may not receive credit for both CE 4555 and CE 5555.

Former Course Number [4520]

Prerequisite: CE 3500.

CE4565 - Traffic Simulation

Credits: 3

Traffic modeling and simulation study development; definition, construction, calibration, validation of traffic simulation models; traffic flow dynamics in transportation networks; mathematical optimization of transportation networks; traffic simulation software.

Dual Listed CE 5565.

Prerequisite: CE 3500.

CE4580 - Honors Undergraduate Research

Credits: 3

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/faculty partnership to the appropriate staff in their home department. Must be in the Engineering Honors Program.

Cross Listed ATSC 4580/BE 4580/CHE 4580/COSC 4580/ES 4580/ESE 4580/PETE 4580.

Prerequisite: junior or senior standing.

CE4610 - Foundation Engineering

Credits: 3

Site characterization, laboratory shear tests and determination of soil properties. Analyses include bearing capacity, stress distribution and settlement. Design of shallow and control of deep foundations using static and dynamic methods.

Dual Listed CE 5610.

Prerequisite: CE 3600.

CE4620 - Soil and Rock Slope Engineering

Credits: 3

Advanced engineering and geologic classification of landslides; detailed field investigations; solid and rock strength properties for stability analysis; advanced analytical and numerical methods for analysis of slope stability; design of engineered stabilization systems.

Dual Listed CE 5660.

Prerequisite: CE 3600.

CE4630 - Ground Improvement, Reinforcement and Treatment

Credits: 3

This course is designed to help students understand a number of available geotechnical ground improvement, reinforcement and treatment techniques currently in use.

Dual Listed CE 5630.

Prerequisite: CE 3600.

CE4650 - Instrumentation in Civil Engineering

Credits: 3

This lab based course will provide hands on learning to students to install instruments, collect data, analyze results, and use civil engineering judgment to make decisions.

Dual Listed CE 5650.

Prerequisite: ES 2410.

CE4695 - Undergraduate Research

Credits: 1-3

Max Credit (Max. 3)

Research activities on a relevant project of limited scope or as part of a laboratory project of greater scope under the advisement of a faculty member or mentor. The normal workload for 3 credits is considered to be 9 hours per week.

Students will present at Undergraduate Research Day.

Prerequisite: CE 1000/ARE 1000.

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

CE4810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 5810.

Prerequisite: ES 2330.

CE4840 - Groundwater Contamination

Credits: 3

Develop principles and fundamental parameters that control groundwater flow and solute transport in groundwater systems. Introduce basic geochemical processes and contaminant chemistry and site monitoring techniques relevant to groundwater problems.

Dual Listed CE 5840.

Prerequisite: CE 4810 or equivalent.

CE4870 - Water Resource Engineering

Credits: 3

Study in water resource planning and design and problem solving applying engineering principles and procedures. Western United States water problems are emphasized, including user completion, reallocation, consumptive use, water development, conservation, conveyance losses, and return flows.

Dual Listed CE 5870.

Prerequisite: CE 3300.

CE4900 - Comprehensive Design Experience

Credits: 3

Team comprehensive project design experience considering the sub-disciplines of civil engineering.

Prerequisite: ARE/CE 3110 and 3 of CE 3200, CE 3300, CE 3400, CE 3500, CE 3600, and two of CE 4250, CE 4260, CE 4610, CE 4555, CE 4510, CE 4400, CE 4410, or CE 4800, or instructor consent.

CE4920 - Senior Civil Engineering Problems

Credits: 1-3

Max Credit (Max. 6)

A study of current engineering problems that are applicable to civil engineering either on an individual basis or for small seminar type groups.

Prerequisite: senior standing or approval of department head.

CE4959 - Enrichment Studies

Credits: 1-4

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may NOT be included in an undergraduate or graduate program of study for a degree or for credit towards a certificate program.

Prerequisite: consent of instructor.

CE4965 - Undergraduate Research

Credits: 1-3

Max Credit 3

Research activities on a relevant project of limited scope or as part of a laboratory project of greater scope under the advisement of a faculty member or mentor. The normal workload for 3 credits is considered to be 9 hours per week. Students will present at Undergraduate Research Day.

Prerequisite: CE 1000 or ARE 1000, consent of the department head.

CE4970 - Wyoming DOT Design Squad Cooperative Experience

Credits: 3

Experience with Wyoming Department of Transportation design procedures and fundamentals. Participation in development of design documents used to construct actual projects.

Prerequisite: selection for Laramie Design Squad employment and consent of department head.

CE4975 - Civil and Architectural Engineering Internship

Credits: 1-3
Max Credit (Max. 3)

Students may apply for credit for extended work experience (>10 weeks; full-time) at a professional engineering or architectural firm, supervised by a licensed professional. Students should apply through their adviser prior to the work experience. Enrollment is by departmental approval only.

Cross Listed ARE 4975.

When Offered Offered summer only.

Prerequisite: consent of department head.

CE5010 - Advanced Mechanics of Materials

Credits: 3

Elements of elasticity, unified approach to strength of structural members design and failure criteria; basic concepts of fracture mechanics; stress concentration factors; treatment of torsion, bending, axial and shear in structural members including plastic effects; bending of flat plates.

Prerequisite: ME 3010 or CE 3200, MATH 2310.

CE5040 - Introduction to Finite Element Analysis

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. Includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Cross Listed ME 5040.

Former Course Number [5020]

Prerequisite: MATH 2310 and (CE 4200 or ARE 4200 or ME 3010).

CE5045 - Advanced Finite Element Analysis

Credits: 3

Advanced topics in finite element analysis with emphasis on mathematical foundations of the method, numerical algorithms for software implementation, and analysis of problems with material and geometric nonlinear behavior.

Cross Listed ME 5045.

Prerequisite: ME 4040 or ME 5040 or CE 5040.

CE5200 - Advanced Structural Analysis

Credits: 3

Analysis of framed structures with stiffness-based matrix methods including plane trusses, frames, and grid systems and space trusses and frames. Column, beam, beam-column and frame stability. Geometric and material nonlinearities of framed structures. Plastic analysis and moment-curvature relationships. Computer applications are emphasized.

Prerequisite: CE 4200 or equivalent.

CE5220 - Structural Dynamics

Credits: 3

Introduction to general structural dynamics, general dynamic loading, generalized coordinated and nonlinear structural response, linear and nonlinear response spectra, multiple degree of freedom systems, continuous systems, and discretization of continuous systems. Introduction to seismic load specifications.

Prerequisite: CE 4200 or equivalent and MATH 2310.

CE5230 - Advanced Materials

Credits: 3

The objective of this course is to introduce the graduate student to the behavior of various materials found in typical structural engineering applications and to the mechanics of obtaining materials properties and structural response.

Prerequisite: CE 4260.

CE5240 - Structural Systems Design

Credits: 1-5

Max Credit (Max. 6)

A comprehensive design course for steel and reinforced concrete building structures. Topics include preliminary design, selection of framing systems, braced and unbraced frames, stability effects and nonlinear behavior. Students use case studies to develop design alternatives.

Prerequisite: CE 4200, CE 4250, CE 4260.

CE5255 - Advanced Steel Design

Credits: 3

A comprehensive design course for steel building structures. Topics include preliminary design, selection of framing systems, braced and unbraced frames, stability effects and nonlinear behavior. Includes building design project for seismic regions.

Prerequisite: grade of C or better in CE 4250 or ARE 4250.

CE5265 - Prestressed Concrete Design

Credits: 3

This is a classical course on designing prestressed and precast concrete systems. Principles and behavior of prestressed concrete build the foundation for topics that included flexure, shear, and axial load, construction and fabrication, and application. The course continues with fundamental concepts taught in ARE 4260/CE 4260.

Cross Listed ARE 5265.

Dual Listed CE 4265.

Prerequisite: ARE/CE 4260.

CE5270 - Highway Bridge Engineering

Credits: 3

A study of the analysis, design and rating of highway bridges, including consideration of dead and vehicular loads, analysis of typical systems, service, fatigue and ultimate strength behavior, rating of existing bridge design, and bridge operations. Composite and non-composite steel and concrete bridges are considered. Includes investigations that require field trips outside the schedule class times. Contemporary issues are routinely discussed.

Prerequisite: CE 4250 and CE 4260.

CE5280 - Behavior of Reinforced Concrete

Credits: 3

Broad-based coverage of the behavior of concrete, both at the member and structure level. The course will have no assigned text, although students will be expected to have an undergraduate concrete design textbook and a current ACI Code. Readings will include a number of technical papers in each area covered. Emphasis will be on the background of the code, code development, and investigative techniques.

Prerequisite: CE 4200 and CE 4260.

CE5285 - Masonry Design

Credits: 3

Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed ARE 5285.

Dual Listed ARE 4285 and CE 4285.

When Offered Offered on a three semester rotation.

CE5290 - Earthquake Engineering

Credits: 3

Second course in a series to design earthquake resistant structures. Topics include interpreting code requirements, calculating design forces on structures, evaluating inelastic behavior of structures, understanding how materials behave and advances in earthquake engineering.

Prerequisite: CE 5220.

CE5295 - Structural Timber Design

Credits: 3

Design of structural components and applications utilizing timber.

Cross Listed ARE 5295.

Dual Listed CE 4295.

Prerequisite: CE 3200 or equivalent.

CE5300 - Open-Channel Hydraulics

Credits: 3

Analysis and design of steady, uniform, gradually varied and spatially varied flow in open channels. Emphasis on basic fluid flow equations associated with natural and man-made open channels.

Prerequisite: CE 3300.

CE5321 - Engineering and Environment Geophysics

Credits: 3

Theoretical background for electrical, electromagnetic, georadar, and other near-surface geophysical measurements. Practical exercises focused on modeling, inversion, data analysis and experimental design. Discussion of applications to engineering and environmental problems. Basic knowledge of MATLAB programming language is helpful, but not required.

Cross Listed GEOL 5321.

Prerequisite: MATH 2250 or MATH 2200.

CE5400 - Water Treatment

Credits: 3

Advanced theory and practice of collection, purification, and distribution of potable water; special emphasis on purification techniques, and plant requirements and design.

Prerequisite: CE 4400.

CE5410 - Advanced Biological Wastewater Treatment

Credits: 3

Theory and practice of advanced biological treatment processes for municipal and industrial wastewaters, sludges, groundwater bioremediation and solid waste. Emphasis is on fundamental principles applied to the design and control of existing processes and the development of innovative systems.

Cross Listed CHE/ENVE 5410.

Prerequisite: consent of instructor.

CE5435 - Environmental Transport Processes

Credits: 3

Designed for graduate students and engineering seniors interested in the principles of mass transport and their application to environmental systems. Deals with the hydrodynamics of mixing and transport, as well as the interaction of mixing and various reaction rate processes. Applications include water and wastewater treatment, groundwater pollution, and transport and mixing in rivers, lakes and reservoirs.

Cross Listed ENVE 5435 and CHE 5435.

Prerequisite: MATH 2310 and ES 2330.

CE5445 - Environmental Remediation

Credits: 3

The contamination of soil, air, and groundwater by improper disposal of hazardous wastes is covered. Control and cleanup of contaminated groundwater plumes, treatment of polluted soils and soil gases is emphasized. Case studies are extensively used.

Cross Listed ENVE 5445 and CHE 5445

Prerequisite: CE 3400.

CE5450 - Advanced Physical-Chemical Treatment

Credits: 3

A study of physical and chemical processes for treatment of water and waste water.

Cross Listed ENVE 5450.

Prerequisite: CE 4400.

CE5510 - Pavement Design for Airports and Highways

Credits: 3

Designing flexible and rigid pavements for highways and airports. Topics include pavement materials and common uses, soil stabilization, quality control of materials and pavement design procedures.

Dual Listed CE 4510.

Prerequisite: CE 3500 or CE 3600.

CE5530 - Traffic Engineering: Operations

Credits: 3

Basic characteristics of traffic, such as drivers, vehicles, volumes, speeds, delay, origins and destinations, intersection performance, capacity, termination and accidents; techniques for making traffic engineering investigations; traffic laws and ordinances, regulations, design and application of signal systems; curb parking control; enforcement and traffic administration; and public relations.

Dual Listed CE 4530.
Former Course Number [5520]

Prerequisite: CE 3500.

CE5540 - Traffic Control

Credits: 3

Planning, designing, and operating transportation facilities to optimum efficiency using traffic control devices. Topics included are traffic flow theory; pavement markings, signing, and signal design; computer design of signal systems using linear and network models; traffic control in construction areas.

Prerequisite: CE 3500 and ES 2110.

CE5545 - Transport Network Analysis

Credits: 3

Traffic assignment and network modeling techniques; deterministic and stochastic user equilibrium assignment; mathematical programming formulations and solution algorithms; extensions to basic models; and applications to roadway pricing and other planning scenarios.

Prerequisite: graduate standing in civil engineering.

CE5555 - Geometric Design of Highways

Credits: 3

Criteria controlling geometric design of highways including design speed, design volume, vehicle requirements and capacity design standards for different highway types; design of sight distance, alignment, grade; cross-section design; access control, frontage roads; intersection design elements; and design of intersections and interchanges. CE 5555 students are required to do an additional integrated design term project using design software.

Dual Listed CE 4555.

A&S College Core 2015 Students may not receive credit for both CE 4555 and CE 5555.

Prerequisite: CE 3500.

CE5560 - Traffic Safety

Credits: 3

Safety design and operational practices for streets and highways including safety improvement programs, design of barrier systems, bicycle and pedestrian consideration; access control; safety evaluation; and measures of effectiveness.

Prerequisite: CE 3500 and STAT 4220.

CE5565 - Traffic Simulation

Credits: 3

Traffic modeling and simulation study development; definition, construction, calibration, validation of traffic simulation models; traffic flow dynamics in transportation networks; mathematical optimization of transportation networks; traffic simulation software.

Dual Listed CE 4565.

Prerequisite: graduate standing.

CE5570 - Transportation Planning

Credits: 3

Short and long-range transportation planning; land-use planning, travel behavior and transportation studies including demand forecasting; parking and transit studies; highway and street planning; and freight transportation and multi-model planning.

Prerequisite: CE 3500.

CE5575 - Intelligent Transportation Systems

Credits: 3

The use of Intelligent Transportation Systems (ITS) to improve the safety, efficiency, reliability, and/or security of transportation systems. Covers ITS applications, technologies, deployment issues, and system performance in both urban and rural environments.

Prerequisite: CE 3500.

CE5585 - Pavement Management Systems

Credits: 3

A study of the systems that a transportation agency may utilize to manage the pavement in their road network. History and purpose of pavement management are studied as well as how to make objective pavement management decisions. The distinction between project-level and network-level management concerns is explored and the implementation of a pavement management system is studied. Finally, methods for utilizing the information from the management system is studied.

Prerequisite: CE 3500.

CE5590 - Pavement Materials

Credits: 3

Selecting materials for highway construction, testing aggregates and bituminous materials, designing and testing asphalt mixtures; and recommending maintenance and rehabilitation strategies for deteriorated pavements.

Prerequisite: CE 3500.

CE5610 - Foundation Engineering

Credits: 3

Site characterization, laboratory shear tests and determination of soil properties. Analyses include bearing capacity, stress distribution and settlement. Design of shallow and control of deep foundations using static and dynamic methods.

Dual Listed CE 4610.

Prerequisite: CE 3600.

CE5630 - Ground Improvement, Reinforcement and Treatment

Credits: 3

This course is designed to help students understand a number of available geotechnical ground improvement, reinforcement and treatment techniques currently in use.

Dual Listed CE 4630.

Prerequisite: CE 3600.

CE5640 - Geotechnical Earthquake Engineering

Credits: 3

The purpose of this course is to familiarize students with the field of geotechnical earthquake engineering and soil dynamics. Lectures will focus on stress wave propagation in soil and rock; characterization of earthquakes and ground motions; influence of soil conditions on seismic ground motion characteristics; and liquefaction of soils.

Prerequisite: CE 3600 or graduate standing.

CE5650 - Instrumentation in Civil Engineering

Credits: 3

This lab based course will provide hands on learning to students to install instruments, collect data, analyze results, and use civil engineering judgment to make decisions.

Dual Listed CE 4650.

Prerequisite: ES 2410.

CE5660 - Soil and Rock Slope Engineering

Credits: 3

Advanced engineering and geologic classification of landslides; detailed field investigations; solid and rock strength properties for stability analysis; advanced analytical and numerical methods for analysis of slope stability; design of engineered stabilization systems.

Dual Listed CE 4620.

Prerequisite: graduate standing.

CE5700 - Civil Engineering Problems I

Credits: 1-3
Max Credit (Max. 6)

A special course, designed to make possible the study and investigation of problems or phases of civil engineering selected to fit the needs of the students.

Prerequisite: consent of instructor.

CE5710 - Civil Engineering Seminar I

Credits: 1-3
Max Credit (Max. 6)

A seminar type class furnishing motivation for advanced study of current problems in broad field of civil engineering by means of library research, study of current literature, and carefully guided class discussion.

Prerequisite: consent of instructor.

CE5720 - Civil Engineering Problems II

Credits: 1-3
Max Credit (Max. 6)

A special course designed to make possible the study and investigation of problems or phases of civil engineering selected to fit the needs of the student.

Prerequisite: consent of instructor.

CE5730 - Civil Engineering Seminar II

Credits: 1-3
Max Credit (Max. 6)

A seminar-type class furnishing motivation for advanced study of current problems in the broad field of engineering by means of library research, study of current literature, and carefully guided class discussions.

Prerequisite: consent of instructor.

CE5785 - HT Person Seminar

Credits: 3
Special topics in engineering as presented by the H.T. Person distinguished professor.

Prerequisite: graduate standing.

CE5810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 4810.

Prerequisite: CE 4800.

CE5820 - Design of Small Earth Dams

Credits: 3

Develop understanding, analysis, design and construction techniques for all components considered in small earth dam design. Integration of hydrology, hydraulics and soil mechanics into a sound dam design. Dam design will be emphasized from foundation through embankment.

Prerequisite: CE 3300, CE 3600 and CE 4800 or concurrent enrollment.

CE5830 - Flow in Porous Media

Credits: 3

Examines fluid (liquid, gas, vapor) and heat flow in porous media and its effects specifically in soil. Near surface effects (impibation, infiltration and evaporation) is emphasized. Analytic and numerical solution techniques will be developed.

Prerequisite: CE 5810 or consent of instructor.

CE5840 - Groundwater Contamination

Credits: 3

Develop principles and fundamental parameters that control groundwater flow and solute transport in groundwater systems. Introduce basic geochemical processes and contaminant chemistry and site monitoring techniques relevant to groundwater problems.

Dual Listed CE 4840.

Prerequisite: CE 5810 or equivalent.

CE5850 - Advanced Subsurface Hydrology

Credits: 3

This course introduces recent advances in dealing with uncertainty issues in subsurface hydrology. Covered topics include reviewing basic statistics required for the course and subsurface flow and transport, uncertainty analysis using Monte Carlo simulations, sensitivity analysis in flow and contaminant transport, heterogeneity of hydrological processes in subsurface, and Bayesian updating.

Prerequisite: CE 5810 or CE 4800.

CE5865 - Deterministic Hydrology

Credits: 3

Philosophy of modeling, hydrologic model formulation and design; lumped, semi-distributed, and physics-based hydrologic models for watershed- and landscape-scale predictions; process-level mathematical and numerical descriptions and coupling; model calibration, testing, and validation; parameterization, numerical approximations of flow equations; scale effects, modeling ethics.

Prerequisite: CE 4800.

CE5870 - Water Resource Engineering

Credits: 3

Study in water resource planning and design and problem solving applying engineering principles and procedures. Western United States water problems are emphasized, including user completion, reallocation, consumptive use, water development, conservation, conveyance losses, and return flows.

Dual Listed CE 4870.

CE5875 - Probabilistic Hydrology

Credits: 3

Introduction to the language, methods and tools in systems analysis in stochastic hydrologic modeling; parameter estimation; sensitivity analysis; optimization schemes; uncertainty analysis; probabilistic forecasting; state-space modeling with Kalman filtering, and data assimilation.

Prerequisite: CE 4800.

CE5880 - Advanced Hydrology

Credits: 3

Advanced hydrologic analysis for the Mountain States, principles of hydrological system, and numerical models.

Prerequisite: MATH 2310.

CE5885 - Hydrometeorology

Credits: 3

Global radiation budget, global hydrologic cycle, precipitation formation, occurrence and remote sensing, snow melt, evapotranspiration, interception, infiltration and runoff generation mechanisms, overland flow, land surface modeling, stream routing.

Prerequisite: CE 3300.

CE5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

CE5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

CE5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

CE5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: Enrolled in a graduate degree program.

CE5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

Classics

CLAS2020 - Classical Greek Civilization

Credits: 3

Examines some of the most important developments of ancient Greek culture. Includes development of government in the city-states, with particular attention to Athenian democracy; tragedies of Aeschylus, Sophocles and Euripides; comedies of Aristophanes; crisis of values of the Peloponnesian War; and philosophy of Plato.

USP 2003-2014 Code U3C, U3WB

USP 2015 Code U5H

Prerequisite: WA or COM1.

CLAS2040 - Classical Roman Civilization

Credits: 3

Examines some of the most interesting political, legal, artistic, literary, and engineering developments of the Republic and Principate (510 BC-AD 212) These include representational government, citizens' rights, sanctioned violence, Rome's infrastructure, and major literary works of oratory, comedy, history, epic, and philosophy.

USP 2003-2014 Code U3CH, U3WB

Prerequisite: WA or COM1.

CLAS3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed HIST 3050/POLS 3050.

Prerequisite: WB or COM2.

CLAS3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed HIST 3160/PHIL 3160.

Prerequisite: WB or COM2.

CLAS4230 - Greek Tragedy

Credits: 3

Reading and discussion of major plays by Aeschylus, Sophocles, and Euripides, together with examination of the performance and social context of Greek drama, its use of traditional myths, and selected issues in contemporary scholarship on the tragedies.

Cross Listed ENGL 4230/THEA 4230.

Prerequisite: WB or COM2.

CLAS4270 - Classical Epic Poetry

Credits: 3

Reading and discussion of major works of Greek and Latin epic poetry, centered on Homer and Vergil. Also includes consideration of the background of these works (both mythological and historical) and the development of the epic tradition in the ancient world.

Cross Listed ENGL 4270.

Prerequisite: WB or COM2.

CLAS4975 - Independent Study

Credits: 1-4

Max Credit (max. 12)

Specialized study in aspects of Greek or Roman civilization of interest to the student, with topic and plan of work to be worked out by the student and the instructor together.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 6 hours of Classics courses or consent of instructor.

CLAS4990 - Topics in Classical Civilization

Credits: 1-4

Max Credit (max. 12)

Study in depth of special areas in ancient civilization that are not covered in regularly offered courses.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 6 hours of Classics courses or consent of the instructor.

Communication and Journalism

COJO3000 - History of American Journalism

Credits: 3

Presents history and development of American journalism from colonial times to present, emphasizing 20th century.

Prerequisite: COMM 1000.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3040 - Advanced Communication Theory

Credits: 3

Considers nature of human communication theories. Analyzes problems in developing communication theory based on current social science methods.

Prerequisite: COMM 1000 and COMM 1040.

COJO3070 - Communication Research

Credits: 3

Focuses on problems in communication and mass communication research. Specifically studies and applies language of science, basic concepts of communication, mass communication research, types and limitations of empirical research, as well as measurement procedures and analysis.

Prerequisite: COMM 1000 or COMM 1040 and STAT 2050 or STAT 2070.

COJO3100 - Public Affairs Reporting

Credits: 3

Practices in public affairs reporting, emphasizing local and state political organization as foundation for such reporting. Specialized reporting fields. News analysis.

Prerequisite: COMM 2100.

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

COJO3190 - Cross-Cultural Communication

Credits: 3

Studies human communication processes within the context of various cultures and subcultures. Opportunity for field

study of the effect of culture on communication behavior.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: COMM 1040 and junior standing.

COJO3195 - Cultural Encounters in China

Credits: 3

This course is designed to study the relationship between cultures and communication through a 3-week stay in China. We will explore how cultures and communication interact, interrelate, and influence each other as well as investigating how and why cross-cultural communication is filled with both challenges and opportunities through our daily interactions with Chinese people.

USP 2003-2014 Code [(none)< >H]

Prerequisite: COMM 1040.

COJO3200 - Graphics of Communication

Credits: 3

Combines editing and design. Studies evaluation, selection and editing of magazine and newspaper news copy. Practice in publication design, including headline writing, printing methods, page layout and other display techniques.

USP 2003-2014 Code U3CA

Prerequisite: COMM 1000.

COJO3300 - Advertising in the Media

Credits: 3

Studies fundamentals of copywriting in mediated communication. Provides information about the psychology of advertising, advertising appeals, strategy, and structure of ads and other marketing materials. Includes exercises in basic principles of copywriting for print, electronic and digital media.

Prerequisite: COMM 2100.

COJO3310 - Public Relations

Credits: 3

Studies how organizations can improve their relationships with their publics. Explores public opinion and how to research audiences. Explains different skills needed in the field, including its relationship to advertising and marketing.

Prerequisite: COMM 2100.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3500 - Test Course July

Credits: 3

Max Credit 3

Test Course COJO

When Offered Fall

USP 2015 Code COM1

A&S College Core 2015 D

Former Course Number None

Prerequisite: COM1

COJO3520 - Communication Technology and Society

Credits: 3

Studies role of communication technology in functioning of society. Examines history of effects on personal growth, self-concept, world view, creative thinking, personal relationships and social processes.

Prerequisite: COMM 1000 or COMM 1040.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed POLS 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

COJO3900 - Family Communication

Credits: 3

This course will assist students in a study of the concept of family from a communication perspective. The goals of the course include:

Prerequisite: COMM 1040.

COJO4020 - Mass Media and Society

Credits: 3

Studies ethical and related problems of mass communication from contemporary and historical viewpoints. Critical analysis of the performance of the mass media.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4030 - Advanced Interpersonal Communication

Credits: 3

Studies research and theory in interpersonal relationships; formation and maintenance of friendships; marriages; and group relationships.

Prerequisite: COMM 1040 and 6 hours in the department.

COJO4040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 5040.

Prerequisite: 9 hours of COJO coursework.

COJO4050 - Communication and Conflict

Credits: 3

Studies research and theory concerning communication in conflict development and management. Examines forms of conflict, including occurrences in interpersonal, group, organizational and cultural contexts.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 4061

Dual Listed COJO 5061

USP 2015 Code U5C3

Prerequisite: COMM 1040 and junior standing.

COJO4100 - Investigative Reporting

Credits: 3

Practices developing and writing articles of depth and substance in areas of public concern. Emphasizes careful research, weighing conflicting viewpoints, interpreting complex issues and critical evaluation.

USP 2003-2014 Code U3WC

Prerequisite: COMM 2100.

COJO4110 - Feature Writing Seminar

Credits: 3

This course critically examines how to produce content for a magazine and how to write feature stories. Among the topics covered are how to develop a good idea, analyze a target audience, gather information using interviews and research, write a feature article, edit your writing, and market a feature story.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: COMM 2100.

COJO4120 - News Editing

Credits: 3

Students develop skills in editing copy for newspapers and magazines. Focus is on copy editing for grammar, syntax, style, clarity, spelling, word usage, fairness and balance, conciseness, and accuracy. Students also learn to write effective headlines and cutlines, do effective design and layout of tabloid and broadcast pages, and create effective information graphics and photo features.

Prerequisite: COMM 2100.

COJO4140 - Nonverbal Communication Studies

Credits: 3

Critical analysis of current studies in the area of nonverbal communication. Students are required to complete an independent study of some aspect of nonverbal communication relevant to interests.

Dual Listed COJO 5140.

Prerequisite: junior standing.

COJO4160 - African American Rhetoric

Credits: 3

African American discourse and its relationship to equality and participation. Through examination of various media, music, speeches, and art this course uses the struggle of African Americans as an instructive exemplar, to come to terms with the philosophical concepts, political issues, moral complexities, and discursive characteristics of African American Rhetoric.

Cross Listed AAST 4160.

Dual Listed COJO 5160.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 9 credit hours in AAST or COJO.

COJO4200 - Visual Communication

Credits: 3

The purpose of this course is to combine visual communication theory and application in order to enhance visual literacy and practical skills. Content includes analyzing visual messages, developing and producing visual messages, and understanding how audiences process and are affected by visual messages.

Dual Listed COJO 5200.

Prerequisite: 9 hours of COJO coursework.

COJO4210 - Special Topics in Communication

Credits: 1-3

Intensive study of such special problems and topics in human communication processes as gender relations, power dynamics, family and political communication. Content varies.

Dual Listed COJO 5210.

Prerequisite: COMM 1040 and 9 hours in the department.

COJO4230 - Special Topics in Mass Media

Credits: 1-3

Intensive study of problems and topics specific to the mass media, including print, broadcast, advertising, public relations, and the Internet. Course content varies and may include historical, legal, ethical, political, sociocultural, economic, and theoretical perspectives.

Dual Listed COJO 5230.

Former Course Number [4910]

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society.

Cross Listed AAST 4233 and GWST 4233.

Dual Listed COJO 5233.

USP 2003-2014 Code U3D, U3WC

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

COJO4250 - Advanced Organizational Communication

Credits: 3

Studies communication processes in political, educational, industrial, medical and nonprofit organizations. Emphasizes in-depth analysis of theories and methods of organizational research and practice.

COJO4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 4260.

Dual Listed COJO 4260.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

COJO4270 - Documentaries

Credits: 3

Max Credit 3

This film theory/film studies class explores the history of documentaries, the unique aspects that define and differentiate documentaries from other genres, various techniques used in documentary films, and other related topics. We will view, analyze, and discuss several documentaries throughout the semester.

Cross Listed COJO 5270

COJO4310 - Public Relations Techniques

Credits: 3

Practical application of public relations writing, planning and program implementation. Includes exercises in writing news releases, structuring news conferences and writing preliminary and formal public relations strategies. The plans also incorporate advertising and marketing segments for external publics, newsletter design, editing and interpersonal relations.

Prerequisite: COJO 3310.

COJO4400 - Photojournalism

Credits: 3

Studies and intensively practices reporting news and features photographically, plus essentials of advertising photography. Includes advanced camera and darkroom techniques and photo editing. Two one-hour lectures and one two-hour laboratory weekly.

Prerequisite: COMM 2400.

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

COJO4530 - Web Design

Credits: 3

Addresses the theory and logistics of web design and online interactivity. Students will create and maintain a professional portfolio website that showcases their communication and design talents. It is applicable to journalism, public relations, advertising, marketing, photography, and any other media-related career path that uses new media.

Dual Listed COJO 5530.

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4600 - Mass Media Ethics

Credits: 3

Studies ethical theory, emphasizing how it can be applied to problem solving in the media. Examines major ethical perspectives and requires application to actual case studies.

Dual Listed COJO 5600.

Prerequisite: 6 hours at 3000-level in the department.

COJO4620 - Intergroup Communication

Credits: 3

The course will provide an overview of theory and research on intergroup relations to demonstrate how communication both affects and reflects our social group memberships. The objective is to provide students with the theoretical foundation to view various contexts of communication through an "intergroup lens. "

Dual Listed COJO 5620.

Prerequisite: COMM 1000 or COJO 1400.

COJO4640 - Communication Apprehension/ Competence

Credits: 3

This course examines theoretical explanations, research findings, and interventions. Students are required to develop research projects aimed at helping people cope with communication fear or anxiety in various contexts.

Dual Listed COJO 5640.

Prerequisite: COMM 1000 or COMM 1040.

COJO4700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed ENR 4700.

Dual Listed COJO 5700.

Prerequisite: COMM 1000 or ENR 1200 or ENR 1500 or ENR 2000.

COJO4990 - Independent Study in Communication

Credits: 1-3

Prerequisite: 15 hours in the department and consent of department chair.

COJO5010 - Texts of Mass Media

Credits: 3

Intensive critical examination of the history, theory, social responsibility and empirical research in the production and consumption of mediated messages.

Prerequisite: graduate standing.

COJO5030 - Seminar in Interpersonal Communication

Credits: 3

Intensive examination of contemporary theoretical perspectives and empirical research on interpersonal communication, including the role of communication in self-concept formation, social relationship development, and the structure and function of ordinary discourse in human interaction.

Dual Listed COJO 4030.

Prerequisite: graduate standing.

COJO5040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 4040.

Prerequisite: graduate standing.

COJO5061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 5061.

Dual Listed COJO 4061.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

COJO5070 - Quantitative Research Methods

Credits: 3

Design, implementation, and examination of research questions in communication with quantitative, social scientific methodologies. Attention primarily on survey design, experimental design, and quantitative content analysis. Analysis of quantitative data with statistical programs. Theories and ethical issues with quantitative research. Design and implement a quantitative study start to finish.

Prerequisite: graduate standing.

COJO5080 - Qualitative Research Methods

Credits: 3

Students study principles and issues associated with qualitative methods used in communication and media research. The class explores methods that use interpersonal communication and observation as tools for data collection and explores methods that analyze media content from a critical and qualitative perspective.

Prerequisite: graduate standing.

COJO5140 - Nonverbal Communication Studies

Credits: 3

Critical analysis of current studies in the areas of nonverbal communication. Students are required to complete an independent study of some aspects of nonverbal communication relevant to interests.

Dual Listed COJO 4140.

Prerequisite: COMM 1040 or COMM 1000.

COJO5160 - African American Rhetoric

Credits: 3

African American discourse and its relationship to equality and participation. Through examination of various media, music, speeches, and art this course uses the struggle of African Americans as an instructive exemplar, to come to terms with the philosophical concepts, political issues, moral complexities, and discursive characteristics of African American Rhetoric.

Cross Listed AAST 5160.

Dual Listed COJO 4160.

Prerequisite: 9 credit hours in AAST or COJO.

COJO5200 - Visual Communication

Credits: 3

The purpose of this course is to combine visual communication theory and application in order to enhance visual literacy and practical skills. Content includes analyzing visual messages, developing and producing visual messages, and understanding how audiences process and are affected by visual messages.

Dual Listed COJO 4200.

Prerequisite: graduate standing.

COJO5210 - Special Topics in Communication

Credits: 1-3

Max Credit (Max. 6)

Intensive examination of current theoretical issues in communication. Course content varies. Graduate students are expected to follow a rigorous reading schedule and submit a major paper or research project.

Dual Listed COJO 4210.

Prerequisite: graduate standing.

COJO5230 - Special Topics in Mass Media

Credits: 1-3
Max Credit (Max. 6)

Intensive study of problems and topics specific to the mass media, including print, broadcast, advertising, public relations and the internet. Course content varies and may include historical, legal, ethical, political, sociocultural, economic and theoretical perspectives. Graduate students are expected to follow a rigorous reading schedule and submit a major paper or research project.

Dual Listed May dual list with COJO 4230.
Prerequisite: graduate standing.

COJO5233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society. Cross-listed with AAST 5233 and GWST 5233; dual-listed with COJO 4233.

USP 2003-2014 Code U3D, U3WC

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

COJO5250 - Seminar in Organizational Communication

Credits: 3

Intensive examination of the historical and contemporary theoretical approaches and empirical research in organizational dynamics. Attention primarily focuses on how the institutionalized collective affects and is affected by other social systems.

Dual Listed COJO 4250.
Prerequisite: graduate standing.

COJO5260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. Attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 5260.

Dual Listed COJO 4260.

USP 2003-2014 Code U3D

Former Course Number [5985]

Prerequisite: graduate standing.

COJO5270 - Documentaries

Credits: 3
Max Credit 3

This film theory/film studies class explores the history of documentaries, the unique aspects that define and differentiate documentaries from other genres, various techniques used in documentary films, and other related topics. We will view, analyze, and discuss several documentaries throughout the semester.

Cross Listed COJO 4270

COJO5310 - Seminar in Mass Communications

Credits: 3
The study of contemporary, historical, critical and behavioral theories of mass communication processes. Attention primarily on the social functions performed by mediated messages.

Prerequisite: graduate standing.

COJO5530 - Web Design

Credits: 3
Addresses the theory and logistics of web design and online interactivity. Students will create and maintain a professional portfolio website that showcases their communication and design talents. It is applicable to journalism, public relations, advertising, marketing, photography, and any other media-related career path that uses new media.

Dual Listed COJO 4530.

Prerequisite: COMM 1000 and 9 hours in the department.

COJO5540 - Seminar in Communication Theory

Credits: 3
An intensive examination of various metatheoretical assumptions and theoretical models used in the study of communicative dynamics.

Prerequisite: graduate standing.

COJO5600 - Mass Media Ethics

Credits: 3
The study of ethical theory with special emphasis on how that theory can be applied to problem solving in the media. Examines major ethical perspectives and requires the application of those perspectives to actual case studies. Graduate students are expected to follow a rigorous project.

Dual Listed COJO 4600.

Prerequisite: graduate standing.

COJO5620 - Intergroup Communication

Credits: 3

The course will provide an overview of theory and research on intergroup relations to demonstrate how communication both affects and reflects our social group memberships. The objective is to provide students with the theoretical foundation to view various contexts of communication through an "intergroup lens. "

Dual Listed COJO 4620.

Prerequisite: graduate standing.

COJO5640 - Communication Apprehension/ Competence

Credits: 3

This course examines theoretical explanations, research findings, and interventions. Students are required to develop research projects aimed at helping people cope with communication fear or anxiety in various contexts.

Dual Listed COJO 4640.

Prerequisite: graduate standing.

COJO5700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed ENR 5700.

Dual Listed COJO 4700.

Prerequisite: graduate standing.

COJO5800 - Foundations of Communication and Journalism

Credits: 3

Examines current issues and trends in the various areas of communication and journalism that are represented within the department. Students analyze the historical roots of these issues and trends as a way of understanding the present context and future evolution of communication and journalism scholarship.

Prerequisite: first year of graduate study and acceptance into the COJO graduate program.

COJO5890 - Problems: Communication

Credits: 1-4

Max Credit (Max. 6)

Prerequisite: 18 hours at the 5000 level in the department.

COJO5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

COJO5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

COJO5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

COJO5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: Designed to provide an enrichment experience in a variety of topics.

COJO5960 - Thesis Research

Credits: 1-12
Max Credit (Max 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

COJO5961 - Graduate Projects

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: enrollment in Plan B program and departmental approval.

COJO5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Introduction to the practice and principles of construction management as it relates to both vertical and horizontal construction projects. . Construction Materials and Methods.

COMM1000 - Intro to Mass Media

Credits: 3
An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS
USP 2015 Code U5H
Former Course Number COJO 1000

COMM1030 - Interpersonal Communication

Credits: 3
Focuses on interpersonal communication settings or face-to-face interaction. Basic unit of study is, therefore, the dyad. Also includes some work in small group settings.

USP 2015 Code U5H
Former Course Number COJO 1030

COMM1040 - Intro to Communication Theory

Credits: 3
Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS
USP 2015 Code U5H
Former Course Number COJO 1040

COMM1101 - First-Year Seminar

Credits: 3
USP 2003-2014 Code [(none)< >FYS]
Former Course Number COJO 1101

COMM2010 - Public Speaking

Credits: 3
Beginning public speaking course. Students will develop foundational oral, digital and written communication skills.

Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2095 - Persuasive Argumentation

Credits: 3

Develops student competencies in persuasive argument in its written, oral, and digital dimensions. Students participate in a series of debate exercises that draw upon digital research, written speech and message composition, and extemporaneous oral speaking. The ethics of persuasion and critical research literacy in a digital environment are also featured.

USP 2015 Code U5C2

Former Course Number COJO 2090, COJO 2095

Prerequisite: Successful completion of a COM1 course.

COMM2099 - Special Topics in Debate

Credits: 1-3

Max Credit (Max. 12)

Explores the argumentative and rhetorical facets of the annual intercollegiate policy debate topic. Participation on the University's debate team is required for enrollment.

Former Course Number COJO 2060, COJO 2099

Prerequisite: Instructor permission required.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COMM2400 - Introduction to Photography

Credits: 3

Basic course in still photography. Includes classroom demonstrations in techniques of camera use, composition, computer software, and use of photographs, especially for communication and journalism applications.

USP 2003-2014 Code U3CA

Former Course Number COJO 2400

Computer Science

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC1100 - Computer Science Principles and Practice

Credits: 3

Introduces use of computers for algorithmic problem solving. Studies scope, major contributions, tools and current status of computer science. Presentation of computer science principles; use of software packages and evaluation of their effectiveness; and elementary programming.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: C or better in MATH 1400 or in any University Studies QB or Level 4 or higher on Mathematics Placement Exam.

COSC1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

COSC1200 - Computer Information Systems

Credits: 3

Introduces computers and information processing, computer systems and hardware, computer software, information processing systems, information systems and information resource management. Uses word processing, data base language and electronic spreadsheet program in hands-on exercises.

Prerequisite: passing of Mathematics Placement Examination at Level 2 or equivalent.

COSC2000 - Undergraduate Topics: Computer Science

Credits: 1-3

Elementary topics current in computer science.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: consent of instructor.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

COSC2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed MATH 2300.

Prerequisite: COSC 1030, MATH 2200 or MATH 2350.

COSC3011 - Introduction to Software Design

Credits: 3

Introduces the principles and practice of software design, including UML and design patterns. Uses case studies to illustrate design in action.

Prerequisite: COSC 2030.

COSC3015 - Functional Programming

Credits: 3

Studies programming in the context of a functional language that emphasizes algorithmic strategies over syntactic detail.

Prerequisite: COSC 2030 and COSC 2300.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC3100 - Computer Science Education Seminar

Credits: 2

Provides an overview of the current social and research issues, technical trends and challenges facing computer science educators.

Prerequisite: COSC 1030 and Education major only.

COSC3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed MATH 3340.

Prerequisite: grade of C or better in MATH 2210.

COSC3750 - Linux Programming for System Applications

Credits: 3

Provide the necessary tools and skills to begin programming effectively on UNIX and Linux operating systems. Topics will include, shells and basic shell scripting, Linux utilities, editors, compilation, I/O and the file system, sockets and interprocess communication, and time permitting, threads.

Prerequisite: COSC 2150 and COSC 2030.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

COSC3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ARE 3890/ATSC 3890/CE 3890/CHE 3890/EE 3890/ES 3890/PETE 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

COSC3900 - Upper Division Topics in Computer Science

Credits: 1-3

Max Credit (Max. 9)

Individual or small group pursuit of interdisciplinary problems in the use of computers or study of topics of interest within industry.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: consent of instructor.

COSC3970 - Internship in Computing

Credits: 1-3

Max Credit (Max. 3)

Allows students to gain practical experience in computing. A signed contract with a supervisor and departmental adviser must be completed before enrolling for the internship.

Prerequisite: COSC 3020.

COSC4000 - Topics in Computer Science for Educators

Credits: 1-6

Current computer science topics appropriate for K-12 teachers.

When Offered (Offered based on sufficient demand and resources)

A&S College Core 2015 Credit may not be applied to major requirements in computer science or management information systems.

Prerequisite: graduate standing.

COSC4010 - Special Topics in Computer Science

Credits: 1-3

Individual or small group pursuit of interdisciplinary problems in the use of computers or study of advanced topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: COSC 3020 concurrently and consent of instructor.

COSC4014 - Blockchain Design and Programming

Credits: 3

Blockchain provides proof of accuracy and immutability of data, and this is the basis for Bitcoin and many other applications. Covers both usage of blockchain and how it is implemented. Focus will be on the application of blockchain to financial systems and how blockchain provides and insures security and data validity.

Prerequisite: COSC 3020

COSC4100 - Foundations of Computing

Credits: 3

Introduces several theoretical areas which are the basis of computer science. Languages and automata, computability, complexity, analysis of algorithms, logic, and the specification and correctness of programs.

Prerequisite: COSC 3020.

COSC4200 - Computability and Complexity

Credits: 3

Introduction to theoretical study of computability and efficient computation. Finite-state and pushdown automata; turing machines and the Church-Turing thesis; undecidability, computational complexity; NP-completeness.

Prerequisite: COSC 3020.

COSC4210 - Web Application Development

Credits: 3

The course covers the basics of developing data driven web applications. Topics include using responsive design for user interfaces, architectural patterns and frameworks, object-relational mapping, language-integrated queries, authentication, authorization, unit testing, using source control for code management, publishing web applications and cloud computing.

Prerequisite: COSC 3011.

COSC4220 - Design and Implementation in Emerging Environments

Credits: 3

Students who have completed the analysis and design course extend their knowledge by implementing an information system in an emerging systems environment. Teams use project management principles to implement the system.

Prerequisite: COSC 4210.

COSC4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis,

and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed MATH 4340.

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

COSC4420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed MATH 4420/PHIL 4420.

Dual Listed COSC 5420.

Prerequisite: PHIL 3420 or equivalent.

COSC4450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the World Wide Web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 5450.

Prerequisite: COSC 3020 and MATH 2250.

COSC4550 - Introduction to Artificial Intelligence

Credits: 3

A computational study of intelligent behavior. Focus is on intelligent agents, which could be software agents or robots. Covers how agents sense, reason, and act within their environment. Includes problem-solving, search, knowledge representation, planning, game playing, learning, and neural and belief networks.

Dual Listed COSC 5550.

Prerequisite: COSC 3020.

COSC4552 - Advanced Topics in AI

Credits: 3

Advanced topics in AI are presented and discussed via research paper review.

Dual Listed Dual list with COSC 5014

Prerequisite: COSC 3020

COSC4555 - Machine Learning

Credits: 3

Goal is to program machines to learn and improve their performance on their own, based on experience and/or data. First half covers machine learning techniques; second half covers applications.

Dual Listed COSC 5555.

Prerequisite: COSC 3020.

COSC4560 - Modern Robots and Softbots

Credits: 3

Popular agent designs: logic-based, biomimetic, and physicomimetic. Foundational issues on internal robot and softbot knowledge representations. Planning and control, followed by issues of how agents can reason and plan under real-world conditions of environmental uncertainty. Concludes with discussions about papers on modern robot and softbot applications, as well as invited lectures by graduate students and faculty.

Dual Listed COSC 5560.

COSC4570 - Data Mining

Credits: 3

Examine methods that have emerged from artificial intelligence and statistics and proven to be of value in recognizing patterns and making predictions with large data sets. Will include both theory and practice while developing several projects.

Prerequisite: COSC 4550.

COSC4580 - Honors Undergraduate Research

Credits: 3

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/ faculty partnership to the appropriate staff in their home department. Must be in the Engineering Honors Program.

Cross Listed ATSC 4580/BE 4580/CE 4580/CHE 4580/ES 4580/ESE 4580/PETE 4580.

Prerequisite: junior or senior standing.

COSC4730 - Mobile Application Programming

Credits: 3

Introduces development of applications on mobile devices. Presents the principles, techniques, and tools for developing mobile applications. Differences between desktop applications and mobile applications are discussed.

Dual Listed COSC 5730.

Prerequisite: six hours of upper division COSC coursework.

COSC4735 - Advanced Mobile Programming

Credits: 3

Continues the development of applications on mobile devices. The focus is device sensors, such as camera, AR, VR, Bluetooth, embedded and connected devices.

Dual Listed COSC 5735.

Prerequisite: COSC 4730.

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

COSC4750 - Systems Programming and Management

Credits: 3

Comparatively studies features found in commercial and experimental operating systems. Discusses issues in system-level programming and administration, including shell programming, file management, resource control, configuration and security. Advanced topics include multiprocessor and real-time operating systems.

Prerequisite: COSC 2030.

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

COSC4765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

COSC4780 - Principles of Programming Languages

Credits: 3

Introduces the methods of analysis and design of programming languages. Covers syntax, typing schemes and the semantics (denotational and operational) in the context of functional and imperative programming languages. Students build interpreters to explore the implications of the different constructs on computational behavior.

Prerequisite: COSC 3015.

COSC4785 - Compiler Construction

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 5785.

Prerequisite: COSC 2150 and COSC 3020.

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

COSC4840 - Software Engineering

Credits: 3

Extends the ideas of software design and development from the introductory programming sequence to encompass the problems encountered in large-scale programs. Topics include software engineering techniques from the technical and managerial perspectives, with a strong emphasis on software design.

Prerequisite: COSC 3020 and COSC 3011.

COSC4950 - Senior Design I

Credits: 1

Students choose a senior design project, investigate alternate solutions and submit a preliminary project design. Periodic oral and written project progress reports are required.

Prerequisite: COSC 3011 and COSC 3020.

COSC4955 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in COSC 4950. Successful communication of the details of the solution through written documents and oral presentations will be required.

Prerequisite: COSC 4950.

COSC5000 - Seminar in Computer Science

Credits: 1-3

Max Credit (Max. 10)

One or more current research areas in computer science are investigated.

Prerequisite: consent of instructor.

COSC5010 - Graduate Topics in Computer Science

Credits: 1-6

Max Credit (Max. 12)

Individual or small group pursuit of computer science research areas.

Prerequisite: graduate standing and consent of instructor.

COSC5014 - Blockchain Design and Programming

Credits: 3

Blockchain provides proof of accuracy and immutability of data, and this is the basis for Bitcoin and many other applications. Covers both usage of blockchain and how it is implemented. Focus will be on the application of blockchain to financial systems and how blockchain provides and insures security and data validity.

Dual Listed Dual list with COSC 4014

Prerequisite: COSC 3020

COSC5050 - Research Writing in Computer Science

Credits: 3

Instruction in methods for performing and reporting research in the field of computer science. The primary task is preparation of a research paper; to that end, the class covers how to collect and analyze previously published work, generate and develop a research topic, and present research results in acceptable written form.

Prerequisite: graduate standing, consent of instructor.

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

COSC5120 - Theory Of Computation

Credits: 3

Models of computation, the Church-Turing thesis, computable functions, decidable and enumerable sets, unsolvable problems, correctness of programs, and complexity of computation. The theory of computation provides precise answers to the fundamental questions of computer science: Which problems can be solved by machine computation and which can be solved using a reasonable amount of computer resources.

Prerequisite: COSC 4100.

COSC5200 - Computational Complexity

Credits: 3

Study of efficient computation and computational intractability. Time and space complexity; P, NP, and the polynomial-time hierarchy; reductions and completeness; randomized complexity; non-uniform complexity; approximation algorithms and inapproximability.

Prerequisite: COSC 4100 or COSC 4200.

COSC5220 - Languages and Automata

Credits: 3

The study of regular, context-free, and context-sensitive languages and their relations to finite-state, pushdown and linear-bounded automata. Context-free language recognition. The halting problem and decidability results.

Prerequisite: COSC 4100.

COSC5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability.

Cross Listed MATH 5310.

Prerequisite: MATH 3310, COSC 1010.

COSC5345 - Computational Methods in Applied Sciences III

Credits: 3

Third semester of a three-semester computational methods series with emphasis on numerical solution of problems displaying sharp fronts and interfaces (nonlinear conservation laws, Hamilton-Jacobi equations).

Cross Listed MATH 5345.

Prerequisite: MATH 5340/COSC 5340.

COSC5420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC/MATH 5420.

Dual Listed COSC 4420.

Prerequisite: PHIL 3420 or equivalent; graduate standing.

COSC5450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the world-wide web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 4450.

Prerequisite: COSC 3020, MATH 2250.

COSC5540 - Computer Vision

Credits: 3

Provides students with an understanding of applying computer methodologies to process two-dimensional and three-dimensional images. Primary areas of investigation are image preprocessing, knowledge representation, pattern recognition and motion understanding.

Prerequisite: COSC 3020, MATH 2205, MATH 2250.

COSC5550 - Introduction to Artificial Intelligence

Credits: 3

A computational study of intelligent behavior. The focus is on intelligent agents, which could be software agents or robots. Covers how agents sense, reason, and act within their environment. Includes problem-solving, search, knowledge representation, planning, game playing, learning, and neural and belief networks.

Dual Listed COSC 4550.

Prerequisite: COSC 3020.

COSC5552 - Advanced Topics in AI

Advanced topics in AI are presented and discussed via research paper review.

Dual Listed Dual list with COSC 4014

Prerequisite: COSC 3020

COSC5555 - Machine Learning

Credits: 3

To program machines to learn and improve their performance on their own, based on experience and/ or data. The first part covers machine learning techniques. The second part covers applications.

Dual Listed COSC 4555.

Prerequisite: COSC 3020.

COSC5560 - Modern Robots and Softbots

Credits: 3

Begins with a presentation of popular agent designs: logic-based, biomimetic, and physicomimetc. Presents foundational issues on internal robot and softbot knowledge representations. Planning and control are then covered, followed by issues of how agents can reason and plan under real-world conditions of environmental uncertainty. Concludes with discussions about papers on modern robot and softbot applications, as well as invited lectures by graduate students and faculty in the UW COSC and ECE departments.

Dual Listed COSC 4560.

COSC5730 - Mobile Application Programming

Credits: 3

Introduces development of applications on mobile devices. Presents the principles, techniques, and tools for developing mobile applications. Differences between desktop applications and mobile applications are discussed.

Dual Listed COSC 4730.

Prerequisite: COSC 3020.

COSC5735 - Advanced Mobile Programming

Credits: 3

Continues the development of applications on mobile devices. The focus is device sensors, such as camera, AR, VR, Bluetooth, embedded and connected devices.

Dual Listed COSC 4735.

Prerequisite: COSC 4730.

COSC5750 - Distributed Computing Systems

Credits: 3

Provides an in-depth study of distributed computing systems, including both architecture and software issues. Topics include concepts of distributed computing, communication primitives, distributed operating systems, distributed file management, and distributed programming languages. Particular attention is paid to modeling and analysis of distributed systems and algorithms. Programming projects and research papers are assigned.

Prerequisite: COSC 5740.

COSC5785 - Compiler Construction I

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation for a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 4785.

Prerequisite: COSC 2150 and COSC 3020.

COSC5790 - Compiler Construction II

Credits: 3

Advanced topics concerning the front end of a programming language compiler, the description and implementation of features found in the back end of a compiler, and the run time environment. Topics include data type checking, global data flow analysis, flow graph reduction, local and global code optimization, and code generation. Reports on recent research papers.

Prerequisite: COSC 4785 or COSC 5785.

COSC5820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 3020.

COSC5825 - Advance Data Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database system design and an in-depth examination of contemporary structures and techniques used in modern database management systems and database applications.

Prerequisite: COSC 4820.

COSC5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max 16)

Prerequisite: advanced degree candidacy.

COSC5940 - Continuing Registration: Off Campus

Credits: 1-16
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

COSC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 3)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

COSC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

COSC5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

COSC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Construction Management

CM2000 - Introduction to Construction Management

Credits: 3

Introduction to the practice and principles of construction management as it relates to both vertical and horizontal construction projects.

CM2120 - Construction Materials and Methods

Credits: 3

Introduction to building materials and construction practices used in the construction industry to construct both vertical and horizontal construction projects.

Prerequisite: COM1.

CM2300 - Construction Safety

Credits: 3

Introduce students to the various causes of construction accidents and adopted strategies to prevent worksite injuries and illnesses with an emphasis on OSHA standards.

Prerequisite: CM 2000.

CM2400 - MEP Systems

Credits: 3

Introduction to mechanical, electrical and plumbing systems in site infrastructure and vertical construction projects.

Prerequisite: C in PHYS 1110.

CM2600 - Construction Documents

Credits: 3

Introduction to the creation and interpretation of construction documents used in the construction industry to build today's vertical and horizontal construction projects.

Prerequisite: CM 2000.

CM3100 - Construction Scheduling

Credits: 3

Principles of construction scheduling including analytical and quantitative scheduling and management techniques as they apply to both vertical and horizontal construction projects.

Prerequisite: CM 3210

CM3140 - Built Environment Markets

Credits: 3

This course provides students with a broad exposure to the landscape of real estate markets, from single-family housing to large-scale commercial property markets as viewed from a real estate financial perspective.

Prerequisite: CM 2000 and CM 2120.

CM3160 - Construction Law & Contracts

Credits: 3

The course covers different contract methods, or arrangements, used by the Construction industry to contract and procure construction work. The course also introduces students to construction law in support of planning and the execution of construction work.

Prerequisite: CM 2600.

CM3180 - Evolving Technologies in CM

Credits: 3

The course introduces students to Leadership in Energy and Environmental Design (LEED), Building Information Modeling (BIM) and evolving technologies in construction.

Prerequisite/Corequisite: Grade of C in CM 2000

CM3200 - Statics & Structural Systems

Credits: 4

The course introduces students to the basic principles of statics and structural analysis and design. It provides students with a concise presentation of structural technology, from the determination of structural loads, sizing and design as it relates to timber, steel and concrete structures.

Prerequisite: PHYS 1110 and MATH 2200 with grades of C or better.

CM3210 - Construction Estimating

Credits: 3

The course introduces students to concepts in estimating including but not limited to labor and equipment calculations, the use of price databases, direct and indirect cost, bid preparation and computer applications.

Prerequisite: C in CM 2600.

CM3220 - Soils and Concrete

Credits: 3

This course will introduce students with the construction process that includes, site clearing, soil mechanics, testing, concrete foundations, concrete mix design, concrete construction practice, and concrete testing.

Prerequisite: GEOL 1110 with a grade of C or better and concurrent enrollment in CM 3200.

CM3230 - Construction Economics

Credits: 3

This course introduces students to construction economics in residential and commercial planning, developing, constructing, and managing projects.

Prerequisite: CM 2000 and CM 2120.

CM4100 - Project Management

Credits: 3

This course guides students through fundamental Project Management concepts and behavioral skills needed to success-fully launch and lead construction projects in the construction sector.

Prerequisite: CM 3100.

CM4140 - Heavy CM Methods

Credits: 3

The course provides student an overall understanding of construction equipment and selected construction methods used on large scale construction projects. With specific reference to selection, economy, and productivity of common construction equipment and construction procedures for site development and industrial, heavy and civil construction.

Prerequisite: CM 2120 and CM 3200.

CM4600 - Building Info. Modeling

Credits: 3

This course focuses on the skills and information needed to effectively use an existing Building Information Model (BIM) in plan execution for a building construction project. This is a projectbased course where students develop skills on the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction operations.

Prerequisite: CM 2600.

CM4900 - Capstone Project

Credits: 3

This course requires students to participate in a "real" construction situation involving all aspects of managing a project; from initial planning to completion, including budgets, estimating, scheduling, financing and creating contracts

and other construction forms as necessary. Case studies will be utilized to develop critical thinking skills.

Prerequisite: CM 4100.

CM4970 - Construction Management Internship

Credits: 3

Students may apply for credit for extended work experience (>10 weeks; full-time) in the construction industry, supervised by a professional. Students should apply through their adviser prior to the work experience. Enrollment is by departmental approval only.

When Offered Offered summer only.

Counseling

CNSL1000 - Relationship Skills: Counseling in Action

Credits: 3

Content-based course that focuses on the critical-thinking skills necessary to understand, analyze, and produce knowledge within the framework of educational inquiry; introducing students to the role of counseling in diverse settings. Themes discussed include classroom human relations skills, counseling in a diverse society, legal and ethical issues in human relations fields, and various specialties in the practice of counseling.

USP 2003-2014 Code U3I, U3L

CNSL1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

CNSL2200 - Introduction to Student Leadership

Credits: 2

Acquaints student leaders with skills and competencies necessary for successful service in the university community.

When Offered (Normally offered each fall semester)

USP 2003-2014 Code U3CS, U3L

CNSL2300 - Counseling Skills for the Helping Professions

Credits: 3

Presents instruction and practice in basic counseling and communication skills. Emphasizes listening, responding, encouraging and initiating change in interpersonal communication through mediation and conflict resolution.

Prerequisite: sophomore standing; permission of Coordinator of Counselor Education program.

CNSL2800 - Undergraduate Seminar in:

Credits: 1-3
Max Credit (Max. 9)

Reserved for academic course work related to student interest in classes associated with examining the discipline of counseling from many varied perspectives.

Prerequisite: Declared major in the social sciences, human services, or education.

CNSL3010 - Student Leadership Strategies

Credits: 2
Develops skills and competencies requisite to effective leadership. Provides student leaders with skills they will profit from, both while enrolled at the university and later in their chosen careers.

When Offered (Normally offered each spring semester)

CNSL4520 - Fundamentals of Counseling (B)

Credits: 3
Students learn some of the skills of counseling and develop an understanding of elementary principles of counseling theory, as well as a better understanding of themselves in relation to other people.

Dual Listed CNSL 5520.

When Offered (Offered on campus and online all semesters)

Prerequisite: junior standing; 6 hours of education or psychology and graduate standing to receive graduate credit.

CNSL4620 - Organization and Administration in Student Affairs

Credits: 3
An introduction to college student affairs practice, specifically exploring issues related to the organization and administration of student personnel services. Explores the history, the philosophy, and the skills utilized in student personnel services within the context of various higher education institutions and settings.

Prerequisite: department consent.

CNSL5020 - Workshop

Credits: 1-4
Max Credit (Max. 99)

Usually offered only during summer sessions, this course provides an opportunity for special consideration on particular areas of counseling or pupil personnel services.

Prerequisite: graduate standing, nine hours of education or behavioral science.

CNSL5030 - Short Course

Credits: 1-2
Max Credit (Max. 12)

Provides opportunities for intensive study of some specific topic or set of topics in personnel work, to meet the special needs of a group of students with common interests. No more than six hours may be applied to any one degree program.

Prerequisite: graduate standing and 6 hours in education and/or behavioral sciences.

CNSL5040 - Relationship Skills

Credits: 3
Designed to help students and administrators develop their human relation skills to improve interpersonal effectiveness and communication as related to generic life skills.

Prerequisite: 12 hours of education and/or psychology.

CNSL5060 - Counseling Ethics and Professional Issues

Credits: 3
Designed to provide students with a philosophical base for making ethical decisions in the professional situations they encounter. In addition, it involves a chance to discuss many specific ethical and professional issues that are commonly encountered in the profession.

Prerequisite: program admission or consent of instructor.

CNSL5110 - Group Procedures

Credits: 3
Designed as an introduction to group work used in various organizational settings. Basic group techniques and procedures are covered using lecture/ discussion methods, video, observation, and participation in practicing group leadership skills. Participation in a group experience during the course is required.

Prerequisite: CNSL 4520/CNSL 5520, six semester hours of education and/or psychology, consent of instructor, and graduate standing.

CNSL5120 - School Counseling

Credits: 3
Provides specialized training for individuals preparing to be school counselors at levels K-12.

Prerequisite: graduate standing.

CNSL5125 - School Counseling II

Credits: 3

Explores the leadership role of the professional school counselor within the P-12 school setting and focuses on skills and experiences related to equity, advocacy, and social justice for systemic change, as well as program development, implementation and evaluation.

Prerequisite: Graduate standing, program admission and CNSL 5120.

CNSL5130 - Mental Health Counseling

Credits: 3

Encompasses specific counseling and professional development issues encountered by licensed counselors working in mental health agencies or private practice. Understanding the nature of the clientele and the issues, strategies for resolving client difficulties, collaborative practice, ethics, advocacy, knowledge and skills related to diversity and social justice are considered.

Prerequisite: enrollment in Counselor Education program, successful completion or enrollment in CNSL 5060, CNSL 5650 and CNSL 5310.

CNSL5140 - Counseling & Addictions

Credits: 3

Focuses on students acquiring specialized knowledge of assessment and multi-disciplinary treatment of chemical and other addictions.

Prerequisite: six hours in administration of justice, psychology, sociology, or social work at the 4000 or 5000 level.

CNSL5150 - Mental Health Counseling II

Credits: 3

Explores the leadership role of the professional counselor within a variety of mental health settings. Areas of application include program development, best practices, management, evaluation, consultation, social justice and supporting client advocacy.

Prerequisite: graduate standing, program admission and CNSL 5130.

CNSL5170 - Counseling and Career Across the Lifespan

Credits: 3

Offers an overview of human lifespan functioning with a primary focus on psychosocial development and counseling and career development across the lifespan. Additionally, this course presents the opportunity to examine the role of career and its influences on personal development.

CNSL5175 - Human Growth and Development

Credits: 3

Provides an understanding of the nature and needs of individuals at all developmental levels, across the entire lifespan, and in diverse multicultural contexts through addressing theories of individual and family development, transitions

across the life span, theories of learning, personality development, and neurobiological behavior.

Prerequisite: Instructor permission and bachelors degree.

CNSL5180 - Assessment in CNSL

Credits: 3

Emphasis is on counselor development for facilitating client self-understanding through the application of various assessment procedures and knowledge about educational information systems and tools.

Prerequisite: graduate standing, 15 hours in education and/or behavioral sciences.

CNSL5200 - Couple and Family Theory

Credits: 3

Provides students with a foundation in conceptualizing and working with couple and family systems. Areas to be addressed include the history of couple and family counseling, ethical issues, professional orientation and an introduction to major systems theories. Participants are expected to explore their own family of origin.

Prerequisite: admission to program.

CNSL5210 - Group Experience

Credits: 1

Designed to provide a structured growth group experience through both in-class experience and reading. It is designed for students involved in human relationship fields. In-class groups are led by advanced group counseling students under the supervision of the faculty instructor.

Prerequisite: graduate standing and consent of instructor.

CNSL5310 - Pre-Practicum

Credits: 3

The first semester of a one-year sequence focused on learning, developing and practicing the fundamental process of counseling. Students do role-playing and have supervised experience with clients in a laboratory setting. Individual supervision is provided. Individual, live and observation of supervision is extensive.

Prerequisite: graduate standing, program approval.

CNSL5320 - Practicum

Credits: 3

Second course in a two semester sequence which includes class work, supervised counseling with clients in laboratory, extensive individual, group, live and observational supervision.

Prerequisite: graduate standing, CNSL 5310, program approval.

CNSL5330 - Counseling Children and Adolescents

Credits: 3

Students increase knowledge and skills in the processes of counseling children and adolescents.

Prerequisite: six hours in education and/or behavioral sciences.

CNSL5340 - Play Therapy

Credits: 3

Provides students with an overview of the field of play therapy. The historical roots of play therapy and the importance of play in child development will be explored. Various play therapy theories and techniques for assessment and intervention and professional issues will be surveyed.

Prerequisite: graduate standing or consent of instructor.

CNSL5341 - Play Therapy Theories & Skills

Credits: 3

This course is designed to provide students with an introduction to child-centered play therapy along with an overview of the field of play therapy, play therapy theories, and play therapy practice.

Prerequisite: Acceptance to the Online Play Therapy Certificate Program or consent of the instructor.

CNSL5342 - Expressive Arts & Play Therapy

Credits: 1

This course will provide a history and rationale for the use of expressive arts in counseling as well as experiential exercises to foster student's professional growth. Professional issues (ethics/credentials) pertinent to the play therapist will also be examined.

Prerequisite: CNSL 5341 or consent of the instructor.

CNSL5343 - Filial and Family Play Therapy

Credits: 3

Students will develop an understanding of the theoretical concepts of the filial play therapy. Students will gain the necessary skills to organize, implement, structure and facilitate filial therapy and family play therapy sessions. Conducting a filial group is essential to this course, current professional liability insurance is required.

Prerequisite: CNSL 5341, CNSL 5342 or consent of the instructor.

CNSL5350 - Multicultural Counseling

Credits: 3

Increases counselor competency and skills with diverse clients.

Prerequisite: admission to the UW counseling program.

CNSL5510 - Trends and Issues

Credits: 1-4

Max Credit (Max. 4)

This course is used from time to time as a systematic means for students to explore a developing trend or issue related to personnel services. Students make in-depth studies of one or more issues, trends, practices, and applications, under the supervision of one or more instructors.

Prerequisite: graduate standing, and 15 hours in education and/or behavioral sciences.

CNSL5520 - Fundamentals of Counseling

Credits: 3

Beginning course in the basis and process of counseling. Exposes students to some of the skills of counseling and enables them to develop an understanding of the elementary principles of counseling theory as well as a better understanding of themselves in relation to other people.

Dual Listed CNSL 4520.

Prerequisite: 6 hours of education or psychology and graduate standing.

CNSL5580 - Supervised Internship

Credits: 1-6

Max Credit (Max. 16)

Provides a capstone clinical experience, preparing graduates to enter the practice of counseling PK-12 schools, mental health settings, and student affairs services in higher education. Students engage in professional counseling activities at approved placement sites.

Prerequisite: graduate standing, CNSL 5310, CNSL 5320 and consent of the designated field setting authority.

CNSL5610 - Advanced Practice in Group and Family Counseling

Credits: 3

Designed to provide a theoretical framework for understanding group dynamics and family systems, as well as offer intervention guidelines, best practices, and supervised experience in group leadership and family counseling.

Prerequisite: program admission and consent of instructor.

CNSL5630 - Trauma-Informed Counseling

Credits: 3

This capstone course helps prepare students to understand and work with clients around trauma issues in mental health and school settings. Previous learning will be reviewed and synthesized with knowledge about trauma-informed care across the lifespan, including psychological first aid. Research-based best practices, counselor wellness, and effective service delivery are emphasized.

Prerequisite: graduate standing.

CNSL5640 - Diagnosis, Psychopathology, and Psychopharmacology

Credits: 3

Introduction to the etiology, prevention, and treatment of mental and emotional disorders. Includes a focus on the skills of biopsychosocial case conceptualization and treatment planning, and multi-axial differential diagnosis using the current edition of the Diagnostic and Statistical Manual. Also addresses basic classifications, indications and contraindications of common pharmacological interventions.

Prerequisite: program consent.

CNSL5650 - Counseling Theories

Credits: 2-3

Max Credit (Max. 3)

Designed to increase understanding of major counseling theories, with an emphasis on the integration of theoretical and philosophical assumptions with personal viewpoints.

Prerequisite: previous or concurrent enrollment in CNSL 4520/CNSL 5520 or equivalent, admission to counseling program, consent of instructor.

CNSL5860 - Doctoral Practicum in Counselor Education

Credits: 1-8

Max Credit (Max. 8)

Enrollment is limited to five graduate students per instructor. In this practicum, advanced graduate students are given an intensive supervised experience in counseling students over an extended period of time. The actual counseling experience is supplemented by input and evaluation seminars for all enrollees and by supervisory conferences designed to improve sensitivity and skill in counseling.

Prerequisite: admission to the doctorate program in counseling, mastery of basic interviewing and counseling skills, and consent of instructor.

CNSL5865 - Supervision Theory

Credits: 3

Provides students with the theoretical, knowledge and research base of clinical supervision as it relates to the counseling profession.

Prerequisite: CNSL 5860.

CNSL5870 - Seminar

Credits: 1-6
Max Credit (Max. 12)

Advanced students work together intensively on current issues and problems and participate in systematic, critical interpersonal evaluation. Seminars are organized with various patterns of emphasis and provide for a variety of small group experiences related to curricular areas within the department.

Prerequisite: consent of instructor and graduate standing.

CNSL5871 - Doctoral Seminar I: Professional Identity and Ethics

Credits: 3
The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar I focuses on counselor education identity development and professional ethics for future counselor educators.

Prerequisite: Admission as a Counselor Education & Supervision PhD Student.

CNSL5872 - Doctoral Seminar II: Diversity and Social Change

Credits: 3
The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar II focuses on the role of diversity and social change in counselor education.

Prerequisite: Admission as a Counselor Education & Supervision PhD Student.

CNSL5873 - Doctoral Seminar III: Research, Assessment & Scholarship

Credits: 3
The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar III focuses on the role of research, assessment and scholarship in counselor education.

Prerequisite: Admission as a Counselor Education & Supervision PhD student.

CNSL5874 - Doctoral Seminar IV: Leadership, Consultation and Advocacy

Credits: 3
The doctoral seminar course sequence provides a structure for collegial discussion and collaboration among counselor education doctoral students and faculty. Doctoral Seminar IV focuses on the role of leadership, consultation and advocacy in counselor education.

Prerequisite: Admission as a Counselor Education & Supervision PhD Student.

CNSL5875 - Doctoral Practicum in Supervision

Credits: 1-6
Max Credit (Max. 6)

Designed to provide the prospective counseling educator or supervisor with an understanding of the learning process in counseling and the supervisory behaviors requisite for improving the competencies and professional growth of counselors. Specialized knowledge, skills, and attitudes related to the act of supervising are supplemented by various methods and techniques such as videotape, films, film-tape synchronization, simulation material, role-playing, group dynamics, communication games, interpersonal recall, interaction and content analysis, and micro-counseling.

Prerequisite: CNSL 5860, graduate standing, and consent of instructor.

CNSL5880 - Special Problems

Credits: 1-9
Max Credit (Max. 9)

Provides a broad perspective through selected reading material. Wherever possible the student collects and uses original information from a practical work situation. All work is done independently under the direction of a faculty member. A minimum of three conferences are held as necessary to assure successful completion of the project.

Prerequisite: consent of instructor and program, and graduate standing.

CNSL5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Creative Writing

CW1040 - Intellectual Community: Introduction to Creative Writing

Credits: 3
Focus on critical learning skills as they relate to creative writing. Read from a variety of genres, attend literary events on campus, acquire research skills, and produce creative writing. Will produce portfolios of creative work in these areas, along with a self-reflective essay applying the critical skills learned throughout the semester.

CW1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

CW2050 - Introduction to Fiction

Credits: 3
Max Credit (Max. 6)

Analyzes forms of fiction and the practice of creative writing at an introductory level.

Prerequisite: WA/COM1.

CW2060 - Introduction to Nonfiction

Credits: 3
Max Credit (Max. 6)

The new nonfiction course will be described according to the emphasis the individual professor chooses to impart. In general, the course will teach students to research, organize, and express themselves in a nonfiction genre, such as essay, memoir, article, biography, autobiography, etc.

Prerequisite: WA/COM1.

CW2070 - Creative Autobiographical Writing

Credits: 3
Students read and explore autobiographical writing in various forms, potentially including: brief bio for publicity and job application purposes, memoir, personal essay, confession and fictional monologue. What you can reveal about yourself, when and how and for whom.

Prerequisite: completion of WA/COM1.

CW2080 - Introduction to Poetry

Credits: 3
Max Credit (Max. 6)

Analyzes forms of poetry and practice of creative writing at introductory level.

Prerequisite: WA/COM1.

CW2125 - Special Topics in Writing

Credits: 3
Max Credit 6

Analyze and write in a variety of popular fiction and non-fiction genres. Study publishers' descriptions and read

examples and critical analysis of the genres. Finally, produce a rhetorical description and an original text work in one chosen genre.

USP 2003-2014 Code U3WB

CW2200 - Creativity in the 21st Century

Credits: 3

Max Credit 3

What does it mean to be creative today? Writers and artists increasingly publish/exhibit online; interaction with editors, publishers, agents and gallery owners/museum curators is performed in a variety ways ; writing itself has moved from pen and paper to computer, as has the visual art process; and the audience for the written and visual arts is as much online as it is in print, or perhaps in person. This course will examine how these changes have affected writing and visual art in the 21st century, for those who produce as well those who consume/experience it.

USP 2003-2014 Code U5C2

Prerequisite: COM1

CW3125 - Studies in _____

Credits: 3

Max Credit 6

This upper level Seminar, developing skills and abilities established in the University's COM 2 courses, is dedicated to the intensive study of traditions and current modes of making. Students are expected to read intensively and respond critically and creatively as writers.

Prerequisite: COM2

CW4050 - Writer's Workshop

Credits: 3

Max Credit (Max. 6 at undergraduate, Max. 12 for graduate)

Students submit manuscripts in the short story, poetry, drama, etc. Includes class and conference criticism and consultation. Considers different types of creative writing in various semesters, as announced in class schedule.

Prerequisite: 3 hours of a 2000-level creative writing class in the appropriate genre and consent of instructor.

CW5540 - Seminar in Creative Writing

Credits: 1-4

Seminar in creative Writing. 1-4. Includes form and theory classes, publications workshops, and readings courses. Depending on the particulars, students review important texts about writing, review literary magazines, and publishing houses, discuss publishing procedures with faculty and guests, participate in close readings of original texts, and/ or produce an independent writing project.

Restricted Include: Graduate students, undergraduate students with faculty approval. Exclude: Undergraduate students with No Faculty Approval

Prerequisite: Graduate standing.

CW5550 - Independent Study in Creative Writing

Credits: 1-3
Max Credit (Max. 6)

Guided independent writing of poetry or imaginative prose at an advanced level. Limited enrollment.

A&S College Core 2015 No more than 9 hours of ENGL 4050 and ENGL 5550 combined may be counted toward the M.A. in English.

Prerequisite: consent of instructor and graduate status or 6 hours of ENGL 4050.

CW5560 - Graduate Writing Workshop

Credits: 1-4
Max Credit (Max. 28)

Graduate level workshop that emphasizes reading as well as writing in a specific genre (poetry, nonfiction, fiction) or in relation to a theme that combines genres, at the discretion of the instructor.

Prerequisite: 12 hours of 4000-level creative writing or graduate status or consent of instructor.

CW5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students who coursework is complete and are writing their thesis.

Prerequisite: Enrollment in a graduate degree program.

CW5990 - M.F.A. Internship

Credits: 1-12
Max Credit (Max. 24)

Internship.

Prerequisite: Enrollment in a graduate degree program.

Criminal Justice

CRMJ1001 - Introduction to Criminal Justice

Credits: 3

Introduces the American criminal justice system. Examines nature of crime and describes historical and philosophical foundations of law enforcement agencies, criminal courts and correctional institutions. Discusses major issues facing the criminal justice system.

Former Course Number [2120]

CRMJ2210 - Criminal Law

Credits: 3

Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

CRMJ2400 - Criminology

Credits: 3

Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed SOC 2400.

Prerequisite: SOC 1000.

CRMJ2685 - Research Methods

Credits: 3

Max Credit 3

Introduces students to fundamental issues associated with the application of scientific methods to criminal justice problems. Students examine research designs involving ethnographic, archival, historical, and quantitative methods and how they relate to criminal justice issues.

Cross Listed SOC 2685

Former Course Number [3680]**Restricted** Criminal Justice or Sociology majors and minors

Prerequisite: CRMJ 1001 OR SOC 1000

CRMJ3110 - Criminal Courts and Processes

Credits: 3

Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice

system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ3250 - Juvenile Delinquency

Credits: 3

Considers the nature of delinquency, including an analysis of treatment methods and the juvenile justice system.

Cross Listed SOC 3250.

Prerequisite: CRMJ 2400/SOC 2400.

CRMJ3350 - Correctional Theory and Practice

Credits: 3

Examines the various components of the correctional complex from both theoretical and practical frameworks.

Students are exposed to the abundance of research that informs current correctional practice and will be called upon to critically evaluate this research and its implications for correctional policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 2685.

CRMJ3400 - Deviant Behavior

Credits: 3

Examines theory and research relevant to understanding deviant behavior in general and specific types of individual and subcultural deviancy.

Cross Listed SOC 3400.

Prerequisite: SOC 1000.

CRMJ3490 - Issues in Policing

Credits: 3

Examines the various components of policing from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current policing practice and will be called upon to critically evaluate this research and its implications for policing policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, CRMJ 2685.

CRMJ3500 - Drugs and the Criminal Justice System

Credits: 3

Focus on drugs and their impact on society. Particular interest is paid to the extent of drug use/abuse in America, and the effects of this problem on the criminal justice system and society as a whole. Strategies for controlling both supply and demand are discussed.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

CRMJ4140 - Criminal Legal Procedure

Credits: 3

Examines the constitutional principles that safeguard the rights and liberties of criminal suspects and constrain police during the investigatory stages of the criminal justice process: arrest; search and seizure; interrogation; undercover operations; pretrial identification; and the exclusionary rule.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ4150 - Community-Based Corrections

Credits: 3

Designed to provide students with an in-depth look at the community corrections complex. It will examine the history and growth of community corrections, the probation system, methods of post-incarceration supervision, intermediate sanctions, and correctional programming and treatment in the community.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3350.

CRMJ4151 - Crime Causation

Credits: 3

Examines the causal mechanisms that produce crime. Theoretical perspectives and empirical research from various disciplines will be evaluated, with particular emphasis placed on social factors that may cause crime. Policy implications of the different perspectives will be discussed.

Dual Listed CRMJ 5151.

Former Course Number [3150]

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4200 - Ethics in Administration of Justice

Credits: 3

Introduces basic ethical theories, emphasizing how ethical theory can be applied to contemporary problems in law enforcement, corrections and adjudication. Students will be called upon to apply these various ethical frameworks to typical moral dilemmas in criminal justice.

Former Course Number [3200]

Prerequisite: CRMJ 3110, CRMJ 3350, and CRMJ 3490.

CRMJ4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed ANTH 4230.

Prerequisite: ANTH 1100.

CRMJ4260 - Gangs

Credits: 3

Considers the nature and the characteristics of gangs and gang members. The theoretical and empirical evidence regarding the phenomenon of gangs is evaluated. Particular emphasis is placed on the social and policy implications of this social problem.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

CRMJ4280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 5280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

CRMJ4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed SOC 4350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

CRMJ4370 - Criminal Psychopathology

Credits: 3

Provides an overview of current theories and empirical evidence concerning the relationship between psychological disorder and criminal behavior. Examines various clinical syndromes and their role in biological, social and psychological genesis of crime, as well as the concept of criminal responsibility.

Cross Listed PSYC 4370.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 / GWST 5540 .

Dual Listed CRMJ 5540.

Prerequisite: ENGL 1080/WMST/GWST 1080 , WMST/GWST 2500 , WMST/SOC 3500, or CRMJ 2400/SOC 2400.

CRMJ4600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Cross Listed POLS 4600.

When Offered (Normally offered every other year)

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

CRMJ4705 - Terrorism

Credits: 3

Examines the concept, causes, incidence, types, consequences of, and responses to terrorism. Highlights the distinction between domestic and international terrorism and expands on the latter within the framework of the global environment.

Cross Listed INST 4705, POLS 4705, and SOC 4705.
Former Course Number [4700]

Prerequisite: 9 hours in CRMJ, INST, POLS, or SOC coursework.

CRMJ4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed PSYC 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4750 - Criminal Justice Internship

Credits: 1-12

Integrates practical criminal justice experience with academic knowledge. Students participate in specifically assigned duties and observe broader activities of the sponsoring organization, and reflect upon these experiences through written assignments.

Restricted Junior Standing.

Prerequisite: Integrates practical criminal justice experience with academic knowledge. Students participate in specifically assigned duties and observe broader activities of the sponsoring organization, and reflect upon these experiences through written assignments.

CRMJ4760 - Child Maltreatment

Credits: 3

Examines the phenomenon of child abuse and neglect. Includes an overview of attitudes towards and legal definitions of child maltreatment. Explores parental factors, contextual influences and developmental consequences of maltreatment. Relies heavily on current research in child abuse and neglect. Emphasizes policy implications.

Cross Listed PSYC 4760.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 5860.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400 and junior standing.

CRMJ4965 - Research Hours in Criminal Justice

Credits: 1-6

Max Credit (Max. 6)

Provides undergraduates with an opportunity to assist in conducting various aspects of research under the supervision of criminal justice faculty. Specific research activities and requirements will be determined in consultation with the sponsoring faculty person. Credit is only available for research corresponding to enrollment in this course.

Dual Listed CRMJ 5965.

Prerequisite: upper division standing and consent of instructor required in advance.

CRMJ4975 - Readings

Credits: 1-3

Max Credit (Max. 6)

Special programs of readings in criminal justice related subjects will be outlined to meet needs of individual students.

Prerequisite: consent of instructor.

CRMJ4990 - Topics:

Credits: 1-3

Max Credit (Max. 6)

Intended to accommodate various special subjects not offered as regular courses.

Prerequisite: as listed for housing department's topics course.

CRMJ5000 - Survey of Criminal Justice

Credits: 3

Provides an overview of criminal justice theory by providing critical evaluation and discussion of research in the criminal justice field. It will emphasize seminal works and review current research concerning the structure, function, operation, interaction of the criminal justice system's primary components, and future trends.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5100 - Public Policy and Crime

Credits: 3

This course is designed to take a multidimensional look at public policy issues related to the prevention and control of crime in the United States. Issues covered include the development, implementation, and evaluation of crime control

policy.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5151 - Crime Causation

Credits: 3

Examines the causal mechanisms that produce crime. Theoretical perspectives and empirical research from various disciplines will be evaluated, with particular emphasis placed on social factors that may cause crime. Policy implications of the different perspectives will be discussed.

Dual Listed CRMJ 4151.

Prerequisite: graduate standing or consent of instructor.

CRMJ5280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 4280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: graduate standing.

CRMJ5500 - Internship in Criminal Justice

Credits: 3

Educationally-oriented assignments for work in selected criminal justice agencies, with tutorial types of supervision.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 /GWST 5540.

Dual Listed CRMJ 4540.

Prerequisite: ENGL 1080 /WMST/GWST 1080 , WMST/GWST 2500 , CRMJ 2400 /SOC 2400 , or WMST/SOC 3500.

CRMJ5860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 4860.

Prerequisite: graduate standing or consent of the instructor.

CRMJ5965 - Research Hours in Criminal Justice

Credits: 1-6

Max Credit (Max. 6)

Provides students with an opportunity to assist in conducting various aspects of research under the supervision of criminal justice faculty. Specific research activities and requirements will be determined in consultation with the sponsoring faculty person. Credit is only available for research corresponding to enrollment in this course.

Dual Listed CRMJ 4965.

Prerequisite: graduate standing; consent of instructor required in advance.

CRMJ5975 - Graduate Readings

Credits: 1-3

Max Credit (Max. 3)

This course provides students the opportunity to engage in an in-depth inquiry into a criminal justice topic through a thorough review of the existing literature under the supervision of a faculty member.

Curriculum and Instruction

EDCI4050 - Minority Sexual/Gender Identity Issues in Education

Credits: 3

How youth of minority sexual and gender identities have been educated: the challenges they experience in U. S. K-16 schools, the risk factors related to academic success (health, safety, and emotional well being), and strategies to create safe, caring, and inclusive learning environments for all youth.

Cross Listed GWST 4050.

Dual Listed EDCI 5050.

Prerequisite: completion of WA and GWST 2000 with C or better.

EDCI4120 - Literature for Young Adults

Credits: 3

Designed for prospective and working library media specialists and teachers who wish to strengthen their backgrounds in the utilization of literature with young adults in classrooms and libraries. The course involves the reading and

critique of literature.

Dual Listed EDCI 5120.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [LIBS 4120]

Prerequisite: senior level or graduate standing.

EDCI4140 - Storytelling

Credits: 3

An investigation of storytelling as an art and as an aid to instruction. Emphasis is on literature for preschool and elementary age children.

Dual Listed EDCI 5140.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [LIBS 4140]

Prerequisite: junior standing or EDCI 4120 is recommended.

EDCI4160 - Recent Trends in Children's and Young Adult Literature

Credits: 3

Important new developments in the subject matter, settings and style of children's and young adult books are identified and studied. Students in this course are expected to have a strong basic knowledge of children's and young adult literature.

Dual Listed EDCI 5160.

Former Course Number [LIBS 4160]

Prerequisite: EDCI 4120.

EDCI4300 - Clinical Assessment and Instruction

Credits: 3

Provides students with opportunities to work with school-aged students experiencing literacy difficulties. Students in this class tutor school-aged children for an entire semester under the direct guidance of the course instructor and director of the LRCC.

Prerequisite: Completion of COM1; background check on file.

EDCI4330 - Advanced Diagnosis, Corrective Reading Instruction

Credits: 3-4

Max Credit (Max. 4)

Designed to provide students with opportunities to work with children who have reading problems. Students in this class tutor under the direct guidance of the course instructor.

Prerequisite: EDCI 3100, EDCI 4300 and consent of instructor.

EDCI4350 - Introduction to Second Language Acquisition

Credits: 3

Addresses theoretical and conceptual foundations of working with second language learners. Focus is on the classroom applications of this theoretical base to interactions with English language learners, curriculum, instruction, assessment and evaluation, classroom organization, and school-community relations. Native American language revitalization issues are featured.

Dual Listed EDCI 5350.

EDCI4390 - Literature and Reading/Writing Instruction

Credits: 3

Links the use of literature for children with instruction and practice in reading, writing, spoken language, and critical thinking skills. Students are expected to have a strong background knowledge of literature for children before taking this course.

Dual Listed EDCI 5390.

Prerequisite: EDEL 2280, or basic children's literature course work.

EDCI4450 - Issues In Multicultural Education

Credits: 3

Provides the future teacher and other interested students with a better understanding of current issues and social foundations of multicultural America. Enables more accurate educational decisions related to utilizing strengths and diversity of each cultural group.

Dual Listed EDCI 5450.

Former Course Number [4250]

Prerequisite: students must have at least 12 credit hours in education classes.

EDCI4665 - History and Philosophy of American Education

Credits: 3

Provides cultural, philosophical, and historical perspectives drawn from the American experience and centered in the American ideology of equality of educational opportunity. Major trends and philosophies that have developed, and are developing, in American education will be shared through discussion, presentations, and written projects.

Dual Listed EDCI 5665.

Prerequisite: Completion of WA with C or better.

EDCI4761 - Linguistics, Sociolinguistics, and Social Literacies for Teachers

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies that are necessary for understanding and working with children from diverse linguistic and cultural backgrounds. As such, the course was designed to redirect students' attention from a sole focus on schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring to school from their own sociocultural contexts.

Prerequisite: EDST 3480.

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations; (d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

EDCI5000 - Principles of Curriculum

Credits: 3

Provides an overview of general understandings fundamental to the study of all aspects of curriculum to include pre-school, kindergarten thru high school. Consideration is given to the various factors, institutions and societal issues that impinge on and affect the decision making processes of curriculum developers.

Prerequisite: graduate standing in education.

EDCI5010 - Supervision of the School Music Program

Credits: 2-4

Max Credit (Max. 4)

Two sections: vocal; instrumental. Designed for graduate students who have a background in music education and for other interested graduate students in education.

Prerequisite: 12 hours of education and graduate standing.

EDCI5020 - Curriculum Workshop

Credits: 1-4

Max Credit (Max. 4)

Two sections: vocal; instrumental. Designed for graduate students who have a background in music education and for other interested graduate students in education.

Prerequisite: 12 hours of education and graduate standing.

EDCI5050 - Minority Sexual/Gender Identity Issues in Education

Credits: 3

How youth of minority sexual and gender identities have been educated: the challenges they experience in U. S. K-16 schools, the risk factors related to academic success (health, safety, and emotional well being), and strategies to create safe, caring, and inclusive learning environments for all youth.

Cross Listed GWST 5050.

Dual Listed EDCI 4050.

Prerequisite: completion of WA and GWST 2000 with C or better; graduate standing; completion/concurrent enrollment in ADED 5260.

EDCI5070 - Educational Trends

Credits: 1-6

Max Credit (Max. 6)

Provides reading, discussion, research, and appraisal of new methods, materials, equipment, and experimental programs concerned with the improvement of education as it pertains to curriculum and instruction. The maximum allowable credit applies to the total offerings under this number.

Prerequisite: 12 hours of education courses.

EDCI5090 - Plan B Research

Credits: 1-3

Max Credit (Max. 9)

Under the guidance of a committee chair, the enrolled graduate student will complete a scholarly Plan B project. Plan B projects emerge from practice, typically involving a problem of interest within a student's school, classroom, or work site. Admission in the Curriculum and Instruction graduate program required.

Prerequisite: graduate standing.

EDCI5110 - Foundations of American Indian Education

Credits: 3

Examines cultural, geographical, linguistic, spiritual, political and societal factors before, during and after colonization of the Americas. Definitions and day-to-day realities of terms like ethnocentrism, cultural relativism, assimilation, acculturation, and institutional racism. Development of insights into positive teacher-pupil-community relationships that honor culture and language differences and enhance achievement.

Cross Listed NAIS 5110.

Prerequisite: NAIS 1001 and 15 credit hours of NAIS or EDST.

EDCI5120 - Literature For Young Adults

Credits: 3

Designed for prospective and working library media specialists and teachers who wish to strengthen their backgrounds in the utilization of literature with young adults in classrooms and libraries. Involves reading and critiquing literature.

Dual Listed EDCI 4120.

Prerequisite: senior level or graduate standing.

EDCI5121 - History and Philosophy of American Indian Education

Credits: 3

Addresses the history of Indian education in the U. S. and Canada, examination of missionary initiatives, government programs, and tribal efforts. Review of documentary accounts of Native education, review autobiographical accounts of Native teachers and children. We will develop insight necessary for development of appropriate teaching methods and materials.

Cross Listed NAIS 5121.

Prerequisite: Post-Baccalaureate standing.

EDCI5130 - Cultural Foundations of American Indian Education

Credits: 3

In-depth study and analysis of the educational experiences of American Indians, focusing on contemporary educational issues and experiences, examining the impacts of cultural orientations, stereotypes, bias and other issues on the educational attainment of American Indian students. Critique instructional practices and programs developed addressing the needs of American Indian students.

Cross Listed NAIS 5130.

Prerequisite: Post-Baccalaureate status.

EDCI5140 - Storytelling

Credits: 3

An investigation of storytelling as an art and as an aid to instruction. Emphasis is on literature for preschool and elementary age children.

Dual Listed EDCI 4140.

Prerequisite: junior standing or EDCI 4120 is recommended.

EDCI5141 - Instructional Methods in American Indian Education

Credits: 3

Addresses culturally responsive methodologies for teaching American Indian students, review of documentary accounts of Native education and autobiographical accounts of Native teachers and children as students develop appreciation of the complexity and difficulties of Native education. Students acquire insight necessary for development of appropriate teaching methods and materials.

Cross Listed NAIS 5141.

Prerequisite: Post-Baccalaureate status.

EDCI5160 - Recent Trends in Children's and Young Adult Literature

Credits: 3

Important new developments in the subject matter, settings and style of children's and young adult books are identified and studied. Students in this course are expected to have a strong basic knowledge of children's and young adult literature.

Dual Listed EDCI 4160.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: EDCI 4120.

EDCI5205 - Methods of Teaching Middle-Level Mathematics

Credits: 3

Research based pedagogy and pedagogical content knowledge for teaching middle-level mathematics. Designed for practicing teachers of middle-grades mathematics.

Cross Listed NASC 5205.

Prerequisite: admission to the SMTC program.

EDCI5215 - Using Instructional Technology for Middle-Level Mathematics

Credits: 3

Covers the use of technology appropriate to middle-level mathematics teaching, such as microworlds, geographic information systems, spreadsheets, and other content appropriate technologies.

Cross Listed NASC 5215.

Prerequisite: admission to the SMTC Program.

EDCI5225 - Assessment for Middle-Level Mathematics

Credits: 3

Middle-level Mathematics Initiative teacher participants examine, analyze, and implement a variety of assessments that are aligned with standards and instruction appropriate to the middle level math learner.

Cross Listed NASC 5225.

Prerequisite: admission to the SMTC program.

EDCI5250 - Advanced Topics in Pedagogy

Credits: 3

A graduate level seminar to be taken concurrently with undergraduate methods courses in specific content areas (EDSE 425X-4260, EDEL 4309).

Restricted EDCI 5250 is restricted to students pursuing teacher certification leading to a Master of Arts in Curriculum and Instruction.

Prerequisite: Successful completion of EDCI 5550, EDCI 5870, Seminar in Assessment, earned Bachelor's degree from an accredited institution.

EDCI5310 - Reading Comprehension Processes and Instruction

Credits: 3

Designed to acquaint the student with recent developments, research findings, and newer practices. Viewpoints expressed by experts are compared, and an emphasis is given to the objectives of knowledge and to an understanding of attitude and skills.

Prerequisite: graduate standing.

EDCI5320 - Writing Instruction K-5

Credits: 3

Examines contemporary research and practice in elementary writing instruction. Students will read and discuss cutting-edge instructional and assessment methods addressing writing skills and processes related to transcription, spelling, written language conventions, and genre-based writing. In addition, students will analyze their current writing instruction and develop, implement, and evaluate new approaches.

Prerequisite: graduate standing.

EDCI5350 - Introduction to Second Language Acquisition

Credits: 3

Addresses theoretical and conceptual foundations of working with second language learners. Classroom applications of this theoretical base to interactions with English language learners, curriculum, instruction, assessment and evaluation, classroom organization, and school-community relations. Native American language revitalization issues are featured.

Dual Listed EDCI 4350.

Prerequisite: graduate standing.

EDCI5360 - History of Lit Res & Instruction

This course traces the historical lineages of research and practice in literacy. Students will explore major paradigm shifts and epistemological perspectives related to various domains of knowledge within literacy research and instruction across time. Implications for current in-school and out-of-school practices are examined.

Prerequisite: Graduate Standing

EDCI5365 - Trends in Literacy Research

Credits: 3

Max Credit 3

Examines teachers as consumers of literacy research and the organizations that provide access to literacy research. Analyzes the current science of reading movement and key recent research initiatives that impact literacy teaching.

Restricted Graduate Standing

EDCI5370 - Writing Instruction 6-12

Credits: 3

Max Credit 3

Examines contemporary research and practice in writing instruction at the middle and high school level. Students will read about and discuss cutting-edge instructional and assessment methods addressing writing skills and processes related to transcription, spelling, written language conventions, and genre-based writing. In addition, students will analyze their current writing instruction and develop, implement, and evaluate lessons that involve new instructional approaches.

Restricted Graduate Standing

Prerequisite: Graduate Standing

EDCI5380 - Literacy Leadership

Credits: 3

Examines the role of educators as literacy leaders (e.g., specialist, coach, administrator, teacher leader) as it relates to students, parents, staff, and other stakeholders. Analyzes current trends as they affect the role of educators who serve as literacy leaders in school contexts.

Restricted Graduate Standing

Prerequisite: Graduate Standing

EDCI5390 - Literature and Reading/Writing Instruction

Credits: 3

Links the use of literature for children with instruction and practice in reading, writing, spoken language, and critical thinking skills. Students are expected to have a strong background knowledge of literature for children before taking this course.

Dual Listed EDCI 4390.

Prerequisite: EDEL 2280, or basic children's literature course work.

EDCI5400 - Midpoint Portfolio Reflection

Credits: 1

Allows students to reflect, self-assess, and receive guidance related to their progress in the C&I Master's Program. Requirements include: self assessment of progress toward the C&I program outcomes, completion of a series of research abstracts, formation of the students' graduate committees and approval of programs of study.

Prerequisite: admission to the Curriculum and Instruction Master's Program and completion of at least 12 hours of EDCI coursework.

EDCI5430 - Theory and Methods of ESL I

Credits: 3

Provides an overview of theoretical and practical considerations in the teaching of English as a second/foreign language; acquaints students with different approaches, methods and procedures in TESL/TEFL; examines issues in the profession; requires a teaching/tutoring component.

Prerequisite: EDCI 5350.

EDCI5440 - Theory and Methods of ESL II

Credits: 3

Continues the theoretical and practical considerations in the teaching of ESL. Emphasis on Specifically Designed Academic Instruction in English (SDAIE) and literacy development for intermediate and advanced English language learners. Application of different approaches, methods, and procedures in TESL/TEFL. Development of curriculum. Issues in the profession. Requires teaching/tutoring component.

Prerequisite: EDCI 5430.

EDCI5450 - Issues in Multicultural Education

Credits: 3

Provides future and inservice teachers and other interested students with a better understanding of current issues and social foundations of multicultural America. Enables more accurate educational decisions related to utilizing strengths and diversity of each cultural group. Additional assignments are required of students completing this course for graduate credit.

Dual Listed EDCI 4450.

Prerequisite: 12 credit hours of education classes.

EDCI5480 - Short Course

Credits: 1-6
Max Credit (Max. 6)

Provides offerings in special topics in curriculum and instruction on the basis of need. The maximum allowable credit is six semester hours.

Prerequisite: 6 hours of education courses.

EDCI5490 - Individual Problems

Credits: 1-6
Max Credit (Max. 6)

Provides flexible credit for seniors who may need the credit for graduation, or for students who wish to undertake intensive study of a special problem identified in a regular class.

Prerequisite: 12 hours of education courses and consent of instructor.

EDCI5500 - Classroom Assessment

Credits: 3

Provides reading, discussion, and research examining a variety of classroom-based assessments with a focus on the alignment of teaching, learning, and classroom assessment at the P-12 level.

Prerequisite: graduate status.

EDCI5515 - National Board Certification Seminar

Credits: 1-3
Max Credit (Max. 12)

Provides information and support for teachers in the National Board Certification process. Content includes: reviewing, understanding, and applying best practice research; development of differentiated instruction; integration of formative assessment and reflective practice; understanding problem solving across the curriculum; and focuses on writing strategies for National Board Certification success.

Prerequisite: graduate student standing.

EDCI5550 - The Art and Science of Teaching

Credits: 3

Students will engage in a variety of experiences related to teacher decision making. Students research a variety of curriculum and instruction topics to discern the range of theories and associated models and develop personal theories and methods they plan to employ in their classrooms.

Prerequisite: successful completion of EDST 4000 and earned Bachelor's degree from an accredited institution.

EDCI5551 - Practicum Graduate Certificate

Credits: 1

This 1 credit hour course provides practicum experiences for students enrolled in EDCI 5550.

Prerequisite: Successful completion of, or concurrent enrollment in, EDCI 5550 and earned Bachelor's degree from an accredited institution.

EDCI5560 - Seminar in Assessment

Credits: 1

One credit hour course is designed for students in the (post baccalaureate) teaching credential program with master's option. Covers important concepts of assessment such as teachers as graders, self-and peer-assessment techniques, standardized assessment instruments, challenges facing new teachers, using assessment for planning/modifying instruction to improve learning experiences, and differentiated assessment in diverse classrooms.

Prerequisite: successful completion of (grade C or higher) or concurrent registration in EDST 2550 or EDST 3500.

EDCI5580 - Internship1

Credits: 8

Max Credit (Max 12)

An internship experience may be required as part of the planned program in curriculum and instruction. A maximum of eight hours may be counted in meeting the minimum requirements of a graduate degree, but additional credit may be taken beyond this limit for the recording of appropriate supervised experience.

Prerequisite: 15 hours of education, consent of department head, and graduate standing.

EDCI5600 - Diversity in Education

Credits: 3

Provides practicing teachers and graduate level students with an understanding of the macrolevel influences on diversity in education. Includes an examination of competing models of diversity in education as well as reviews critical scholarly work in the field (including alternative methodological frameworks for engaging in this research). Includes competencies for developing advocacy-oriented skills and dispositions.

Prerequisite: graduate level students only.

EDCI5665 - History and Philosophy of American Education

Credits: 3

Provides cultural, philosophical, and historical perspectives drawn from the American experience and centered in the American ideology of equality of educational opportunity. Major trends and philosophies that have developed, and are developing, in American education will be shared through discussion, presentations, and written projects.

Dual Listed EDCI 4665.

Prerequisite: Graduate student status; priority enrollment given to students registered in the C&I/Curriculum Studies area.

EDCI5710 - Genre-based, Discipline-based Literacies

Credits: 3

Designed to provide educators with knowledge of reading factors as they relate to various genres and disciplines. Includes new literacies, assessment and development of comprehension, writing and oral language as learning tools, techniques for the development of vocabulary, questioning and study strategies appropriate to various disciplines and genres.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Examines contemporary research and practice related to 1) literacy difficulties, 2) classroom assessment, and 3) RTI & school literacy reform. Students will read and discussion research addressing these issues and also engage in projects focused on intervention with struggling students and school wide-systems for literacy intervention.

Prerequisite: at least one year of successful teaching experience in a recognized K-12 school setting.

EDCI5730 - Learning and Cognition

Credits: 3

The purpose of this course is to explore and critically analyze various learning theories from 1900 to present, including, but not limited to, behaviorism, constructivism, information processing, situated cognition, meaning learning, and cognitivism. Focus is on applying learning theories to impact K-12 student outcomes.

Prerequisite: graduate standing or permission of instructor.

EDCI5750 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part I

Credits: 3-6

Max Credit (Max. 6)

Examines contemporary research and practice in literacy instruction. Read about and discuss cutting-edge literacy methods related to 1) word recognition, 2) beginning and fluent text reading, 3) reading comprehension, and 4) vocabulary development. In addition, students will analyze their current literacy instruction and develop, implement, and evaluate lessons that involve new instructional approaches.

Prerequisite: EDEC 4320 or EDCI 4330, EDCI 5310 or EDCI 5320 or graduate standing in education.

EDCI5755 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Grades K-5, Part II

Credits: 3

Second of two related courses that address research in literacy instruction in elementary classrooms. The two-course sequence is required for students seeking the Wyoming K-5 Literacy Endorsement. Can also serve as a literacy content course in the Literacy Education Ph. D. option or as an elective in other graduate degree programs.

Prerequisite: EDCI 5750.

EDCI5760 - Social Linguistics Literacies

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies necessary for understanding and working with children from diverse linguistic and cultural backgrounds. Redirects focus from schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring from their own sociocultural contexts.

Prerequisite: at least one year of successful classroom teaching experience in a recognized K-12 school setting.

EDCI5770 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part I (6-12)

Credits: 3

Critically examines reading-writing research for the express purpose of recognizing fundamentals of superior studies. Students are encouraged to select and pursue a topic in reading-writing research for intensive examination. Students may pursue areas of emphasis in elementary, secondary, or higher education.

Prerequisite: Graduate standing in education.

EDCI5775 - Research in Literacy Learning, Teaching, and Assessment in Classrooms, Part II (6-12)

Credits: 3

Designed to be the second in a two-course sequence that focuses on research and practice in adolescent literacy learning, teaching, and assessment. Will focus on applying research to practice.

Prerequisite: Graduate standing in education.

EDCI5790 - Learning Theories and Instructional Principles

Credits: 3

This course focuses on making connections between theoretical perspectives on teaching and learning, empirical work, and the actual practice of teaching. As a result, learners should expect to examine multiple learning theories, read research based on those theories, explore pedagogy that grows out of these theories, and integrate theory into practice in their own classrooms.

Prerequisite: graduate standing.

EDCI5800 - Curriculum Development

Credits: 3

The process of developing an early childhood through grade 12 curriculum are learned. Factors involved in initiating, developing, and evaluating curricula are studied.

Prerequisite: EDCI 5000 and 5650.

EDCI5810 - Writing for Professional Publications

Credits: 3

Designed to give students a structured experience with writing to publish in professional journals. Students will be expected to have written and submitted a publishable article by the end of the course.

Prerequisite: 8 hours of graduate coursework completed.

EDCI5870 - Seminar

Credits: 1-6

Max Credit (Max. 8)

Advanced students in curriculum and instruction work intensively on current issues and problems and participate in systematic, critical interpersonal evaluation. Students may pursue areas of emphasis in elementary, secondary, or higher education in the seminar. Only six hours may be allowed in the curriculum and instruction program on a student's program under this number.

Prerequisite: consent of instructor and graduate standing.

EDCI5880 - Special Problems

Credits: 1-6

Max Credit (Max. 9)

Provides a broad perspective through selected reading material and, wherever possible, the student collects and uses original information from a practical school situation. All work is done independently under the direction of a faculty member. As many conferences are held as necessary to assure successful completion of the project.

Prerequisite: consent of instructor and school director, and graduate standing.

EDCI5890 - Directed Professional Study

Credits: 1-6

Max Credit (Max. 9)

Provides additional opportunity for the student to pursue advanced graduate work through independent research. Projects are done under the direction of a graduate faculty member offered in the areas of business education and distributive education.

Prerequisite: consent of the instructor, the department head, and graduate standing.

EDCI5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

EDCI5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

EDCI5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

EDCI5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

EDCI5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

EDCI5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

EDCI5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Decision Sciences

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

DSCI4230 - Purchasing and Supply Management

Credits: 3

Examines how to manage supply function. Topics include organization, planning procedures, category management, supplier selection, quality, inventory decisions, ethical and profession standards, costing, and price determination.

Prerequisite: DSCI 2100, junior class standing, advanced business standing.

DSCI4240 - Computer Applications in Decision Sciences

Credits: 3

A study of decision science topics such as mathematical programming, Monte Carlo simulation, forecasting, project management and decision theory. The applications of computer techniques is emphasized.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, and junior class standing.

DSCI4250 - Revenue Management

Credits: 3

Examines the tools used by many industries in the service sector to maximize revenue, including forecasting demand, overbooking customers, group decision making, how to allocate fixed assets, and control of the overall network.

Prerequisite: DSCI 2100, advanced business standing, junior class standing.

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

DSCI4270 - Logistics

Credits: 3

Presents a synthesis of the principles in logistics activities resident in the supply chain. The course emphasizes how to manage the operation and integration of transportation (inbound and outbound), inventory, warehousing, facility location, customer service, packaging and materials handling.

Prerequisite: DSCI 2100, junior standing, advanced business standing.

DSCI4280 - Supply Chain Management

Credits: 3

Explores the links between overall business strategy and supply chain strategy, with a focus on strategic design and effective operation of supply chains to improve the organizations' productivity and competitiveness. Examines impact of technologies transforming global supply chains such as blockchain, machine learning, analytics, robotics, and other advancements.

Prerequisite: DSCI 2100, junior class standing, advanced business standing.

DSCI4900 - Independent Study in Decision Science

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study , on an individual basis, any aspect of Decision Sciences not included in other structured Decision Science courses

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

DSCI4910 - Topics in Decision Science

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

DSCI5890 - Advanced Problems in Decision Science

Credits: 1-8
Max Credit (Max. 8)

An arrangement whereby a student is permitted to develop some advanced phase of decision sciences not offered in the formally structured courses or to investigate a particular decision sciences problem. A written report is required.

Prerequisite: consent of instructor and acceptance into a graduate program.

Dental Hygiene

DHYG3230 - Clinical Seminar II

Credits: 2

This course is a continuation of the Clinical Seminar Series. Course content will focus on the review and enhancement of instrumentation skills; the essentials of instrument selection; the role of root planing in dental hygiene; the development and refinement of skills needed for treatment of more advanced periodontal cases, which includes the initiation of a periodontal case study; and the introduction and preparation for the use of state-of-the-art clinical technologies.

Prerequisite: DHYG 2420.

DHYG3250 - Clinical Seminar III

Credits: 2

This course prepares the dental hygiene student to make the transition from an educational setting to private practice. Focus is on applying, synthesizing, and transferring clinical and didactic knowledge to clinical and ethical decision-making. Students will be engaged in problem-based case studies, application of motivational theories, and analysis of evidence-based research.

Prerequisite: DHYG 3230, DHYG 3300 and DHYG 3350 or concurrent enrollment.

DHYG3300 - Clinical Dental Hygiene II

Credits: 5

This course provides students the opportunity to gain further practical experience in dental hygiene procedures by providing comprehensive patient care in clinical settings. A flexible format allows students to meet requirements in procedures for patient record-keeping, patient education, dental prophylaxis, dental radiography and routine clinical procedures.

Prerequisite: DHYG 2350.

DHYG3350 - Clinical Dental Hygiene III

Credits: 5

This course assists students in gaining practical experience in clinical procedures requiring greater skill and knowledge than procedures previously undertaken. This course prepares students for the transition to private office practice.

Prerequisite: DHYG 3300.

DHYG3400 - General and Oral Pathology

Credits: 3

This course is designed to teach students the concepts underlying general and oral manifestations of human disease states, manifestations of specific diseases, relationships to body defense mechanisms, and potential implications for medical and dental hygiene treatment. To the extent possible, applications to clinical situations in dental hygiene practice will be made.

Prerequisite: one year pre-dental hygiene (including general pathology); MOLB 2021 or equivalent.

DHYG3550 - Community Dental Health

Credits: 3

This course provides the dental hygiene student with an introduction to basic skills needed to evaluate the dental health community, including research methodology and basic statistical analysis. It provides the student with a basic understanding of the significant social, political, psychological and economic factors influencing the American Health System.

Prerequisite: DHYG 2100.

DHYG3600 - Ethics and Law in Dental Hygiene

Credits: 2

This course provides an introduction to basic concepts in the analysis of ethical theories, principles, values, the professional code of ethics, and legal aspects associated with the dental hygiene healthcare profession. Contemporary issues are examined in dentistry and medicine as a strategy to explore and apply ethical principles in diverse cultures and situations.

Prerequisite: successfully complete all first-year dental hygiene courses.

DHYG3720 - Office Practice

Credits: 2

This course is designed to provide the dental hygiene student with both current information and experience in office practice and management. Also included are discussions of professionalism, decision-making and leadership roles, including legal and ethical responsibilities, team responsibilities in the dental office and discussion of selecting, securing and maintaining employment.

Prerequisite: DHYG 2300, 2350, DHYG 3300 and a communications course.

DHYG3750 - Periodontology

Credits: 3

This course reviews the anatomy and histology of periodontal structures and dental accretions followed by a study of the classifications and etiology of periodontal diseases including both local and systemic factors. A thorough exploration of the hygienist's role in disease recognition, prevention, therapeutic procedures and maintenance is also included.

DHYG3770 - Pain Management

Credits: 2

This course provides clinical experience with local anesthesia and inhalation sedation techniques. It includes the detection of anatomic landmarks in the mouth pertaining to specific injection sites, preparation of the armamentarium, maintenance of asepsis, simulated and real injection of anesthetic agents at predetermined sites and administration of nitrous oxide/oxygen.

Prerequisite: successful enrollment in dental hygiene major or consent of instructor.

DHYG3775 - Pain Management Lab

Credits: 1

This course provides clinical experience with local anesthesia and inhalation sedation techniques. It includes the detection of anatomic landmarks in the mouth pertaining to specific injection sites, preparation of the armamentarium, maintenance of asepsis, simulated and real injection of anesthetic agents at predetermined sites and administration of nitrous oxide/ oxygen.

Prerequisite: successful completion of sophomore year course work in dental hygiene, current certifications in CPR, and curriculum enrollment in dental hygiene major or consent of instructor.

DHYG3800 - Board Review

Credits: 1

This course is designed to assist dental hygiene students in preparing for the National Board Dental Hygiene Exam, the western and central regional clinical and anesthesia board exams, and state jurisprudence exams. These exams are required for licensure to practice dental hygiene in the United States. This course includes discussion of the distinction between various agencies in the education, healthcare and legal system which have jurisdiction over the licensure process, and the impact of cheating during any portion of the process on the public welfare.

Prerequisite: DHYG 3300.

DHYG4850 - Education Practicum in Dental Hygiene

Credits: 6

Allows students to experience both clinical and didactic elements of dental hygiene teaching.

Prerequisite: completion of dental hygiene didactics, all requirements of program. Only available by permission of instructor. For students wishing to teach in dental hygiene programs.

Early Childhood Education

EDEC1020 - Introduction to Early Childhood Education

Credits: 3

Introduces students to the field of early childhood education through lecture, discussion, observation and participation. The student will be exposed to different programs currently in operation in the community and region. Special emphasis will be placed on evaluating early childhood education as a career.

Former Course Number [EDCI 1020]

EDEC1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

EDEC2000 - Engaging Families in Early Childhood Settings

Credits: 3

Focus on the philosophical, psychological, and sociocultural aspects of working with families and children in early childhood educational, home, and community settings.

EDEC2275 - Literature for Young Children

Credits: 3

Introduce major genres and conventions. Will develop critical skills for reading and writing about children's literature and culture; interpretive skills to enrich the understanding of literature for readers

USP 2003-2014 Code U3CH

Prerequisite: ENGL 1010 and sophomore standing.

EDEC3000 - Observing Young Children

Credits: 3

The general goal of the course is to introduce students to observation and recording techniques appropriate for assessing the growth and development of young children in the school setting. A secondary goal is to understand how

observation and recording techniques can facilitate curriculum planning and parent-teacher conferences.

Prerequisite: EDEC 1020 and FCSC 2121.

EDEC3220 - Curriculum and Learning Environments in Early Childhood Education

Credits: 3

Early childhood curriculum and instructional practices will be reviewed, developed, and integrated with a focus on the role of learning environments, materials and play in supporting the teaching and learning process. Students have the opportunity to design meaningful learning experiences through practicum.

Former Course Number [EDCI 3220]

Prerequisite: EDEC 1020 and FCSC 2121 (or both PSYC 2300 and FCSC 2122).

EDEC4209 - Early Literacy Methods

Credits: 3

This course focuses on the pedagogical content knowledge and instructional and assessment practices that will prepare students to implement research-based reading and writing instruction for children from ages 3-8. Key topics include reading aloud to young children; phonological awareness, phonics, and word recognition; reading fluency and comprehension; vocabulary; and writing.

Restricted Early Childhood or Elementary Education Majors

Prerequisite: EDEL 2140 and EDST 3100 or concurrent enrollment.

EDEC4320 - Oral and Written Language Acquisition

Credits: 3

Introduces the student to the nature of language development as it pertains to oral and written communication in education. Recent research in the areas of oral and written language acquisition is compared and contrasted. Implications for facilitating the development of all language modes in educational settings is emphasized.

Former Course Number [EDCI 4320]

Prerequisite: EDST 3480 or equivalent, junior standing and declared Elementary Education or Family and Consumer Sciences major.

EDEC4350 - Health Management Issues in Early Education

Credits: 3

Provides the student the opportunity to examine the implications of a child's health status on his/her personal, educational, social and cognitive development. Provides personnel working closely with the young child with disabilities and his/her family an understanding of the issues related to health concerns and a framework for

intervention planning. Special emphasis is placed on concerns specific to the child in a day care, preschool or other school setting.

Prerequisite: junior standing and consent of the instructor.

EDEC4580 - Internship in Early Childhood/Early Childhood Special Education

Credits: 1

Max Credit (Max. 6)

The internship experience allows the early childhood/early childhood special education program candidate to demonstrate the knowledge and skill gained from coursework offered throughout the EC/ESCE programs. Candidates enroll in the internship after completion of all required courses in the programs.

Dual Listed EDEC 5580.

Prerequisite: permission of the instructor is required.

EDEC5220 - Children with Disabilities

Credits: 3

Purpose is to introduce students to the effects of a disability on the development of the young child. Recent research in the area of early childhood special education will be examined. Educational implications will be emphasized.

Prerequisite: Bachelor's degree in education.

EDEC5230 - Curriculum and Materials for Young Children with Disabilities

Credits: 3

Involves the study and development of curriculum strategies appropriate for the child with disabilities from birth through age five.

Prerequisite: graduate standing.

EDEC5240 - Evaluation of Young Children with Disabilities

Credits: 3

Prepares students to select, administer, and interpret evaluation tools appropriate for planning with young children with disability.

Prerequisite: graduate standing.

EDEC5250 - Legal Issues in Early Childhood Special Education

Credits: 2

Introduces students to the legal issues surrounding the education of young children with disabilities. The intent and implications of P. L. 99457 will be explored and examined to better assist the specialist in serving children with

disabilities and their families.

Prerequisite: EDEC 5220.

EDEC5580 - Internship in Early Childhood/Early Childhood Special Education

Credits: 1

Max Credit (Max. 6)

The internship experience allows the early childhood/early childhood special education program candidate to demonstrate the knowledge and skill gained from coursework offered throughout the EC/ESCE programs. Candidates enroll in the internship after completion of all required courses in the programs.

Dual Listed EDEC 4580.

Prerequisite: permission of the instructor is required.

Ecology

ECOL5050 - Techniques in Environmental Data Management

Credits: 4

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e. g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Cross Listed ENR 5050/GEOG 5050.

Prerequisite: graduate standing.

ECOL5060 - Advanced Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed BOT 5060/ZOO 5060.

When Offered (Offered every other year)

Prerequisite: graduate student in good standing.

ECOL5100 - Ecology as a Discipline

Credits: 3

Covers the range of ecological questions, processes, scales, and research approaches, in context of the history and philosophy of science in general and of ecology in particular. Aimed at first-year students in the doctoral program in Ecology, although students in other graduate programs are welcome.

Prerequisite: graduate standing.

ECOL5400 - Community Ecology

Credits: 3

Community ecology is the study of interactions within and among groups of species. This course focuses on (1) the major classical concepts and theories in community ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

Cross Listed REWM 5400.

Prerequisite: LIFE 3410 or equivalent.

ECOL5500 - Quantitative Analyses of Field Data

Credits: 4

A practical guide to the analysis of messy field data, including data exploration, generalized linear and additive models, mixed models, autocorrelation, and model selection using Program R. Students will have bootcamp to learn methods and spend the rest of the semester analyzing their own data.

Prerequisite: graduate standing.

ECOL5520 - Habitat Selection

Credits: 2

In this course we will cover theory and behavioral/evolutionary concepts related to the process of habitat selection, the contexts under which habitat choices are adaptive or maladaptive, and different types of anthropogenic habitat change and the consequences for animals in the wild. **Prerequisite:** Graduate students in good standing.

Cross Listed ZOO 5520

Prerequisite: Graduate students in good standing.

ECOL5540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540/SOIL 4540.

Dual Listed MOLB 5540/SOIL 5540.

Prerequisite: MOLB 2210.

ECOL5550 - Ecology as a Scientific Profession

Credits: 2

A capstone that prepares doctoral students for success and leadership in their careers as professional ecologists. Intended for students enrolled in the doctoral Program in Ecology in their final year.

Prerequisite: graduate standing.

ECOL5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed REWM 5580.

ECOL5610 - Quantitative Modeling in Landscape Ecology

Credits: 3

Emphasis on quantitative, spatial analysis of landscapes and application of these quantitative tools to making sound management decisions. Work with real data, acquire high-level quantitative skills, develop problem-solving skills, and discuss management application of model results. Analysis will encompass abiotic, biotic (plant and animal), and human use of ecological systems in a spatial context.

Cross Listed REWM 5610.

When Offered (Offered during even-year fall semesters)

Prerequisite: upper division stats course (e. g. , STAT 4015 or STAT 4025) and graduate standing.

ECOL5620 - Advanced Topics in Ecology

Credits: 1-4

Max Credit (Max. 12)

Provides advanced treatment of specific topics in ecology that are not covered in regular courses.

Prerequisite: graduate standing and consent of instructor.

ECOL5650 - Tropical Field Ecology Ecuador

Credits: 4

Course comprises 10 days in Ecuador in January (before spring semester), followed by one lecture per week during spring semester. Focus will be ecology, biodiversity and conservation of tropical forests and behavioral ecology of birds and mammals. Field site is at 1100m on west slope of the Andes.

Cross Listed ECOL 5650.

Prerequisite: graduate standing.

ECOL5680 - Landscape Genetics

Credits: 3-4

Provides a unique opportunity for interdisciplinary training and international collaboration uniting some of the most active landscape genetics groups in North America and Europe. A key objective of landscape genetics is to study how landscape modification and habitat fragmentation affect organism dispersal and gene flow across the landscape. Meeting this and other landscape genetic objectives requires highly interdisciplinary specialized skills making intensive use of technical population genetic skills and spatial analysis tools (spatial statistics, GIS tools and remote sensing). To bring these diverse topics and skills together effectively, we are using a distributed model of teaching. Population genetics, spatial analysis/ statistics, and previous experience in Rare all extremely useful but not required.

Cross Listed Cross listed with: REWM 5680.

ECOL5775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 5775 and BOT 5775.

When Offered (Offered during even-year fall semesters)

Prerequisite: LIFE 3400.

ECOL5780 - Research in Ecology

Credits: 1-6

Max Credit (Max. 12)

Designed for doctoral students pursuing exploratory research before they have determined a dissertation project, and for students to pursue independent research that will not comprise part of their dissertation. Research must be conducted under supervision of an Ecology Faculty member or Affiliate.

Prerequisite: admission to doctoral Program in Ecology.

ECOL5920 - Continuing Registration: On Campus,

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: graduate standing.

ECOL5940 - Continuing Registration: Off Campus,

Credits: 1-12

Max Credit (Max. 16)

Prerequisite: graduate standing.

ECOL5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Economics

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1101 - First-Year Seminar: Viking Economics

Credits: 3

The people we've come to know as the Vikings were major influencers on the history and economic development of Western and Eastern Europe, the Middle East, North Africa, and North America. In this course, we will come to understand the Vikings not only as warriors, but also in other roles for which they should be known: merchants, social and economic innovators, entrepreneurs and explorers, shipbuilders and seafarers, and creators of a remarkable literature of myths and sagas.

USP 2015 Code U5FY

ECON1200 - Economics, Law and Government

Credits: 3

Markets and free enterprise depend on supportive legal and political institutions. The course exposes students to the U. S. political economy. Important relationships between market development, the legal framework and the political system are presented. The U. S. and Wyoming constitutions are studied to show their importance to free enterprise. Topics deal with public choice, cost-benefit analysis in policy, the importance of property rights and regulation.

USP 2003-2014 Code U3V

USP 2015 Code U5V

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ECON1400 - Sports Economics

Credits: 3

Examines economic issues pertaining to professional and collegiate sports. Topics include: determinants of player salaries, owner profits and team values; effects of salary caps, revenue sharing, etc. on competitive balance; labor markets and discrimination; antitrust issues, and the impact of franchises on local economies.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON2100 - Introduction to Money and Banking

Credits: 3

An introduction to the entire area of money and public finance. Oriented towards students wishing to obtain a broad general understanding of importance of money and public finance upon economic activity. Covers money and private financial institutions, monetary theory and policy, as well as public finance and fiscal policy. Credit will not be allowed for more than one of: ECON 2100 or FIN 3520.

Prerequisite: ECON 1010, ECON 1020.

ECON2190 - High Country Economics

Credits: 3

Max Credit (Max. 3)

Allows students to connect economic theory to tangible Wyoming and Rocky Mountain West issues.

Prerequisite: ECON 1010 and ECON 1020, or written consent of instructor.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ECON2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students will experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students will explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed GEOG 2500 and HIST 2500.

ECON2910 - Topics in Economics

Credits: 3

A study of selected topics & problems in modern economics. Topics include but are not limited to sports economics, managerial economics, and behavioral economics.

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ERS 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300, and sophomore class standing.

ECON3900 - Economics Internship/Research

Credits: 1-3

Max Credit (Max. 3)

Students gain practical experience in economic applications and research. A contract with an Economics adviser and cooperating sponsor required before enrolling. Requires student paper and sponsor assessment.

Prerequisite: ECON 1010, ECON 1020, and sophomore class standing.

ECON4000 - Conference

Credits: 1-4

A tutorial-conference course intended to give economics majors an opportunity to engage in extensive research in some aspect of economics. Specific topics vary with students' needs and interests.

Prerequisite: ECON 3010, ECON 3020, or the consent of the instructor.

ECON4030 - Managerial Economics

Credits: 3

An advanced course on the theory of demand, production, cost, and supply; the theory of the firm, including market price under monopoly, monopolistic competition and oligopoly. Attention is given to the theory of factor prices and topics on welfare economics.

A&S College Core 2015 Credit cannot be earned for this course and ECON 3020.

Prerequisite: senior standing or above.

ECON4115 - Time Series Analysis

Credits: 3

Max Credit 3

Designed to have an applied orientation in a number of estimation procedures, such as exponential smoothing and forecasting with and without the presence of trends and seasonal repetitive patterns. The Box-Jenkins procedure will be covered in detail. Students become proficient in the application of statistical tools used in time series analysis of economic data.

Cross Listed STAT 3050 or equivalent; or one of STAT 4015/5015

Dual Listed Dual-list with ECON 5300

When Offered (Offered based on sufficient demand and resources)

Former Course Number [4110]

Prerequisite: STAT 3050 or equivalent; STAT 4015/STAT 5015 recommended.

ECON4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGECE 4230.

Dual Listed ECON 5230.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

ECON4240 - Evolution of Economic Ideas

Credits: 3

Focuses on the most influential economists who have shaped the evolution of economic thinking throughout history. Emphasis is on tracing the evolution of economic thought into the modern intellectual foundation of economics. Traces changing economic thought from mercantilism through modern paradigms.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Restricted Restricted to Seniors in Economics, Business Economics, or a concurrent major with Economics.

Prerequisite: Senior standing and ECON 3010 and ECON 3020, or permission of instructor.

ECON4350 - Game Theory

Credits: 3

Discusses a variety of important concepts from game theory - the study of how individuals interact strategically. The course focuses on the development of students' ability to think strategically. To that end the course covers basic concepts in game theory; notions related to credibility; and notions related to forming and evaluating strategies.

Prerequisite: ECON 3020 and either MATH 2200 or MATH 2350

ECON4360 - Seminar in Economics

Credits: 1-3

Max Credit (Max. 6)

An analysis of selected problems of economics theory. Topics vary with student interest and with current stress in economics theory.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3010, ECON 3020.

ECON4390 - Mathematical Economics

Credits: 3

This course provides a broad set of practical tools that allow an analysis of important economic problems. The mathematical tools analyze human behavior and predict the response of economic systems to changes in circumstances and alternative policies, for applications such as investment project evaluation, capacity expansion, production decisions, or demand for various goods.

Dual Listed ECON 5390.

Former Course Number [4320]

Prerequisite: ECON 3010, ECON 3020, MATH 2205 or MATH 2355.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4420 - Seminar: Economics for ENR

Credits: 2-4

For students with little or no background in economics interested in economic perspectives on ENR. Emphasis is on integrated ecology-economics approach to investigate the economics environmental services, biological resources, and the ecosystems that contain them. CBEC and ECON majors cannot earn upper-division economics credit for this course.

Prerequisite: successful completion of Q and senior standing.

ECON4430 - Energy Economics

Credits: 3

Economics of energy, particularly oil and gas. Includes a discussion of the history of the oil industry, as well as aspects of contemporary markets. Apply a variety of concepts from microeconomics, particularly related to industrial economics.

Prerequisite: ECON 3020, MATH 2200 or MATH 2350.

ECON4450 - Monetary Theory

Credits: 3

Topics in this course center on theories of the value of money and price levels; central banking theory and policy;

international exchange; world monetary institutions.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3010, MATH 2200 or MATH 2350.

ECON4520 - Public Economics

Credits: 3

Studies the role of government within a market economy. The focus is on how governments fund and provide non-market goods demanded by society, e. g. , health care, military, education. Examines public goods, taxation, environmental challenges, affects on economic growth and stability, benefit-cost analysis, and state/local finance.

Prerequisite: ECON 3010, ECON 3020.

ECON4530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 5530.

Prerequisite: ECON 3020, and one of STAT 2010, STAT 2050, STAT 2070, or STAT 2110.

ECON4700 - Economic Development

Credits: 3

Encompasses the study of institutional and social, as well as economic, mechanisms for modernizing an economy while eliminating absolute poverty. Covers the economic concepts that help us explain why some countries are poor and how economic policies can assist those countries in becoming more developed. Case studies of specific country experiences are presented along with the economic theories in an integrated manner.

Prerequisite: ECON 3010.

ECON4710 - Why Economies Succeed and Fail

Credits: 3

The study of the successes and failures of alternative economic systems; origins, similarities, and differences across capitalist, socialist, and communist systems, including the UW, Chinese, European, Russian, Latin American, and African economies. What does history teach us? Are there different tools to grow economy?

Cross Listed INST 4710.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3010; Q.

ECON4720 - International Trade

Credits: 3

The gains from specialization and trade are studied, as are explanations of trade patterns among countries, policies affecting trade such as tariffs, quotas, tax breaks, subsidies, cartels and price stabilization plans. Topics on labor migration and multinational corporations are covered.

When Offered (Normally offered fall semester)

Prerequisite: ECON 3020 and Junior class standing.

ECON4730 - Advanced Regional Analysis

Credits: 3

An advanced study of regional economic models. Included are structural and simulation models, regional growth models, and income estimation models. Emphasis is placed on quantitative analysis of regional growth and development.

This course introduces students to regional economic models, analytical techniques, and relevant policy issues useful for analyzing regions and their economies. Throughout the course, the focus will be on applied research, which will provide students with useful skills and experience, especially those interested in data analytics or economic development work.

Cross Listed ECON 5730

Prerequisite: ECON 3010 , ECON 3020 or equivalent

ECON4740 - International Economics and Policy

Credits: 3

The focus is on foreign exchange markets, balance of payments analysis and effects of international trade and capital flows on the domestic economy. Policies to correct payment deficits, gold, international liquidity and international financial institutions are studied.

Prerequisite: ECON 3010 and ECON 3020; QA.

ECON4800 - Labor Economics

Credits: 3

The study of labor supply, labor demand, wage determination, resource allocation and income distribution. Emphasis is on public policy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3010 and ECON 3020; QA.

ECON4820 - Industrial Organization and Public Policy

Credits: 3

The conduct and performance of market structures is analyzed. Structures include perfect competition, monopolistic competition, oligopoly and monopoly. Special attention is given to the study of strategic behavior in industry. Game theory is introduced. Public policy against monopoly practices is reviewed.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Q.

ECON4840 - Public Utility Economics

Credits: 3

The economic foundations of the public utility industries; the theory of public utility rate making; pricing and resource allocation; and the effectiveness of utility regulation.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 1010 and ECON 1020; QA.

ECON4900 - Ind. Study in Economics

Credits: 1-6

Max Credit 6

This course provides students the opportunity to study on an individual basis, any aspect of Economics not included in other structure Economics courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

ECON4910 - Topics in Economics

Credits: 3

Max Credit (Max. 6)

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

ECON5010 - Advanced Macroeconomic Analysis

Credits: 3

An advanced application of economic theory to complex macroeconomics problems facing the economy of the state and nation, such as inflation, unemployment, and fiscal and monetary policies.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5020 - Advanced Microeconomic Analysis

Credits: 3

A rigorous course in the analysis of demand and the theory of consumer behavior, supply and the theory of the firm, market equilibrium and stability, and income distribution.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5110 - Advanced Topics in Economic Theory

Credits: 3

A study of selected topics in modern economic theory. Topics include growth theory, optimal control, dynamics, uncertainty, and game theory.

Prerequisite: ECON 5010, ECON 5020.

ECON5115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling.

Cross Listed STAT 5115.

Dual Listed ECON 4115.

Prerequisite: STAT 3050 or equivalent, STAT 4015/STAT 5015 recommended.

ECON5120 - Advanced Analysis II-Microeconomics

Credits: 3

Part of a sequence with ECON 5020. It is advanced microeconomic analysis covering general equilibrium and welfare economics, and advanced topics in consumption and production theory.

Prerequisite: ECON 5010, ECON 5020.

ECON5130 - Dynamic Optimization

Credits: 3

Covers methods for obtaining the optimal choice for economic variables that change over time, including calculus of variations and optimal control. These methods are applied to various dynamic economic problems, including optimal resource extraction, optimal capital allocation, and optimal growth.

Prerequisite: ECON 5020, ECON 5370.

ECON5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the

underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGEC 5230.

Dual Listed ECON 4230.

Prerequisite: admission to the Master's Program in Economics.

ECON5300 - Game Theory

Credits: 3

Discusses a variety of important concepts from game theory - the study of how individuals interact strategically. The course focuses on the development of students' ability to think strategically. To that end the course covers basic concepts in game theory.

Restricted Course is restricted to MS ECON

Prerequisite: admission to the graduate program in Economics and Finance.

ECON5310 - Research Methods

Credits: 3

A variety of topics of importance to the advanced student who is preparing to write his or her dissertation are discussed.

Restricted Economics Graduate Students

Prerequisite: Admission to the graduate program in Economics

ECON5330 - Advanced Mathematical Economics

Credits: 3

Study of the principal mathematic techniques used in economic theory and modeling. Taught jointly with ECON 5020.

Prerequisite: graduate standing.

ECON5340 - Applied Econometrics

Credits: 3

Presents a thorough coverage of the general and normal linear regression models. Then proceeds to deal with the standard methodologies for estimating variations of this model including autocorrelation and hetero-skedasticity, extreme multicollinearity, disturbance-related sets of regression equations, simultaneous equation bias, and simultaneous equation models.

Prerequisite: ECON 3010, ECON 3020 and STAT 2010.

ECON5350 - Advanced Econometrics Theory I

Credits: 3

Review topics in probability theory and mathematical statistics. Also provides an introduction to the classical linear regression model, estimation, hypothesis testing, and prediction.

Prerequisite: Calculus and Basic Statistics.

ECON5360 - Advanced Econometrics Theory II

Credits: 3

Continue the analysis in ECON 5350 and cover topics such as panel data, limited-dependent variables, simultaneous systems, nonlinear models, Bayesian analysis, and time series methods.

Prerequisite: ECON 5350.

ECON5370 - Advanced Econometric Theory III

Credits: 1-3

Max Credit (Max. 9)

More in-depth coverage of topics in ECON 5350 and ECON 5360. Topics are selected based on current advancements in econometrics and students' research interests and may include generalized method of moments (GMM), nonparametric estimation, state-space models and the Kalman filter, mixed and nested logit models, multinomial discrete-choice models, and simulated maximum likelihood.

Prerequisite: ECON 5360.

ECON5380 - Experimental Methods in Economics

Credits: 3

Accepted experimental techniques in behavioral economics are studied. Critical review of previous experimental work is used to learn proper procedure. The value of subject control and creative construction is stressed.

Former Course Number [5320]

Prerequisite: graduate standing.

ECON5390 - Math Microeconomics

Credits: 3

This course provides a broad set of practical tools that allow an analysis of important economic problems. The mathematical tools analyze human behavior and predict the response of economic systems to changes in circumstances and alternative policies, for applications such as investment project evaluation, capacity expansion, production decisions, or demand for various goods.

Dual Listed ECON 4390.

Prerequisite: ECON 3010, ECON 3020, MATH 2205 or MATH 2355.

ECON5400 - Advanced Resource and Environmental Economics

Credits: 3

This course examines how we use economics to sharpen natural resource use and environmental policy. We focus on the behavioral and institutional underpinnings of market success and failures, choice under risk, time, space, conflict, cooperation, incentive design, non-market valuation, and prosperity.

Prerequisite: ECON 3020, ECON 4400 or consent of instructor.

ECON5410 - Seminar in Advanced Resource and Environmental Economics

Credits: 1-3

Max Credit (Max. 6)

This course explores the modern theory and empirics in environmental and natural resource economics. We focus on cost-benefit analysis, land use, energy, biodiversity protection, climate change, forestry, ecosystem services, fisheries, water, and sustainable development.

Prerequisite: ECON 4400 and ECON 5020.

ECON5520 - Advanced Public Economics

Credits: 3

This course examines when and what policies maximize welfare, and their distributional impact. It addresses market failures and behavioral biases as potential justifications for government intervention. It also addresses preferences for redistributions, benefit-cost analysis, the economics of taxation, information and nudges.

Prerequisite: ECON 5010, ECON 5020 or equivalent.

ECON5530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 4530.

Prerequisite: admission to the Master's program in Economics.

ECON5640 - Financial Economics I

Credits: 3

Focuses on theoretical topics. Covers optimal portfolio selection under uncertainty and differential information as well

as fundamental theoretical issues in banking and financial intermediation. In the latter part of the semester, students have an opportunity to present one of the assigned articles in class and lead a discussion on it, with active participation by the entire class.

Prerequisite: PhD-level microeconomics class (5020) and at least one 4000-level finance class.

ECON5650 - Financial Economics II

Credits: 1-3
Max Credit (Max. 6)

Topics include corporate finance, capital structure and the theoretical valuation of financial securities; also, asset pricing and financial econometrics.

Prerequisite: ECON 5640.

ECON5700 - Advanced Economic Development

Credits: 3
Explores basic growth theory, "economic history" models of economic expansion, theories of natural resource based development and trade-resource models, the role of institutions and public policy in influencing development, and the effects of population, trade and finance on development.

Prerequisite: ECON 5010, ECON 5020.

ECON5720 - Advanced International Economics

Credits: 3
Studies the economics of trade between nations. Important trade theories are studied along with their empirical evaluation. Time is devoted to the importance of international trade growth. Government trade policies are given theoretical and empirical evaluation.

Prerequisite: ECON 5020.

ECON5730 - Advanced Regional Analysis

Credits: 3
An advanced study of regional economic models. Included are structural and simulation models, regional growth models, and income estimation models. Emphasis is placed on quantitative analysis of regional growth and development.

Prerequisite: ECON 3010, ECON 3020 and 4600 or equivalents.

ECON5820 - Advanced Industrial Organization and Public Policy

Credits: 3

An application of market and price theory to concentration, size, competition; antitrust; close-knit and loose-knit combinations; business practices; price leadership and discrimination; delivered pricing; fair trade; unfair competition; and public policy.

Prerequisite: ECON 5010, ECON 5020, or equivalent.

ECON5830 - Empirical Industrial Organization

Credits: 3

Focuses on methods of analyzing data and testing hypotheses arising in the field of industrial organization. Much of the material builds on concepts introduced in ECON 5020 along with concepts presented in econometrics classes. Although many of the relevant concepts are primarily covered in ECON 5820, this course can be taken before or without taking ECON 5820.

Prerequisite: admission to the graduate program in Economics and Finance.

ECON5890 - Seminar in Advanced Economics

Credits: 1-3

Max Credit (Max. 9)

An advanced tutorial-conference course intended to give graduate students experience in research in economic problems.

Prerequisite: consent of instructor.

ECON5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

ECON5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ECON5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ECON5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

ECON5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

ECON5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Ecosystem Science and Management

ESM4990 - Topics

Credits: 1-4
Max Credit (Max 8)

Topics pertaining to ecosystem science and natural resource management. Intended to accommodate instruction in various specialized subjects being offered for the first time or not offered on a regular basis. Students may enroll in more than one section of this course provided topics are different.

Prerequisite: Appropriate to the particular topic will be specified in the course advertisement.

ESM5995 - Topics

Credits: 1-4
Max Credit (Max 8)

Topics pertaining to ecosystem science and natural resource management. Intended to accommodate instruction in various specialized subjects being offered for the first time or not offered on a regular basis. Students may enroll in more than one section of this course provided topics are different.

Prerequisite: Appropriate to the particular topic will be specified in the course advertisement.

Educational Leadership

EDAD1000 - Schools and Democracy

Credits: 1

Content-based course focuses on critical-thinking skills necessary to understand, analyze, and produce knowledge within the framework of educational inquiry; introducing students to the themes of the agenda of the National Network for Educational Renewal which focuses on the purpose of schools in America.

USP 2003-2014 Code U3I

EDAD5010 - Leadership for Curriculum Development

Credits: 3

Focuses on leadership skills that support curriculum and curriculum development in student learning and achievement. Key topics include: K-12 curriculum alignment; incorporating standards and community values; curriculum development, implementation, and evaluation; equity and access for diverse learning needs; and effective communication about curriculum.

Prerequisite: Admission to program or consent of instructor.

EDAD5020 - Leadership for School Organization

Credits: 3

Focuses on organizational leadership. Topics include: history of organizational leadership, leadership styles, change process, strategic planning, federal, state, and local governance as well as politics, power and policy, and school operations, to include budget, facilities, scheduling, recruitment, selection and induction.

Prerequisite: Admission to program or consent of instructor.

EDAD5030 - Leadership for School and Community Relations

Credits: 3

Focuses on the leadership role of the principal in building relations with students, staff, family, and community. Topics include school culture and climate, community and family involvement, public relations and communications, student discipline, and crisis management.

Prerequisite: admission to program or consent of instructor.

EDAD5040 - Leadership for Instruction

Credits: 3

Focuses on the principal as instructional leader. Topics include: developing a school vision of learning; employing effective instructional strategies, supervision and evaluation of teacher performance; integration of supervision, evaluation, and student achievement with professional development and professional learning communities, and instructional trends and issues within diverse learning communities.

Prerequisite: Admission to program or consent of instructor.

EDAD5050 - Leadership for Democratic Schools

Credits: 3

Designed to increase awareness of future school leaders of the principles of equity and excellence in education focused on democratic practices. Topics include democratic educational practices, ethical leadership, renewal of public schools, and educational leadership in urban, suburban, and rural communities, and in ethnically and socio-economically diverse settings.

Prerequisite: graduate standing.

EDAD5060 - Capstone in Educational Leadership

Credits: 3

Designed to assist the student in the creation of their master's program final project, which will be used as the written demonstration of mastery of the course outcomes as well as meeting the educational leadership (ELCC) standards.

Prerequisite: complete Core (EDAD) courses.

EDAD5080 - Introduction to School Law

Credits: 3

This course provides legal foundations of U. S. public schools and examines general principles of statutory and case law and applies judicial decisions to educational environments. Additionally, the course focuses on legal responsibilities, constraints, and opportunities for school leaders.

Prerequisite: admission into UW Educational Administration, K-12.

EDAD5150 - Assessment, Accountability, and Student Learning

Credits: 3

Focuses on the knowledge and skills necessary to lead schools in the alignment of standards, assessment, and instruction. Topics include analysis and interpretation of assessment results and educational data, recent history and current context of educational accountability in Wyoming, role of assessment and accountability in improving student learning.

Prerequisite: graduate standing.

EDAD5580 - Supervised Internship in Educational Administration

Credits: 1-8
Max Credit (Max. 12)

Expand student knowledge by providing an intensive clinical experience in educational administration along with other activities that involve practical experiences with peers and with practising K-12 administrators.

Prerequisite: Admission into the UW Educational Leadership Principal Certificate, Master's or EdD Doctoral program.

EDAD5600 - Educational Leader as Manager of Human Resources

Credits: 3
Focuses on linking theory related to organizations (including Bureaucracy Theory), decision-making and organizational effectiveness with effective practices in management of organizational personnel.

Prerequisite: graduate standing.

EDAD5650 - Educational Leader as Communicator

Credits: 3
Focuses on inter- and intra-personal communication skills; group facilitation; organization and community public relations; parent and community involvement; negotiation; and conflict management.

Prerequisite: graduate standing.

EDAD5700 - Educational Leader For Instruction

Credits: 3
Focuses on the study of curriculum development and implementation, instructional practice, assessment and staff development.

Prerequisite: graduate standing.

EDAD5720 - Educational Leader as Change Agent

Credits: 3
Focuses on the study of change theory, change processes, change dynamics, decision-making models, and implementation of change in the organization setting.

Prerequisite: graduate standing.

EDAD5750 - Educational Leader for the Board and Community

Credits: 3
Concentrates on the administrator as the leader of an organization's board and community.

Prerequisite: graduate standing.

EDAD5800 - Educational Leader as Resource Manager

Credits: 3

Focuses upon the successful management and operation of the organizations fiscal resources, facilities, and support services. Includes work in the areas of transportation, food service, funding and budget, compensation, facilities, legal issues, calendar, special education, and policy influence.

Prerequisite: graduate standing.

EDAD5815 - Advanced School Law

Credits: 3

Designed to provide advanced information concerning K-12 school law as it relates to public education. Students will acquire a deeper understanding of legal issues that routinely arise in the K-12 school setting.

Prerequisite: Admission into the UW Educational Leadership EdD/ PhD Doctoral Program.

EDAD5850 - Educational Leader as Direction Setter

Credits: 3

Investigates how the educational leader can effectively create a futuristic vision and mission for the organization after assessing the existing culture and climate, and organizational readiness for change.

Prerequisite: graduate standing.

EDAD5870 - Seminar in Legal Issues

Credits: 1-6

Max Credit (Max. 8)

Advanced students in education work together intensively on current issues and problems relevant to educational administration and participate in systematic, critical interpersonal evaluation. Eight hours are permitted on a doctoral program.

Prerequisite: consent of instructor and graduate standing.

EDAD5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.
Prerequisite: advanced degree candidacy.

Educational Research

EDRE5000 - Educational Research

Credits: 3

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

EDRE5550 - Action Research

Credits: 3

Introduces experienced classroom teachers to action research methodology. Action research studies will be reviewed and critiqued. Students will learn to plan, implement, and write up an action research study conducted in a classroom setting.

Prerequisite: graduate standing.

EDRE5580 - Supervised Internship

Credits: 1-8

Max Credit (Max. 12)

EDRE5600 - Introduction to Quantitative Research

Credits: 3

Basic concepts of educational survey research design, statistics, and measurement. The focus is on descriptive statistics (measures of central tendency, variability, percent and frequency distribution, bivariate correlation, graphical displays, testing hypotheses about proportions). Students develop questionnaires and plan, conduct, and report on a survey study.

EDRE5610 - Educational Research: Group Comparison Research

Credits: 3

Concepts of experimental and ex post facto research designs, statistics, and measurement. The focus is on inferential statistics. Students construct attitude scales and other instruments used in research and they plan, conduct, and report on a group comparison study.

Prerequisite: EDRE 5600.

EDRE5620 - Correlational Research

Credits: 3
Max Credit 3

Concepts of correlational research, statistics, and measurement. Focus is on the design and analysis of results from correlational studies. Statistical topics include MANOVA, multiple regression, factor analysis, and discriminant analysis. Includes measurement topics in classical measurement theory and additional topics in validity and reliability. Plan, conduct, and report on a correlational study.

Prerequisite: EDRE 5600

EDRE5630 - Educational Research IV: Multivariate Research

Credits: 3
An advanced educational research, statistics, and measurement course. Design and analysis of results from studies with several dependent and independent variables. Includes multivariate statistics such as MANOVA, discriminant analysis, canonical correlation, multidimensional scaling, structural equation modeling, logit regression. Measurement topics include generalizability theory, item response theory, equating, and standard setting.

Prerequisite: At least one of the following: EDRE 5610 or EDRE 5620

EDRE5640 - Introduction to Qualitative Research

Credits: 3
This course introduces qualitative research. Students will explore the foundations, social science theories, methods, and processes of qualitative research and will learn to critically evaluate published research. Emphases will include basic design principles, trustworthiness, and analysis. Students will engage in original data collection and will produce a mini report.

Prerequisite: EDRE 5530.

EDRE5645 - Phenomenology, Case Study, and Grounded Theory in Qualitative Research

Credits: 3
In-depth examination of phenomenology (with great emphases on its philosophical roots), qualitative case study, and grounded theory. Characteristics of each qualitative tradition will be explored by way of critiquing published peer reviewed journal articles. Students will conduct and report on a mini study.

Prerequisite: EDRE 5640

EDRE5655 - Ethnography and Narrative Inquiry in Qualitative Research

Credits: 3
In-depth exploration of narrative inquiry (including autoethnography) and educational ethnography. Issues of ethics, politics, diversity, and the researcher's role will be integral to the course. Students will conduct and report on a mini

study.

Prerequisite: EDRE 5630

EDRE5660 - Dissertation/Thesis Prospectus Writing

Credits: 3

Prepare graduate students to plan, develop, and write research proposals suitable for a dissertation/thesis. In consultation with the committee chair, students will focus on their own problem for research, conduct a literature review, choose appropriate methods for investigating the problem, and write a research proposal.

Prerequisite: at least two of the following: EDRE 5600, EDRE 5610, EDRE 5620, EDRE 5630, EDRE 5640, EDRE 5645, EDRE 5655, EDRE 5670, or EDRE 5870.

EDRE5670 - Mixed Methods Research

Credits: 3

Provide an overview of mixed methods research to graduate students who are already familiar with quantitative and qualitative research. Specifically, they will learn the definition, history and foundations, and specific types of mixed methods designs. Also plan a mixed methods research study.

Prerequisite: EDRE 5600 and EDRE 5640.

EDRE5870 - Seminar

Credits: 1-8

Max Credit (Max. 8)

EDRE5890 - Directed Professional Study

Credits: 1-6

Max Credit (Max. 9)

EDRE5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

Educational Studies

EDST1101 - First-Year Seminar: So You Want to be a Superhero? Exploring the Teaching Profession

Credits: 3
USP 2003-2014 Code U5FY

EDST1200 - Practicum I

Credits: 1

The course is designed to build educator identity, develop skills in observing the physical environment of educational settings, understand the responsibilities and ethics of educational professionals, and engage in and reflect on service learning activities. Students engage in classwork and at least 30 clock hours of practicum in educational settings.

Prerequisite: Background check on file in the Teacher Preparation and Advising Office.

EDST2200 - Practicum 2

Credits: 1

Students will display an educator identity; develop skills in creating student-centered and culturally relevant/sustaining learning environments; apply ethical principles in service-learning activities; and collaborate in planning, implementing and reflecting on activities for learners. Students engage in classwork and at least 30 clock hours of practicum in educational settings.

Restricted Education major

Prerequisite: EDST 1200 or equivalent and Sophomore standing. Background check must be on file in the Teacher Preparation and Advising Office prior to start of practicum experiences.

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

EDST2475 - Independent Studies

Credits: 1-3

Max Credit (Max. 9)

Offers students the opportunity to complete special course-related work independently under direction of a college faculty member. Directed readings are done and projects are completed. Requires at least two conferences with instructor.

Former Course Number [EDUC 2475]

Prerequisite: consent of instructor.

EDST2550 - Educational Assessment

Credits: 3

Max Credit 3

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. Topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs

Prerequisite: Declared Education major; Completed Q requirement with a C or better; UW Cumulative GPA of 2.5 or higher

EDST3100 - Teacher as Practitioner

Credits: 3

Culminating practicum experience prior to student teaching. Practicum experiences are integral. This course links theory and philosophy to classroom practice. Focuses on three major topics: planning for educational experiences, instructional models and strategies, and managing classrooms.

When Offered (Offered each semester)

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Former Course Number [EDUC 3000]

Prerequisite: successful completion of COM I, grade of C or better in Q, 2.75 cumulative GPA, grade of C or better in EDST 3480, grade of C or better in ITEC 2360, grade of C or better in EDEX 2484, junior standing, current State of Wyoming substitute teaching license. Concurrent enrollment in EDST 3101.

EDST3101 - Practicum 3

Credits: 2

This course provides students with practicum experiences in a K-12 classroom, investigating theory and best practices regarding classroom management and instructional strategies. Students will engage in coursework and at least 45 hours of practicum interacting with their mentor teacher and students, planning and teaching lessons, implementing classroom management, and reflecting.

USP 2015 Code U5C2

Prerequisite: Concurrent enrollment or successful completion of EDST 3100 with a C or better, Successful completion of COM1 with a C or better, 2.75 cumulative GPA, Successful completion of EDST 2450, ITEC 2360, EDEX 2484, EDST 2550, EDST 1200, and EDST 2200 with a C or better, junior standing, and current State of Wyoming substitute teaching license.

EDST3200 - Foundations of ESL Learning

Credits: 3

This course introduces students to basic principles of second language acquisition and factors that influence the processes. Understanding the processes of language acquisition, will better equip students to plan instructional strategies that facilitate English language learners' language.

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

EDST3550 - Educational Assessment

Credits: 2

Designed to introduce students to key concepts and issues in classroom and standardized education assessments. topics include standards, reliability and validity of norm- and criterion-referenced assessments, and special issues surrounding the assessment of students with special needs. Addresses the basic ideas of classroom test design.

Prerequisite: Prerequisites: Grade of C or better in a Q course, and EDST 2480, 2.75 Cumulative UW Institutional GPA.

EDST3600 - Preparing Teaching Abroad

Credits: 1

Prepares students for teaching abroad, by helping them to adapt to and understand the host country's culture, history, geography, political, and economic context. The course provides the practical information necessary for a foreign experience by exploring the principles of culture shock, ethnocentrism, cultural relativism, and the fundamentals of cross-cultural communication. Offered S/U only.

Restricted Educaiton Majors Only

Prerequisite: Junior or Senior class standing or consent of instructor. Acceptance into advanced standing of the teacher education program.

EDST4000 - Foundations of Education for a Diverse Society

Credits: 3

Designed to acquaint students with philosophical, social, and political influences of North American education; to develop an understanding of the qualities of critical thinking for reflective teaching; to raise awareness of contemporary critical issues in education; to develop an understanding of individual differences, diversity, and multiculturalism. Practicum included.

Prerequisite: earned bachelor's degree from an accredited institution, a cumulative UW institutional GPA of 2.750 or better and EDST 2450.

EDST4050 - Diversity & Social Justice: Theory and Practice

Credits: 3

Addresses multiple disciplines. Expose students to domestic and international perspectives of diversity and social justice. This course will move students from a theoretical lens of diversity and social justice toward becoming change agents.

Prerequisite: Junior/senior standing and WMST/CHST/AMST/AAST/NAIS 1040.

EDST4110 - Foundations of American Indian Education

Credits: 3

Examines cultural, geographical, linguistic, spiritual, political and societal factors before, during and after colonization of the Americas. Definitions and day-to-day realities of terms like ethnocentrism, cultural relativism, assimilation, acculturation, and institutional racism. Development of insights into positive teacher-pupil-community relationships that honor culture and language differences and enhance achievement.

Cross Listed NAIS 4110.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: NAIS 1001 and 15 credit hours of NAIS or EDST.

EDST4600 - Diversity & Social Justice Minor Capstone

Credits: 3-6

Max Credit (Max. 6)

In community-engaged learning, sometimes called "service learning," students have the privilege of gaining work experience with the benefit of a community mentor. This course is a seminar class with a field experience. Students will meet as a group as well as assigned a community field placement experience.

EMAT5800 - Culture, Power, and Identity in Mathematics Education

Credits: 3

The purposes of this course is to examine issues related to culturally specific pedagogy (CSP), power and identity in the mathematics classroom. Students will explore ways to integrate CSP in the classroom to facilitate mathematics teaching and learning with the goal of developing students' interest and motivation in mathematics.

Restricted Graduate students only

Electrical Engineering

EE1010 - Introduction to Electrical and Computer Engineering

Credits: 1

Introduction to Electrical and Computer Engineering through a laboratory experience. Students perform both hardware and computer laboratory exercises in a wide range of areas of electrical and computer engineering.

EE1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE2390 - Digital Systems Design

Credits: 4

Binary logic, digital logic gates, reduction of Boolean expressions, combinational logic design. MSI and LSI combinational logic ICs, flip-flops, synchronous and asynchronous sequential systems design, MSI and LSI sequential system ICs, and algorithmic state machines.

Prerequisite: COSC 1010 or COSC 1015 or COSC 1030 or ES 1060, and MATH 2205.

EE3150 - Electromagnetics

Credits: 3

A thorough study of static electric and magnetic fields using vector methods with an introduction to dynamic fields.

Prerequisite: ES 2210, or ES 2215 and ES 2216, MATH 2210, and PHYS 1220 or concurrent enrollment.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution; difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

EE3311 - Electronics I

Credits: 3

Physical characteristics and models of semiconductor devices with application to electronic circuit design. Diode circuits, single transistor amplifiers, biasing, and load lines. Prerequisites: (PHYS 1220 or PHYS 1320 or EE 3150), and EE 2220 or concurrent enrollment.(Offered fall semester only)

Prerequisite: PHYS 1220 or PHYS 1320 or EE 3150, and EE 2220 or concurrent enrollment

EE3312 - Electronics I Laboratory

Credits: 1

Hands on interactive laboratory investigation of the physical characteristics of semiconductor devices and applications in electronic circuit design. Study of diode and transistor characteristics as well as diode circuits and single transistor amplifier circuit design, construction and testing. Prerequisites: EE3311 must be taken either concurrently or as a prerequisite. (Offered fall semester only)

When Offered (Offered fall semester only)

Prerequisite: EE3311 must be taken either concurrently or as a prerequisite.

EE3331 - Electronics II

Credits: 3

Current sources, differential and multistage amplifiers; circuits with ideal and non-ideal operational amplifiers; low and high band frequency response, feedback, stability, gain and phase margin of amplifiers; output stages, class A and push-pull; monolithic operational amplifier; oscillators; transistors as switches and introduction to digital electronic circuits. Laboratory. Prerequisites: (EE 3310 or EE 3311) and EE 2220. (Offered spring semester only)

When Offered (Offered spring semester only)

Prerequisite: (EE 3312 or EE 3311) and EE 2220

EE3332 - Electronics II Laboratory

Credits: 1

Hands on interactive laboratory investigation of transistor switching circuits, differential amplifiers, current sources, amplifier frequency response, feedback, output stages, and oscillators. Prerequisites: EE 3312 and EE 3331 concurrently (offered spring semester only).

Prerequisite: EE 3312 and EE 3331 concurrently

EE3510 - Electric Machines and Power Systems

Credits: 4

Polyphase AC circuits; single phase and polyphase transformers; AC synchronous and induction machines;

introduction to power systems and per unit system; transmission line parameters; steady-state operations of transmission lines; power flows; transient stability; synchrophasor system and its applications.

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ARE 3890/ATSC 3890/CE 3890/CHE 3890/COSC 3890/ES 3890/PETE 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

EE4075 - C++ with Numerical Methods for Engineers

Credits: 4

Introduction to the fundamentals of practical engineering programming, using specific applications of numerical methods to demonstrate these principles. The use of an object oriented approach using C++ in an efficient manner is emphasized. Other solution approaches, including C and Matlab will be discussed as appropriate.

A&S College Core 2015 Credit will not be allowed in both EE 4075 and ES 3070.

Prerequisite: MATH 2205 and (COSC 1010, COSC 1015, or ES 1060) and (MATH 2250 or MATH 2310) or consent of instructor.

EE4220 - Probabilistic Signals and Systems

Credits: 3

Fundamentals of probability and statistics for engineers; reliability in engineering systems; random processes, statistical estimation, auto/ cross correlation and power spectral density functions and linear filtering of random signals.

Prerequisite: MATH 2210 and EE 3220. EE 3220 may be taken concurrently.

EE4245 - Digital Signal Processing

Credits: 3

Sampling and oversampling A/D's; FIR and IIR digital filter design, effects of quantization, practical realizations; applications of the discrete and fast Fourier Transform (DFT and FFT); correlation, periodograms, window effects, multi-rate techniques, multi-dimensional signal processing, and other topics in digital signal processing.

Prerequisite: EE 3220.

EE4250 - Network Synthesis

Credits: 3

Characterization and design specification of analog filters. First and second order passive and active filters. Butterworth and Chebyshev filter responses. Audio frequency active filter synthesis using operational amplifiers. Introduction to frequency transformations and sensitivity.

Prerequisite: EE 2220 and EE 3331 or concurrent enrollment.

EE4300 - Microwave and RF Circuits

Credits: 3

Analysis and design of microwave and RF circuits with applications to communication and radar systems. Review of transmission line concepts and the Smith Chart, scattering parameters, microstrip lines, and matching networks. Analysis and design of microwave and RF amplifiers, oscillators, and mixers.

Dual Listed EE 5300.

Prerequisite: EE 3150 or PHYS 1220, EE 3331 or concurrent enrollment, or consent of instructor.

EE4330 - Electronic Systems Design

Credits: 4

Analog integrated circuits such as amplifiers (operational, instrumentation, isolation, video, transconductance, comparator, logarithmic and exponential); voltage regulators; analog multipliers and dividers; AC to DC converters; sample and hold circuits; digital to analog converters; analog to digital converters; function generators; phase locked loops. Includes design procedures for electronic systems implementing analog integrated circuits. Laboratory.

Former Course Number [4370]

Prerequisite: EE 2390 and EE 3331.

EE4340 - Semiconductor Materials and Devices

Credits: 3

Physical properties of semiconductor materials and devices, including crystal lattices and energy bands, carrier generation, transport, and recombination. PN, metal-semiconductor, and heterojunction operation. Field Effect Transistors, including Metal Oxide Semiconductor (MOSFET), Junction (JFET), Metal Semiconductor (MESFET), and High Electron Mobility (HEMT) transistors. Bipolar Junction (BJT) and Heterojunction (HBT) Transistor operation.

Cross Listed PHYS 4340.

Prerequisite: PHYS 1220 or PHYS 1320.

EE4345 - Hardware Digital Signal Processing

Credits: 3

Hands-on introduction to real-time digital signal processing. Programming DSP algorithms using C on modern DSP hardware. Students gain deep understanding of fundamental DSP concepts by implementing selected applications including sampling, reconstruction, FIR and IIR filters, signal generation, and FFT. Hardware concepts include EDMA, memory maps, interrupts, buffered serial ports.

Prerequisite: EE 3220.

EE4360 - VLSI Design

Credits: 3

Introduction to CMOS processing, MOS fundamentals including devices models; switching and timing; analog subcircuits and amplifiers; inverters and CMOS gates; concept of standard cells and fully custom design; use of SPICE, digital simulation, and chip layout and verification software.

Prerequisite: EE 2390, and EE 3331 or concurrent enrollment.

EE4390 - Microprocessors

Credits: 3

Design of microcomputers, controllers and instruments which use microprocessors. Semiconductor memory design, CPU architecture, bus structure and timing, input-output interfaces and devices, assembly language programming, assemblers, compilers, editors and simulators. Emphasizes design techniques. Laboratory.

When Offered (Normally offered once a year)

Prerequisite: EE 2390.

EE4440 - Communication Theory

Credits: 3

Amplitude and angle modulation and demodulation; digital baseband and carrier communication systems; performance of communication systems; and current topics in communication systems.

When Offered (Normally offered once a year)

Prerequisite: EE 3220 and EE 4220.

EE4490 - Hardware Descriptive Language (HDL) Digital Design

Credits: 3

Hardware Description Language design of digital systems. Industrial CAD tools are used to produce a functional description of hardware that is both simulated and then synthesized into hardware. Methods to describe both combinational logic and synchronous devices are given. Devices such as CPLDs and FPGAs are targeted in this design process. Emphasizes design techniques.

Prerequisite: EE 2390.

EE4510 - Power Systems

Credits: 3

Electric power distribution and transmission. Distribution systems, transmission line calculations, installation and protection; substations, corona, protective relaying and carrier current communication and telemetering. Introduction to system stability studies.

Prerequisite: ES 2210 and EE 3510.

EE4590 - Real Time Embedded Systems

Credits: 3

Emphasizes a systems approach to real time embedded systems. Students are expected to apply methodical system design practices to designing and implementing a microprocessor-based real time embedded system. Students employ a robot-based educational platform to learn the intricacies of real time embedded systems, distributed processing, and fuzzy logic. Students learn processor input/output interfacing techniques. Students use state-of-the-art design and troubleshooting tools.

Dual Listed EE 5590.

Prerequisite: EE 4390.

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

EE4621 - Honors Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers. Honors students will at the end of the semester design a high-performance control system for a sophisticated plant with realistic feedback limitations.

Prerequisite: EE 2220 or ME 3020.

EE4800 - Problems in _____

Credits: 1-6

Max Credit (Max. 6)

Section 1 is individual study. Other sections are group study by seminar or class format. Features topics not included in regularly offered courses.

Prerequisite: consent of instructor.

EE4820 - Senior Design I

Credits: 2

Students choose a senior design project and complete the preliminary design. This stage of senior design includes investigation of alternative solutions that meet the project's requirements, cost analysis, and building the prototype circuit. Periodic oral and written project progress reports are required.

When Offered (Offered fall semester only)

Prerequisite: EE 2220, EE 2390, and EE 3312 or concurrent enrollment, plus 6 hours of 4000 level EE/BE classes, or concurrent enrollment. COM2 must be passed with a C or better grade.

EE4830 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in EE 4820. The final result of the senior design project includes assembly of a PC board hardware that meets the project's requirements and final report describing the design procedure, designed hardware and software, and results of final testing. Periodic oral and written project progress reports are required.

When Offered (Offered spring semester only)

Prerequisite: EE 4820 and selected courses in the area of the design project.

EE4870 - Computer Network Hardware

Credits: 4

Basic LANs, Ethernet LAN architecture, and classical Ethernet CSMA/CD MAC protocol. 10Mbps, 100 Mbps, and gigabit Ethernet architecture. Introduction to switching, queuing theory, architecture, design and performance analysis of switch fabrics. Architecture, design, algorithms and performance analysis of Routing. Cellular Networks. TCP/IP Protocol.

Prerequisite: EE 2390.

EE4990 - Advanced Microprocessors

Credits: 3

Architecture and instruction set of Intel family of microprocessors; Intel System Development Kit and its monitor program; Microsoft Macro Assembler (MASM) and Visual C/C++ Express; modular programming; High level language compilers of object code; Interface design issues of peripheral devices to Personal Computer.

Prerequisite: EE 4390.

EE5210 - Systems Theory

Credits: 3

Review of linear time-invariant systems theory. Laplace, Fourier, and Z-transforms. Introduction to complex variable theory and its application to integral transform inversion. State variable formulation of physical systems. Application of linear algebra and matrices to the analysis of finite-state constant differential systems. Controllability and observability.

Prerequisite: EE 4620.

EE5300 - Microwave and RF Circuits

Credits: 3

Analysis and design of microwave and RF circuits with applications to communication and radar systems. Review of transmission line concepts and the Smith Chart, scattering parameters, microstrip lines, and matching networks. Analysis and design of microwave and RF amplifiers, oscillators, and mixers.

Dual Listed EE 4300.

Prerequisite: EE 3150 or PHYS 1220, EE 3331 or concurrent enrollment, or consent of instructor.

EE5330 - Advanced Electronic Systems Design

Credits: 3

Theory of errors. High accuracy: multiplexers; voltage references; sample and hold circuits. Amplifiers: programmable gain; high speed voltage feedback; current feedback. Noise in integrated circuits. Pulse code modulation ADC; sigma delta ADC; oversampling; undersampling. Analog and digital audio systems. CD players. Superheterodyne and digital receivers. Signal transmission and conditioning. Hardware design techniques.

Prerequisite: EE 4330 and EE 4210.

EE5340 - Advanced Semiconductor Material and Devices

Credits: 3

Advanced semiconductor materials and device concepts including noise in semiconductors, heterostructure and quantum fundamentals, high power materials and devices, high performance transistors including the MESFET, HEMT, and HBT. Also discusses GUNN and IMPATT diodes, Resonant Tunneling devices, and future computing devices based on the quantum properties of semiconductors.

Prerequisite: EE 4340.

EE5350 - Optoelectronic Semiconductor Materials and Devices

Credits: 3

Optoelectronic properties of semiconductor materials and devices. Includes a review of the basic electronic properties of semiconductor materials, epitaxial growth, optical properties including absorption and emission of light, effects of quantum confinement and strain, and Heterostructures. Operation and optimization of basic optoelectronic devices including: photodetectors, LEDs Lasers, and modulators.

Prerequisite: EE 4340.

EE5360 - Digital VLSI Design

Credits: 3

Digital building blocks, stick diagrams, CMOS cells and arrays, CMOS digital subsystems and systems. Chip design software such as layout, simulators and digital synthesis using HDL. Digital design verification and timing issues.

Prerequisite: EE 4360.

EE5390 - Computer Architecture

Credits: 3

Examines the various methodologies used in the design of high-performance computer systems. Topics include CISC and RISC architecture and instruction sets, pipelining, instruction-level parallelism, memory hierarchy (including cache) design and computer networks.

Prerequisite: EE 4390.

EE5400 - Introduction To Robotics

Credits: 3

Representation of pose using Euler angles, quaternions and homogeneous coordinate transformations. Forward and inverse kinematics of rigid body manipulators. Velocity and force transformation in a rigid robot using Jacobians. Trajectory generation using splines. Robotic vision for depth measurement. Analysis of actual robotic systems.

Prerequisite: MATH 2250.

EE5410 - Neural and Fuzzy Systems

Credits: 3

Theory of feed forward and recurrent neural networks. Supervised and unsupervised learning theories. Fuzzy logic and systems. Associative memories. Matching and self-organizing networks. Application of neural and fuzzy systems.

Prerequisite: EE 3220.

EE5430 - 3-D Computer Vision

Credits: 3

This course is intended to provide a mathematical framework for describing three dimensional imaging and computer vision. Topics include 3-D coordinate transforms, image formation, camera calibration, reconstruction from two views, SIFT detection, hidden Markov models, Markov random fields, and "bag-of-words" visual description.

Prerequisite: EE 4220, MATH 2250.

EE5440 - Geometric/Deep Computer Vision

Credits: 3
Max Credit 3

Geometric methods including exponential coordinates for describing rigid motion, quaternions, pinhole models of cameras, and models of stereo cameras. Reconstruction of a 3D scene. Deep learning methods using convolutional and other neural networks will be used for computer vision. CNN architectures, classification, optimization, detection, identification, segmentation, GANs, and transformers are covered.

Prerequisite: MATH 2250

EE5450 - Topics in Robotics

Credits: 3

Topics vary between offerings, but include exponential coordinates for describing rigid motion, parallel machines, robotic vision, actuators and sensors, calibration, quaternions, motion planning, multifinger grasp dynamics, singularities, and singularity-free design, and limited-DOF machines.

Prerequisite: MATH 2250 senior or higher level standing and permission of the instructor.

EE5460 - Probabilistic Robotics

Credits: 3

Fundamental theory underlying the robust sensing and planning used in self-driving machines is developed. Topics covered are: Bayesian, Kalman, and Particle Filters; simple ground robot motion models; mobile robot localization; simultaneous localization and mapping; partially observable Markov decision processes.

Prerequisite: EE 4220.

EE5490 - Convex Optimization

Credits: 3

Covers fundamentals of numerical convex optimization. These methods have potential applications in many fields, so the goal of the course is to develop the skills and background needed to recognize, formulate, and solve convex optimization problems. Covers convex sets, convex functions, convex optimization problems and applications.

Prerequisite: MATH 2250 and senior or higher level standing.

EE5590 - Real Time Embedded Systems

Credits: 3

Emphasizes a systems approach to real time embedded systems. Students are expected to apply methodical system design practices to designing and implementing a microprocessor-based real time embedded system. Students employ a robot-based educational platform to learn the intricacies of real time embedded systems, distributed processing, and fuzzy logic. Students learn processor input/output interfacing techniques. Students use state-of-the-art design and troubleshooting tools.

Dual Listed EE 4590.
Corequisite: EE 4390.

EE5600 - Statistical Signal Processing in:

Credits: 2-4
Max Credit (Max. 9)

Topics vary between offerings but include signal detection, feature extraction and pattern recognition, information theory and coding, spectral analysis, identification, speech processing, image processing, and seismic processing.

Prerequisite: EE 4220.

EE5610 - Random Processing Theory I

Credits: 3
Introduction to statistical models. Applications of sampling theorems. Correlation functions and spectra. Shot noise and thermal noise. Introduction to measurements and computational techniques. Nonlinear random processes. Term papers on special problems.

Prerequisite: EE 4220.

EE5620 - Digital Image Processing

Credits: 3
Methodologies and algorithms for processing digital images by computer. Includes gray level transformations, histogram analysis, spatial domain filtering, 2D Fourier transforms, frequency domain filtering, image restoration, and reconstruction of computer tomography (CT) medical images.

When Offered (Offered fall of even-numbered years)
Former Course Number [4530]

Prerequisite: EE 3220 or equivalent background.

EE5625 - Spectral Analysis

Credits: 3
Spectral estimation including nonparametric methods such as Welch and Blackman-Tukey; modern parametric methods for AR, MA and ARMA spectra including Yule-Walker and Levinson-Durbin. Parametric line spectral subspace methods including MUSIC and ESPRIT. Filterbank and spatial methods such as beamforming.

Prerequisite: EE 3220, EE 4220 or equivalent.

EE5630 - Advanced Image Processing

Credits: 3

Introduces students to advanced aspects of image processing (IP), using specific applications to demonstrate these principles. Concepts such as medical imaging; color IP; wavelets and multiresolution IP; image compression; morphological IP; image segmentation, representation, description and understanding are covered.

Prerequisite: EE 5620.

EE5640 - Adaptive Filters and Signal Processing

Credits: 3

Adaptive filtering including eigenanalysis, low-rank modeling, Wiener filters, linear prediction, steepest descent methods, least mean-squares and recursive least squares methods, adaptive beamforming. Performance, convergence, and stability issues. Realization techniques.

Prerequisite: EE 4220.

EE5650 - Object and Pattern Recognition

Credits: 3

Introduces students to both fundamental and advanced aspects of object and pattern recognition, using specific applications to demonstrate these principles. Concepts such as Bayesian, maximum-likelihood, principal components, nonparametric, linear discriminant, multi-layer neural networks, etc., and the trade-offs and appropriateness of classification techniques are covered.

Prerequisite: EE 4220.

EE5660 - System Identification

Credits: 3

Fundamental and advanced topics in identification of system models from measured data. A variety of model structures are studied such as ARX, ARMAX, and State Space. Both non-parametric and parametric identification techniques are investigated with applications to real world systems and data. Experiment design and model validation are also examined.

Prerequisite: EE 4220.

EE5670 - Digital Image Formation

Credits: 3

This course introduces fundamental aspects of practical digital image formation, using specific applications to demonstrate these principles. Standard CCD and CMOS cameras (both still and video) and standard camera lens systems are assumed.

Prerequisite: EE 3220 or equivalent background.

EE5700 - Power Engineering

Credits: 2-6
Max Credit (Max. 6)

Design of transmission lines and distribution systems. Coordination studies. System stability studies, load distribution and dispatching. System interconnections. Correlation of machines and transmission systems.

Prerequisite: EE 3510.

EE5710 - Electric Power Quality

Credits: 3
Max Credit 3

Power quality is gaining increasing interests among both electric utilities and end users of electric power. In this course, a comprehensive introduction to the electric power quality engineering will be given to prepare you for the incoming power quality challenges of the modern power systems. Topics include power quality disturbances and causes, voltage sag and interruptions, electric transient, and harmonics.

Prerequisite: EE 3510 or graduate standing.

EE5740 - Digital Control Systems

Credits: 3
Mathematical models of digital control system components; Sample-and-Hold Device, A/D and D/A conversion, Pulse transfer function, Modified Z-transform; Jury's and Routh-Hurwitz test, Bilinear Transformations, Nyquist Criterion, Root Locus; Frequency Domain Techniques (Bode Diagrams, Nichols Charts); Digital Control Design, Observers; DT state space representation; Sampling and Quantization, Aliasing. Design Project.

Prerequisite: EE 4620.

EE5770 - Non Linear Systems

Credits: 3
Time variable parameter systems, approximation methods for small nonlinearities. Phase-plane methods. The second method of Liapunov. Describing function. Optimum switched systems. Adaptive control systems.

Prerequisite: EE 4620.

EE5880 - Problems In Electrical Engineering

Credits: 1-6
Max Credit (Max. 9)

A graduate special topics course in which advanced developments are studied. Section 1 is individual study. Other sections are primarily seminar format in which participants present reports on the subject under study.

Prerequisite: Prior approval of the instructor is required.

EE5885 - Special Topics in Electrical Engineering

Credits: 1-6
Max Credit (Max. 30)

Features topics not included in regularly offered classes. Normally offered in regular class lecture format; may include a lab component if appropriate.

Prerequisite: Prior approval of the instructor is required.

EE5890 - Reliability of Engineering Systems

Credits: 3
This course will cover general reliability modeling and evaluation; probability and stochastic processes; system modeling; methods of reliability assessment (state space, frequency balancing, cut-set and tie-set analysis, decomposition, Monte Carlo simulation); and reliability modeling and analysis of electric power systems: bulk power systems, distribution systems, and industrial systems.

Prerequisite: MATH 2310 with a grade of C or better.

EE5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

EE5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

EE5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

EE5959 - Enrichment Studies:

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

EE5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 12)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

EE5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

EE5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Elementary Education

EDEL1200 - Introduction to Elementary Education

Credits: 3
This course is designed to introduce first-year elementary education majors to educational issues relevant to teaching, learning, curriculum, assessment, school politics, and special needs of students in elementary settings.

EDEL1430 - Life Science in the Elementary School

Credits: 1
Covers selection of basic life science concepts, materials and curricula appropriate for elementary school. This course parallels the content of LIFE 1020 and concurrent enrollment in LIFE 1020 is expected.

Former Course Number [EDCI 1430]

EDEL2100 - Engaging Family and Community in Schools

Credits: 3

This course examines the relationship between children, families, communities, and teachers. The focus is on strengthening adult-child and parent-teacher relationships in home, school, and community settings. The development of teacher strategies for supportive relationships with socially, culturally, and linguistically diverse families is included.

USP 2015 Code U5H

Prerequisite: EDEC 1020

EDEL2140 - Teaching Literacy in the Elementary School

Credits: 3

Provides an acquaintance with basic assumptions underlying curriculum and processes in literacy and to give opportunity for selecting and using instructional materials.

Prerequisite: ENGL 1010, sophomore standing, admitted into Elementary Education program.

EDEL2170 - Art in the Elementary School

Credits: 3

Provides a foundation for understanding art in order to facilitate the teaching of art and the integration of art education into the elementary school curriculum. Involves both applied reading and studio production. Attention is given to development of artistic skills and meaningful art experiences based on DBAE principles.

USP 2003-2014 Code [CA<>(none)]

Former Course Number [EDCI 3170]

EDEL2280 - Literature for Children

Credits: 3

A survey course, the purpose of which is to prepare prospective elementary teachers and library-media specialists to provide knowledgeable service in the use of print and non-print materials for children. Includes study of evaluative criteria, wide reading, viewing and listening as well as discussion of literature for children.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

Former Course Number [LIBS 2280]

Prerequisite: successful completion of ENGL 1010, sophomore standing, education major.

EDEL3140 - Teaching Reading in the Elementary School

Credits: 2-4

Provides an acquaintance with basic assumptions underlying curriculum and processes in reading and to give opportunity for selecting and using instructional materials.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [EDCI 3140]

Prerequisite: junior standing.

EDEL3710 - Disciplinary/Genre-Based Literacy

Credits: 3

Introduction to instruction in genre-specific and disciplinary appropriate literacy practices, with a focus on characteristics of a variety of genres and disciplines and how those characteristics inform appropriate comprehension instruction.

Prerequisite: EDEL 2140.

EDEL3720 - Literacy Difficulties: Assessment and Instruction

Credits: 3

Focuses on the causes of student difficulties with reading and writing and assessment and instruction for students with such difficulties.

Prerequisite: EDEL 2140.

EDEL3724 - Elementary Science Education

Credits: 3

Includes content and pedagogy in teaching science in the elementary school. Addresses the following topics to encourage the development of scientific literacy: 1) Current national and state science standards; 2) science education pedagogical models; 3) curriculum; and 4) theory translated into instructional planning and practice.

Restricted Elementary Education Majors; ELSP Majors

Prerequisite: Students must have completed at least one of the three required science content courses with a grade of C or better.

EDEL4000 - Becoming a Reflective Practitioner: Practicum

Credits: 2

Part of Phase IIIa of the teacher education program. Practicum experience is integral to EDUC 4250 and must be taken concurrently.

Former Course Number [EDUC 4000]

Prerequisite: 2.500 cumulative GPA, successful completion of EDST 3100 (grade, interview and portfolio).

EDEL4109 - Elementary Humanities Education

Credits: 5

Content and pedagogy to develop the reflective practitioner of teaching humanities in the elementary school. The following themes are addressed: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

Former Course Number [EDUC 4109]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EDST 2550; concurrent enrollment in EDEL 4309 and EDEL 4409.

EDEL4309 - Elementary Literacy Education

Credits: 2-5

Max Credit (Max. 6)

Encompasses content and pedagogy to develop the reflective practitioner for teaching literacy in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC

Former Course Number [EDUC 4309]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; Grade C or better in EDST 3100, successful completion of specific content courses required in major; grade C or better in EDST 2550. Concurrent enrollment in EDEL 4109 and EDEL 4409.

EDEL4409 - Elementary Math/ Science Education

Credits: 5

Max Credit (Max. 6)

Includes content and pedagogy in teaching math/science in the elementary school. Addresses the following themes: curriculum; theory translated into instructional planning and practice; practices that promote effective learning; behavior and relationships; and teaching strategies.

USP 2003-2014 Code U3WC

Former Course Number [EDUC 4409]

Prerequisite: 2.750 cumulative GPA; 2.500 content GPA; grade of C or better in EDST 3100; successful completion of specific content courses required in major; grade of C or better in EST 2550; concurrent enrollment in EDEL 4109 and EDEL 4309.

EDEL4410 - Elementary Mathematics Educ

Credits: 5
Max Credit 5

The focus of the course pertains to student learning, teaching, curriculum, assessment, and technology in elementary mathematics classrooms for pre-service teachers. Students will extend their understanding of mathematics content and gain an appreciation for the interplay between theory and practice in mathematics education.

USP 2015 Code U5C3
Restricted Declared ELEM, ELEM/SpEd or TES Grad Cert

Prerequisite: Declared ELEM, ELEM/SpEd or TES; 2.75 cum. GPA; 2.5 content GPA; grade of C or better in EDST 3100/3101 or EDCI 5550; completion of required content courses in major.

EDEL4500 - Residency in Teaching

Credits: 1-16
Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDSE 4500.
Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses.

EDEL4740 - Field Studies in (TOPIC)

Credits: 1-12
Offered only through extension services. Broad and flexible and can be utilized in numerous situations to meet local needs. Credit in this course is not applicable toward advanced degrees.

When Offered (Offered based on sufficient demand and resources)
Former Course Number [EDCI 4740]

Prerequisite: 6 hours of education.

EDEL4975 - Independent Study

Credits: 1-3
Max Credit (Max. 6)

Primarily for upper-division students who can benefit from independent study with minimal supervision. Given to allow interested students to pursue specific aspects of curriculum and instruction.

Cross Listed EDSE 4975.
Former Course Number [EDCI 4975]

Prerequisite: 12 hours of education courses and consent of instructor.

Engineering Science

ES1000 - Orientation to Engineering Study

Credits: 1

Skills and professional development related to engineering. Involves problem solving, critical thinking and ethics, as well as activities to help transition to university environment. Required of all freshmen entering engineering curricula.

USP 2003-2014 Code U3I, U3L

A&S College Core 2015 Students with credit in UNST 1000 may not receive credit for this course.

ES1002 - Introduction to Engineering Information Literacy

Credits: 0.5

Offers transfer students the opportunity to satisfy the College of Engineering and Applied Science requirements for the Information Literacy and the initial O component of the University Studies Program.

USP 2003-2014 Code U3L

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES1061 - Engineering Problem Solving with Spreadsheets

Credits: 1

An introduction to engineering problem solving through the use of computer spreadsheets. Topics include functions, referencing, conditional statements, graphs, trendlines, and iterative solvers.

Prerequisite: MATH 1400 or MATH 1450 or ACT Math Score of 25 or Math Placement Exam score of 4.

ES1062 - Introduction to Structured Programming

Credits: 1

Introduction to structured programming through the use of computer applications. Topics include built-in functions, user functions, logical operators, flowcharts, pseudo code, selection structures, repetition structures, and plotting.

Prerequisite: ES 1061.

ES1063 - Graphical Communication and Solid Modeling

Credits: 1

An introduction to solid models and graphical communication. Topics include geometric relationships, solid parts, solid assemblies, constraints, orthogonal projection, multiview representation, dimensioning, and drawing annotation.

Prerequisite: MATH 1400 or MATH 1450 or ACT Math Score of 25 or Math Placement Exam score of 4.

ES1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2215 - Electric Circuit Analysis Lecture

Credits: 2

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. No laboratory.

Restricted Available for Outreach students only.

Prerequisite: MATH 2205.

ES2216 - Electric Circuit Analysis Laboratory

Credits: 1

Laboratory activities focusing on basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasers, three-phase circuits.

Prerequisite: ES 2215.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

ES2800 - Physical Computing

Credits: 3

Emphasizes implementing python programs on the Raspberry Pi and then interfacing with power stages, mobile platforms, sensors and input/output devices. The goal is designing systems that sense the world, make decisions based on those sensations

Prerequisite: EE 1101 or ES 2210 or concurrent enrollment in ES2210 or Consent of the Instructor

ES3001 - International Systems Engineering

Credits: 3

This 4-week service learning course will offer students hands-on experience in fabricating, assembling and installing a system as part of a team. Students will learn about materials, welding, electrical systems, and aerodynamics, all the while experiencing international life and cultures.

Prerequisite: MATH 2310.

ES3010 - Culture and Engineering in Latin America

Credits: 3

Engineering and Culture of Latin America - A study of ancient engineering problems in Latin America that are applicable to civil engineering. Students will be exposed to cultural aspects that influenced Mayan infrastructure.

USP 2015 Code U5H

Prerequisite: ES 2110 or PHYS 1210.

ES3020 - Comparison of Entrepreneurial Ecosystems

Credits: 3

The goal of this course is to expose students to different entrepreneurial ecosystems and let them think about how the environment, legal, technical, cultural, and economic, could impact their entrepreneurial endeavors. The class will accomplish this by visiting a developed country (e.g. Spain) and a developing country (e.g. Morocco) to learn about the ecosystems and talk with entrepreneurs to see how the forces impacted their startups.

Cross Listed ENTR 3020.

ES3100 - Internship Prepared

Credits: 1

The purpose of this Internship Preparation course is to prepare students for applying to internships in all applicable facets. Students will learn how to build their resume, write job specific cover letters, search for positions, and communicate with employers effectively. This course is a self-study with assignments given weekly. Students will be required to complete assignments and schedule individual appointments with an instructor in order to follow up on assignments.

Prerequisite: 6 credits within your discipline.

ES3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ARE 3890/ATSC 3890/CE 3890/CHE 3890/COSC 3890/EE 3890/PETE 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

ES4580 - Honors Undergraduate Research

Credits: 3

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/ faculty partnership to the appropriate staff in their home department.

Cross Listed ATSC 4580/BE 4580/CE 4580/CHE 4580/COSC 4580/ESE 4580/PETE 4580.

Restricted Must be in the Engineering Honors Program.

Prerequisite: junior or senior standing.

ES4910 - Survey of Engineering Management

Credits: 3

Offers a survey of a variety of topics related to engineering management. The objective is to introduce students to some of the nontechnical aspects of engineering practice and management.

Prerequisite: junior standing in an engineering degree program.

ES4920 - Entrepreneurship for Engineers

Credits: 3

Traditional engineering education does not prepare graduates for work in entrepreneurial ventures. The goal of this course is to have students demonstrate skills in developing business ideas, performing preliminary market research, estimating cash flow, and launching a business.

Prerequisite: 9 hours within an engineering discipline and junior standing.

ES4970 - Engineering CO-OP

Credits: 1

Max Credit (Max. 6)

Provides a mechanism for students on engineering co-op to maintain continuous registration and have the co-op experience reflected on their transcript. Credit earned will not normally count toward graduation credit.

Prerequisite: must be involved in an engineering co-op experience.

ES5600 - Research Data Management

Credits: 3

A general approach to research data management for graduate students and researchers. Topics include: the case for data management, data management planning, meeting grant requirements, formatting and organizing, storing and transferring, legal and ethical issues, strategies for research teams, sharing data, and publishing, citing, and rights to research data.

Cross Listed GRAD 5600/LBRY 5600.

Prerequisite: graduate standing.

HYDR5980 - Hydrologic Sciences

Graduate level course designed for students who are involved in research for their dissertation project. Also used for student whose coursework is complete and are writing their dissertation.

Prerequisite: Enrolled in a graduate level degree program.

Energy Resources

ERS1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ENR 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ERS1101 - First-Year Seminar (Energy, Environment and Economy)

Credits: 3

ERS 1101 Energy, Environment, and Economy is designed to meet the First Year Seminar (FYS) requirement of the 2015 University Studies Program. Through focused research and critical examination of diverse information, students will explore how energy resource use and development has shaped Wyoming: past, present, and future. The course will actively engage students in meaningful issues through an interdisciplinary approach to promote thoughtful and informed dialogue targeting Wyoming's energy resource use and development

USP 2015 Code U5FY

ERS1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will

be investigated in case studies.

Cross Listed ECON 1300.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

ERS1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed GEOL 1650.
USP 2015 Code U5PN

ERS2010 - Introduction to Land Management

Credits: 3
Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

ERS2500 - Communication Across Topics in Energy

Credits: 3

Students will develop interdisciplinary communication skills from an Energy Resources perspective. Communication will include oral, digital, and written forms. Audiences for communication projects will often be live, and from a variety of backgrounds.

USP 2015 Code U5C2
Prerequisite: WA/COM1.

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

ERS4010 - Exploration Geoscience

Credits: 3

The purpose of this course is to provide students with information and skills necessary to understand the oil and gas modeling process from exploration to production. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, reservoir characterization, reservoir production, well planning and decision making.

Cross Listed GEOL 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

ERS4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed CHEM 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

ERS4100 - Property I

Credits: 3

Property I addresses the nature of property ownership and the rights associated with property as well as the acquisition and transfer of ownership rights in property and the sharing of ownership rights over time, including estates, future interest, and concurrent estates.

ERS4105 - Property II

Credits: 3

Property II covers rights inherent to the ownership of property and public limitations on those rights.

Prerequisite: ERS 4100.

ERS4110 - Law of Contracts

Credits: 3

The Law of Contracts addresses the formation of a contract and the meaning of agreements and the justification of non-performance and breach.

Prerequisite: MGT 1040 and WB/C

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4130 - Oil and Gas Law

Credits: 3

Focuses on the basic legal rules and principles governing the ownership and development of oil and gas, derived from a combination of property, contract, administrative, tort, and constitutional law.

ERS4135 - Advanced Energy Law

Credits: 3

Covers oil, gas and other energy development and financing arrangements including assignments, leases, farmouts, joint operating agreements, purchase and sale agreements, service agreements and marketing agreements. Covers oil, gas and other energy development regulation, including, oil and gas conservation commission and state and federal environmental regulation. Introduces other forms of energy development, including, but not limited to, renewables, nuclear, CCUS, hydrogen, and the various agreement and regulatory nuances of such energy development. Covers ethical issues that may arise in energy development.

USP 2015 Code U5C3

Prerequisite: ERS 4130.

ERS4960 - Energy Field Studies

Credits: 1-3

Various facets of energy resource management and development are covered by visits to oil and gas wells, coal mines, power plants, wind farms, and other energy production and research sites. A trip is normally planned for 5 to 6 days.

Prerequisite: WB; ERS 1000/ENR 1000 or ECON 1300/ERS 1300. Undergraduate Research.

ERS4965 - Undergraduate Research

Credits: 1-3

Max Credit 6

Research activities on an energy related project of limited scope or as part of a laboratory project of greater scope under the advisement of a faculty member. Students will work 4 to 10 hours per week. Students will submit a written report summarizing the results of the research.

ERS4970 - Internship

Credits: 1-3
Max Credit (Max. 3)

A formalized internship designed to provide students with relevant practical experience in the energy sector allowing synthesis and application of principles in energy science to energy asset management.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4975 - Global Experience in Energy

Credits: 2-4
Max Credit (Max. 4)

A 1-3 month integrative energy experience in China or Australia. Students will participate, in collaboration with partnering energy professionals, in outcomes focused education and research programs designed to address globally relevant challenges. Students will gain a global perspective within the cultural context of the partner institution.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4985 - Seminar

Credits: 1-3
Max Credit (Max. 3)

Energy professionals, including accredited professional landmen, practicing attorneys, and other energy professionals will present a colloquium styled course to bridge conceptual content with realistic workforce focused applications.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300 and WA and QB.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6
Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

Energy Systems Engineering

ESE3005 - Engineering Experimentation

Credits: 3

A combined lecture/laboratory course introducing students to experimental methods in the context of dynamics. Written technical communication, intermediate structured programming, experimental design, fundamental statistics, and uncertainty methods (numerical and analytical) are emphasized. Collaborative writing and teamwork is introduced.

Cross Listed ME 3005.

Former Course Number [2010; 2020]

Prerequisite: Completion of the ME Success Curriculum, ES 1060; ES 2120.

ESE3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ME 3020.

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ESE3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ME 3040.

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ESE3060 - Numerical Methods for Engineers

Credits: 3

Numerical solutions of problems commonly encountered in mechanical engineering including differentiation, integration, differential equations, system of linear and nonlinear equations, and optimization. The structured programming approach will be emphasized and applications from solid mechanics, thermal fluid sciences, materials science, and dynamic systems will be covered.

Cross Listed ME 3060.

Prerequisite: Completion of the ME Success Curriculum, ES 1060 and corequisite of MATH 2310.

ESE3160 - Thermal/Fluid Science Lab

Credits: 3

A laboratory course to introduce students to experimental methods for temperature measure and pressure/flow characteristics of fluids. Continuation of experience with communication (written, oral, and digital), intermediate programming, experimental design, data analysis, and teamwork skills is emphasized.

Cross Listed ME 3160.

Former Course Number [2140; 2160]

Prerequisite: Completion of the ME Success Curriculum, ES 2330; ME 3005/ESE 3005.

ESE3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ME 3360/ARE 3360.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310 and ES 2330.

ESE4060 - Energy Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience on an energy-related project. Multidisciplinary teams prepare a project proposal or Statement of Qualifications, generate a morphological study of their project, develop mathematical models of their design, and prepare project plans and specifications. Project management and methods are also presented.

USP 2015 Code U5C3

Prerequisite: Completion of the ME Success Curriculum, ESE 3040 and ESE 3360.

ESE4070 - Energy Systems Design II

Credits: 3

Continuation of a two-course design sequence. The design teams refine their designs, fabricate the project, test the project for compliance with the design specifications, write a comprehensive engineering design report including socioeconomic factors, and prepare and deliver a presentation of the project in a public forum.

USP 2003-2014 Code U3WC

Prerequisite: Completion of the ME Success Curriculum, ME 4060/ESE 4060 and WB.

ESE4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems. Cross-listed with ME 4455 and dual-listed with ME 5455.

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ESE4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design

considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ME 4460.

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ESE4461 - Computational Fluid Dynamics I

Credits: 3

Max Credit 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed ME 4461

Dual Listed ME 5461

ESE4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented.

Cross Listed ME 4470.

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ESE4474 - Topics in Energy Systems Engineering

Credits: 1-3

Max Credit (Max. 4)

Directed research in mechanical engineering.

Prerequisite: Completion of the ME Success Curriculum, ME 3005/ESE 3005.

ESE4580 - Honors Undergraduate Research

Credits: 3

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing faculty research mentor.

Prerequisite: junior or senior standing.

English

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENGL1030 - Intellectual Community in Cinema Etc

Credits: 3

Introduces students to a range of issues within the humanities through the analysis of film, television, and theater.

USP 2003-2014 Code U3I

ENGL1080 - Introduction to Women's Studies

Credits: 3

An introduction to key issues in women's studies. A topical examination of women's participation in and relationship to institutions of society, such as family and school, as well as processes and activities, such as work, art, and politics in historical and cross-cultural analysis.

Cross Listed GWST 1080.

USP 2003-2014 Code U3D, U3CH

USP 2015 Code U5H

A&S College Core 2015 ASD

ENGL1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

ENGL2015 - College Composition and Rhetoric II: College and Career

Credits: 3

ENGL 2015 helps students become stronger writers, speakers, and thinkers, and features assignments that explore issues that pertain to students' majors and future careers. Students will engage in different genres for a range of audiences, revise substantially, and practice critical thinking in academic, civic, and professional contexts.

USP 2015 Code U5C2

Prerequisite: ENGL 1010/Synergy 1010 (COM1).

ENGL2020 - Literature, Media and Culture

Credits: 3

Introduces students to the basic tools of literary, film, and media analysis and develops students' critical writing, digital analysis, and oral communication skills. No expertise in literary criticism or film theory is necessary in this course; all majors are welcome.

USP 2003-2014 Code U3CH, U3WB

USP 2015 Code U5C2

Prerequisite: COM1. COM1 may not be taken concurrently.

ENGL2025 - Introduction to English Studies

Credits: 3

This course provides an introduction to English Studies, covering the history of English as an academic field, the options available within it, and possible career paths. Students will also be taught the skills they need to succeed as English majors, including critical reading and writing, and literary and rhetorical analysis.

USP 2015 Code U5C2

Prerequisite: COM1; English major status.

ENGL2035 - Writing for Public Forums

Credits: 3

Introduction to professional writing that focuses on analyzing and producing texts designed to influence public opinion. Genres may include letters, editorials, web pages, pamphlets, e-mail, speeches, and position papers. Focuses on skills in collaboration and use of technology necessary for ethical, effective participation in public discourse.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: WA/COM1.

ENGL2125 - Writing Tutor Pedagogy/Practicum

Credits: 3

Prepares students for professional employment as writing tutors in a writing center environment. Students will gain a detailed understanding of the history of writing centers, the development of writing center studies and theory, and the

innovative trends in contemporary writing center practices and organization.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: ENGL 1010 or COM1/transfer equivalent with a grade of B or higher; 3.000 GPA or higher.

ENGL2170 - The Bible as Literature

Credits: 3

A study of the Bible as a body of literary expression with an introduction to critical technique appropriate to such study.

A&S College Core 2015 ASG

Prerequisite: WA/COM1.

ENGL2190 - African Literature

Credits: 3

A study of the modern literature of Africa written in English, against its background of the continent's oral traditions.

Prerequisite: WA/COM1.

ENGL2240 - Arthurian Legend

Credits: 3

An introduction to both Arthurian romance and writing about literature. Traces the Arthurian Legend from its roots in Welsh mythology through its development in the Middle Ages and to its current manifestations in popular culture.

Prerequisite: WA/COM1; sophomore standing.

ENGL2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2345 - American Indians in Hollywood Film

Credits: 3

Examines the ways Hollywood film has constructed various forms of racial identity for American Indians.

Cross Listed NAIS 2345.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD
Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed AAST 2350.
USP 2003-2014 Code U3D, U3WB
A&S College Core 2015 ASD
Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD
Prerequisite: WA/COM1.

ENGL2370 - Blues and African American Lit

Credits: 3

This course examines scholarship on blues music (the first form of African American popular music) as well as literature that employs blues themes. Specific attention is given to the discourse of authenticity.

Cross Listed AAST 2370

ENGL2410 - Literary Genres

Credits: 3
Max Credit (Max. 6)

Studies specific genres of literature. Emphasis will vary (poetry, fiction, drama, etc.) from semester to semester, depending on curricular needs.

USP 2003-2014 Code U3CH, U3WB
USP 2015 Code U5H
Prerequisite: WA/COM1.

ENGL2420 - Survey in Rhetoric & Writing

Credits: 3

This course traces the emergence of major pedagogical traditions in rhetoric & writing studies. Students will develop an appreciation for the diverse intellectual traditions the larger field embraces, & will understand how the identities, activities, and approaches of rhetoric & writing studies scholars have changed over time & been influenced by broader cultural contexts.

USP 2015 Code U5H

Former Course Number 2410

Prerequisite: COM 1/English 1010 or concurrent enrollment

ENGL2425 - Literatures in English I

Credits: 3

Surveys major figures and literary movements in literatures written in English through 1750.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2430 - Literatures in English II

Credits: 3

Surveys major figures and literary movements in literatures written in English 1750-1865.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2435 - Literatures in English III

Credits: 3

Surveys major figures and literary movements in literatures written in English 1865-present.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2440 - Rhet & Writing Pedagogy

Credits: 3

Max Credit 3

This course traces the emergence of major pedagogical traditions in writing studies. Students will develop an appreciation for the diverse intellectual traditions the larger field embraces, and will understand how the identities, activities, and approaches of writing studies scholars have changed over time and influenced by broader cultural contexts.

USP 2003-2014 Code U5C3

Prerequisite: ENGL 1010 /COM 1 Equivalent

ENGL2490 - Studies in (TOPIC)

Credits: 1-6

Presents a variety of topics in literature.

Prerequisite: WA/COM1.

ENGL3000 - Literary Theory

Credits: 3

An introduction to critical theory as a methodology within literary studies. The course covers major schools of theory and major figures within those schools. Students will read, discuss, and write about literary texts and cultural artefacts by placing them in dialogue with important works of both theory and literary criticism.

Prerequisite: ENGL 2025 and junior standing.

ENGL3010 - Approaches to Rhetoric, Composition Pedagogy, and Professional Writing

Credits: 3

Introduces common methods, concepts, and theories emphasized in these interrelated intellectual traditions. It asks students to examine how research traditions have developed alongside each other over time, and prepares students to design a multimodal research project.

Prerequisite: ENGL 2025 and junior standing.

ENGL3020 - Culture, Communication, Work

Credits: 3

Examines individual identity and group cultures, and how they influence communication in the workplace. Helps students develop strategies for working across cultural differences and for effective negotiation and conflict resolution skills.

USP 2003-2014 Code [(none)<>COM3]

Prerequisite: Completion of COM2.

ENGL3100 - Tribal Literatures of the Great Plains

Credits: 3

Familiarizes students with American Indian literatures of the Great Plains. The Great Plains region is the locus of much historical and contemporary significance in regard to American Indian cultures. The literature of Great Plains Indians allows students to confront and reexamine the national narratives surrounding American Indians.

Cross Listed NAIS 3100.

USP 2003-2014 Code U3D, U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of NAIS or ENGL.

ENGL3150 - World Literature

Credits: 3

Max Credit (Max. 6)

Encompasses reading and analysis of major works representative of significant periods or literary forms in the history of literature.

USP 2003-2014 Code U3CH, U3G

Prerequisite: WA and WB/COM1 and COM2.

ENGL3200 - Topics in: Medieval Literature

Credits: 3

Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3330 - Global Shakespeare in Performance

Credits: 3

Max Credit (Max. 12)

Shakespeare's works are constantly being reinterpreted around the globe, because their cultural capital invites many cultures to rebrand Shakespeare as their own. While helping us to see universal connections, recorded re-interpretations provide opportunities for viable cross-cultural analysis, as we explore and compare the hot-button cultural issues

addressed through global performance.

A&S College Core 2015 ASG

Prerequisite: COM1.

ENGL3340 - Philosophy in Literature

Credits: 3

Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL 3340.

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by

discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3610 - Non-Western Women Writers

Credits: 3

Examines literature written by women in non-western cultures. The geographical region, time period, and genres of literature may vary by semester. Analyzes representations of such topics as family, marriage, sexuality, community, and colonialism as expressed in fiction, drama, literary non-fiction, and/or poetry.

Prerequisite: ENGL 1010 or GWST 1080; junior standing.

ENGL3710 - Gender: Humanities Focus

Credits: 3

Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity, and class.

Cross Listed ART 3710/GWST 3710.

USP 2003-2014 Code U3Ch

USP 2015 Code U5C2

Prerequisite: GWST 1080 or ENGL 1010.

ENGL4000 - 21st Century Issues in Professional Writing

The capstone course in the professional writing minor and also satisfies the COM 3 USP requirement. This spring, we will spend some time constructing a theoretical framework geared toward understanding key issues in the study and practice of professional and technical communication. We'll start with some foundational material, looking at the role of rhetoric, design, and audience in increasingly digital professional writing spaces and then move to more focused study of ethics, visual rhetoric, and the impact of technology on professional communication, among other things. More traditionally academic (journal review) and professional (e.g., usability test and documentation) projects will range widely and include both individual and collaborative work done in different media for different audiences, some academic, some professional. Students will develop a final portfolio project at the end of the term.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4020 - Editing for Publication

Credits: 3

Theory and practice of editing in the contexts of book, magazine, newspaper, and web-based publications. Standard editing practices for using grammar, proofreading marks, and computer editing tools.

Prerequisite: WA/COM1, WB/COM2 (ENGL 2035 and ENGL 3000 recommended).

ENGL4025 - Writing for the Web

Covers a variety of issues relevant for composing in the 21st century. As students learn to design and generate effective writing for a particular audience in a digital environment, they will also develop skills with advanced web and print research, basic HTML programming language, and standard web design software. Prerequisites: WB or COM2 and junior standing.

When Offered U3L, U3WC

USP 2003-2014 Code U5C3

Restricted Cannot be enrolled in one of the following Classes:

Freshman (FR)

ENGL4030 - Writing for Magazines

Credits: 3

Students write a variety of articles that would be appropriate for submission to a magazine. Feedback is given through class workshops and consultation with the instructor. Award-winning articles are read and discussed. The business aspect of magazine writing is also covered.

Prerequisite: COM1, COM2, and junior standing.

ENGL4040 - Rhetoric, Media, and Culture

Credits: 3

This class will guide us through the ways in which popular culture shapes the way that we view ourselves and other, and gives us a vocabulary to describe this phenomenon, critique it, and even push back against it.

USP 2003-2014 Code [(none)< >COM3]

Prerequisite: COM1 and COM2.

ENGL4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music, and film.

Cross Listed COJO 4061.

Dual Listed ENGL 5061.

USP 2015 Code U5C3

Prerequisite: COMM 1040 and COJO 3040 or ENGL 2035.

ENGL4070 - Film Directors:

Credits: 3

Max Credit (Max. 6)

Offers an intensive examination of representative films by selected film makers.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENGL4080 - Film Genre Studies (TOPIC)

Credits: 3

Max Credit (Max. 6)

Offers structural, film historical, and political analyses of selected major film genres.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4090 - Film and Religion

Credits: 3

Movies use religion to convey messages; they debate religious issues and use religion to debate non-religious issues. This course analyzes how film makers use religion and religious themes to transform religions into advocates for social issues and to shape religion's role in society. Popular films drawn from many genres.

Prerequisite: 6 hours of 2000-level or higher literature courses or religion courses.

ENGL4230 - Greek Tragedy

Credits: 3

Reading and discussion of major plays by Aeschylus, Sophocles, and Euripides, together with examination of the performance and social context of Greek drama, its use of traditional myths, and selected issues in contemporary scholarship on the tragedies.

Cross Listed CLAS 4230/THEA 4230.

When Offered (Offered in spring in alternate years)

Prerequisite: WB or COM2.

ENGL4270 - Classical Epic Poetry

Credits: 3

Reading and discussion of major works of Greek and Latin epic poetry, centered on Homer and Vergil. Also includes consideration of the background of these works (both mythological and historical) and the development of the epic tradition in the ancient world.

Cross Listed CLAS 4270.

Prerequisite: WB or COM2.

ENGL4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed AAST 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

ENGL4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 4455.

Dual Listed ENGL 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

ENGL4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed NAIS 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed LTST 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: LTST 1100 and WA/COM1.

ENGL4480 - Regional Literature of the US: The West

Credits: 3

Encompasses major themes and writers in western American literature.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4600 - Studies in (TOPIC)

Credits: 1-6

Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in American, English, or other literatures.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4610 - Special Studies Abroad in (TOPIC)

Credits: 1-6

Max Credit (Max. 6)

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4620 - Independent Reading in (TOPIC)

Credits: 1-3

Involves independent study and research experience in given topic, person, movement in literature.

Prerequisite: 6 hours of 2000-level literature courses, consent of instructor, and permission of department chair.

ENGL4630 - English Honors Thesis

Credits: 1-3

Max Credit (Max. 3)

Directed study under the supervision of an English honors thesis chairperson. Results in production of an English honors thesis. Maximum of three credits of ENGL 4630 can be applied to the degree.

Prerequisite: consent of the Director of the English Honors Program, instructor and department chair.

ENGL4635 - English Department Honors

Credits: 0

Satisfactory completion of this course indicates that English Departmental Honors have been conferred on the student.

Prerequisite: successful completion and defense of English Honors thesis.

ENGL4640 - Studies in Emerging Fields and Approaches

Credits: 3

Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in emerging fields or approaches to literature written in English.

A&S College Core 2015 ASG

Prerequisite: six hours of 2000 level literature courses.

ENGL4780 - History of the English Language

Credits: 3

Considers major sources of change in the English language historically, as well as some of the internal and external catalysts for the process. Identical to ANTH 4780.

Prerequisite: ENGL 4750.

ENGL4785 - Linguistics, Language Teaching and Social Context

Credits: 3

Introduces prospective teachers of English as second language to the basic components of language and to the social aspects of human language use. Explores a variety of concepts about language: how it is used and perceived, how

languages change, how diverse cultures respond to such changes.

Cross Listed LANG 4785.

Prerequisite: WB/COM2.

ENGL4830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed ART 4830/GWST 4830.

Dual Listed ENGL 5830.

USP 2003-2014 Code U3CA

A&S College Core 2015 ASG

Prerequisite: ART 2020, GWST 1080/ENGL 1080.

ENGL4970 - Writing Internship

Credits: 3

Students work 6-8 hours per week as "writing interns" for a private business or public agency, performing specific writing/editing tasks for that client. Students are supported and enabled through a series of classroom sessions and individual meetings with the course instructor. Formal progress reports and a comprehensive final report are required.

Prerequisite: successful completion of ENGL 4010, ENGL 4020, or 4050.

ENGL4999 - Senior Seminar

Credits: 3

This course is the capstone course in the English major. Subject matter varies by section. In all sections students will exercise skills acquired in the major (close-reading, historical analysis, application of theory) to explore significant texts and to reflect on the nature of English study today.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and either ENGL 3000 or ENGL 3010; Senior standing.

ENGL5000 - Studies In:

Credits: 1-8

Max Credit (Max. 8)

Provides an opportunity for specialized seminar approaches to subjects in literature.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5010 - Rhetoric and Composition: History, Theory, Practice

Credits: 1-4
Max Credit (Max. 4)

Prepares graduate students to teach college composition and rhetoric at UW and beyond, with attention to the intellectual traditions that inform our writing program's pedagogy. It examines the theories that support informed writing instruction and offers classroom strategies that may be applied to any course in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5020 - Public-Facing English Studies

Credits: 1-4
Max Credit (Max. 8)

Introduction to the history and theory of public intellectualism and English studies. Students develop theoretical and practical knowledge and explore alternative applications for academic research for publics beyond the classroom.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5050 - Writing in Public Genres

Credits: 1-4
Max Credit (Max. 8)

Intensive introduction to public-facing writing in English subject areas, including articles, book reviews, think pieces, TED talks, podcasts, and other genres of commentary associated with public intellectual work in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5055 - Narrative and Storytelling

Credits: 1-4
Max Credit 8

Exploration of the structure and use of narrative, stories, and/or storytelling from a variety of theoretical and disciplinary perspectives. Considers how narrative materials function as foundational to meaning making and to community building.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5061 - Rhetorical Theory and Criticism

Credits: 1-4
Max Credit (Max. 8)

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music, and film.

Cross Listed COJO 5061.

Dual Listed ENGL 4061.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5062 - Ancient Rhetorics

Credits: 1-4

Max Credit 8

Investigates contemporary problems in composition and rhetorical studies, as they are played out through ancient texts on composing and rhetoric. Course will focus on how ancient texts are enlisted in current debates/concerns over pedagogy, ethics, change, subjectivity, agency, and the social.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5063 - Feminist Rhetorics

Credits: 1-4

Max Credit 8

Analysis of influential women speakers and writers over time. Course focuses on how feminists construct arguments, frame objects of analysis, energize social justice movements, and theorize sex/gender/sexuality in relation to race, class, democracy, and suffrage. Course may include special focus on Wyoming women and suffrage.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5070 - Qualitative Methods in English

Credits: 1-4

Max Credit (Max. 8)

Advanced introduction to qualitative research methods in English and Rhetoric. Students will survey different types of qualitative methods and will learn to evaluate qualitative projects. Includes an emphasis on working with human participants and on ethics.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5071 - Qualitative Analysis

Credits: 1-4

Max Credit (Max 8)

Examination and application of different ways of making knowledge in English studies. Develops understanding of links among theory, methodology, and methods, and engages students in data analysis and evaluation of interpretive

moves. "Texts" can encompass a range of artifacts, from print to video games to nonverbal behaviors.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5072 - Topics in Technical Writing

Credits: 1-4
Max Credit 8

Seminar course on one or more topics in technical communication research, theory, or industry practice. Topics may include user experience methods, women in technical communication, activity theory, ethics and technology, information design, narrative practices, workplace cultures, and technical communication and social justice.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5073 - Topics in Rhet-Comp & Tech-Com

Credits: 1-4
Max Credit 8

Seminar on key theories and foundational research in technical and professional communication. Introduces students to pedagogical approaches, topics, and tools suitable for teaching and administering undergraduate technical and professional communication courses and programs.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5074 - Studies in Civic Discourse

Credits: 1-4
Max Credit 8

Seminar focusing on communication in the public sphere. Considers definition of public(s), both terrestrial and online, and the forming of publics and counter-publics. Focuses on rhetorical needs of audiences and may include primary research or partnering with local organizations.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5075 - Non-Profit Writing and Grants

Credits: 1-4
Max Credit (Max. 8)

Non-profit writing from a rhetorical perspective. Students analyze different kinds of non-profit communication, including fundraising, mission development, social media. Participate in grant proposal development or other organizational communication activity.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5080 - Graduate Apprenticeship

Credits: 1

The graduate apprenticeship furthers a graduate student's professional development by allowing him/her to teach in a course other than Freshman Composition and to engage in a close working relationship with a faculty member. Apprentices will engage in a full range of teaching activities, such as grading, constructing assignments and exams, lecturing, leading discussion, and so on. Does not apply to hour requirement for the degree.

Prerequisite: graduate standing and permission of the English department chair.

ENGL5220 - Studies in Medieval Literature

Credits: 1-4

Max Credit (Max. 8)

A seminar course in selected genres, figures, and themes in Medieval English literature.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5230 - Studies in English Renaissance Literature

Credits: 1-4

Max Credit (Max. 8)

A seminar in selected genres, figures, and themes of the sixteenth and early seventeenth centuries.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5250 - Studies in Shakespeare

Credits: 1-4

Max Credit (Max. 8)

To provide advanced students with the opportunity to study problems of text, sources, staging, theatrical history, and/or critical theory with reference to the works of William Shakespeare.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5270 - Studies in 18c English Literature

Credits: 1-4

Max Credit (Max. 8)

A seminar in selected genres, figures, and themes of restoration and eighteenth century English literature.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5280 - Studies in 19c English Literature

Credits: 1-4
Max Credit (Max. 4)

A seminar in selected genres, figures, and themes of the romantic and Victorian periods.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5290 - Studies in 20c English Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in significant writers of poetry, drama, fiction, and biography from the end of the nineteenth century to the present.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5310 - Early American Literature

Credits: 4
Seminar designed to acquaint graduate students with selected texts from the colonial period to 1800, relevant secondary works, and scholarly methods.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5320 - Studies in 19c American Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar designed to acquaint graduate students with selected principal works of American literature, relevant secondary works, and scholarly method.

Prerequisite: graduate status of 12 hours or 4000-level work.

ENGL5330 - Studies in 20c American Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in selected significant writers of poetry, drama, and prose from the end of the nineteenth century to the present.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5340 - Intellectual Currents in Modern American Literature

Credits: 1-4
Max Credit (Max. 4)

Devoted to the study of writers such as Marx and Freud and more recent American writers.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5350 - Global Literatures in English

Credits: 1-4
Max Credit (Max. 8)

Examines significant texts, authors, cultural and historical contexts, and literary and theoretical movements in postcolonial or global literatures. May involve comparative study or may be focused on a single country context.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5355 - Global Englishes

Credits: 1-4
Max Credit 8

Advanced investigation of the spread of English as the lingua franca for business, technology, research, education, and popular culture around the world. Does the spread create cross-cultural communication or intensify global economic inequality? This course explores global Englishes in their historical and present contexts, engaging the fields of linguistics, sociolinguistics, postcolonial studies, and English language teaching.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5360 - Literatures of Diversity

Credits: 1-4
Max Credit (Max. 8)

A study of literature and culture of selected minority or marginalized communities.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5455 - Slavery and Freedom

Credits: 1-4
Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 5455.

Dual Listed ENGL 4455.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5520 - History of Literacy Criticism: Enlightenment and 19th Century

Credits: 4

Historical survey of the mainstream of European literary criticism, including the critics of antiquity and the Renaissance.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5530 - Modern Critical Theory and Practice

Credits: 1-4

Max Credit (Max. 4)

Major trends in modern poetics and practical criticism.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5600 - Research in Writing Studies

Credits: 1-4

Max Credit 8

Introductory graduate seminar on research methods in writing studies. Course culminates in an individual research project of professional quality. Course studies books and articles that students identify as particularly powerful examples in order to understand what research is and ways to conduct such research efficiently and ethically.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed GWST 5830.

Dual Listed ENGL 4830.

Prerequisite: ART 2020, GWST 1080, ENGL 1080.

ENGL5835 - Writing Program Administration

Credits: 1-4
Max Credit 8

Seminar introduction to the field of writing program administration. Recognizing that not all universities are research institutions with large numbers of graduate students, this course approaches administration broadly, considering not only the traditional WPA, but other types of WPA work, including research, program building, developing intra-institutional relationships, and more.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5880 - Studies in Modern Fiction

Credits: 4

A study of modern fiction, examining theory and practice, and covering works of English, European, and American origin.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5885 - Studies in Popular Culture

Credits: 1-4
Max Credit 8

An interdisciplinary seminar in which students analyze and apply theories and methodologies from multiple disciplines to the study of selected texts, figures, media, and themes of popular culture.

ENGL5890 - Consumption, Markets, Cultures

Credits: 1-4
Max Credit (Max. 8)

An interdisciplinary investigation of the ways in which cultural venues curate and market stories, history, and texts. Analyzes and applies theories and methodologies from literary and cultural tourism studies, as well as marketing and consumer culture, to museums, performances, tourist sites and theme parks. This class will include hands-on field research.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 4)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ENGL5915 - Tutorial

Credits: 1

Graduate standing or consent of instructor. One credit hour for fee purposes.

ENGL5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ENGL5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ENGL5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: enrollment in a graduate degree program.

ENGL5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ENGL5964 - Thesis Writing Workshop

Designed for students who have reached an advanced stage in the writing of the thesis. Provides targeted, personalized support from peers during the research and writing process and runs concurrently with ENGL 5965.

Prerequisite: ENGL 5960 and enrollment in a graduate degree program

ENGL5965 - Thesis Research II

Credits: 1-3
Max Credit (Max. 3)

Designed for students who have reached an advanced stage in the writing of the thesis. Also to inform students of professional genres and practices as well as academic and non-academic careers following the MA degree.

USP 2015 Code U5H

Prerequisite: ENGL 5960 and enrollment in a graduate degree program.

ENGL5975 - Independent Studies

Credits: 1-4
Max Credit (Max. 6)

Independent study and research experience in a given topic, person, or movement in literature at an advanced level.

Prerequisite: permission of chair; graduate standing.

ENGL5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

English as a Second Language

ESL1110 - Introduction to Academic Writing Skills

Credits: 3

Designed to introduce non-native speakers of English, who do not demonstrate the required competency in writing to enter ESL 1210, to academic writing skills. Includes instruction in grammar and sentence structure, paragraph and essay writing.

Former Course Number [AS 1110]

Prerequisite: TOEFL of 18 or lower; IELTS of 5 or lower.

ESL1210 - English Composition for International Students

Credits: 3

The objective is to equip international students with procedural knowledge

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

Former Course Number [AS 1210; ENGL 1210]

Prerequisite: TOEFL Writing sub-score of 18 or higher, IELTS Writing sub-score of 5 or higher, or instructor's consent.

ESL1310 - Academic Listening for International Students

Credits: 3

This course equips non-native speakers with focused listening strategies and note-taking skills that can be applied across a variety of academic content areas and familiarizes students with discipline specific discourse patterns.

Prerequisite: TOEFL Listening subscore of 18 or lower IELTS subscore 5.0 or lower; or instructor's consent.

ESL1410 - Academic Reading for International Students

Credits: 3

This course equips non-native speakers with focused academic reading strategies across a variety of academic content areas, introduces the Academic Core Vocabulary lists, and familiarizes students with discipline specific discourse patterns.

Prerequisite: TOEFL Reading subscore of 18 or lower, IELTS Reading subscore of 5.0 or lower, or instructor's consent.

ESL2110 - English Oral Skills

Credits: 3

Instruction for Novice to advanced Low speakers in refining English pronunciation, stress and intonation, listening comprehension, oral grammar practice and building vocabulary.

Former Course Number [AS 2110; ENGL 2110]

Prerequisite: consent of instructor.

ESL3050 - Advanced Academic Writing for International Students

Credits: 3

Through ESL learner targeted instruction, practices, and feedback, the course will emphasize and progressively develop transferrable skills for students' academic work and future professions. It will continue to build on writing skills and emphasize foundational oral and digital communication skills.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: WA/COM1.

ESL4010 - Technical Writing for International Students

Credits: 3

Prepares students from a culturally diverse background for the communication demands of the 21st century. Students conduct rhetorical analysis of various audiences and purposes in order to design, develop, revise and edit disciplinary and interdisciplinary technical communications, such as reports, proposals, job applications, research related documents and oral presentations.

USP 2003-2014 Code [WC<>COM3]

Prerequisite: WA/COM1, WA/COM2, and junior standing.

ESL5910 - International TA Preparation

Credits: 4

Prepares international teaching assistants for the challenges language, culture, and instruction in the American classroom impose on them: training includes pronunciation/intonation, presentation skills, basics of methodology, understanding of cultural differences, and mock-lessons. One Oral Skills Lab hour per week is included.

Prerequisite: graduate standing.

Entomology

ENTO1000 - Insect Biology

Credits: 3

Introduces insects and related arthropods. Introduces aspects of insect biology, behavior, life history and diversity, as well as many ways that insects affect humans.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENTO1001 - Insect Biology

Credits: 4

Covers same lecture material as ENTO 1000, but includes a laboratory.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENTO1101 - Pests, Plagues and Plants

Credits: 3

Max Credit 3

Science improves our lives through better food production, improved human health and more-efficient machines. Or does it? While some scientists suggest that new technologies promote human health and sustainable agriculture, other scientists warn of harmful, if not catastrophic, outcomes. This course examines current controversies in the science and technology of agriculture and pest management, including the development of "super weeds," biofuels, and genetically modified mosquitoes.

USP 2015 Code U5FY

ENTO1150 - Pesticide Safety and Application

Credits: 1

Introduces various types and safe methods of pesticides application. Subsequent to completion, students may take the certification test administered by the Wyoming Department of Agriculture.

Cross Listed CROP 1150.

When Offered (Normally offered the week prior to spring semester)

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

ENTO4682 - Insect Anatomy and Physiology

Credits: 5

Studies structure and function of the insect body, particularly emphasizing the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 5682.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: ENTO 1000.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

ENTO4686 - Problems in Entomology

Credits: 1-3

Max Credit (Max. 6)

Individual library, laboratory or field study of insects.

Prerequisite: 4 hours of biological science and 3 hours of entomology.

ENTO4687 - Insect Evolution

Credits: 3

Examines major events of insect evolution including origins, fossils, wings and flight, metamorphosis, extinct orders, diversification patterns of modern orders, climate change, plate tectonics, coevolution with plants, parasitism, social behavior, and origin of modern faunas.

Dual Listed ENTO 5687.

Prerequisite: ENTO 4684 required; ENTO 4670, ENTO 4682 recommended.

ENTO4884 - Insect Behavior

Credits: 3

Examines the behavior of insects, including foraging, mating and social behavior. The course focuses on the applied as well as the fundamental aspects of behaviors, and both the strategic and physiological bases of behavior.

Dual Listed ENTO 5884.

Prerequisite: ENTO 1000.

ENTO5080 - Statistical Methods for the Agricultural and Natural Resource Sciences

Credits: 3

Brief review of statistical principles. Use of SAS programming. Numerous analysis of variance techniques along with commonly used experimental designs. Multiple mean comparisons, linear contrasts, power of F test, simple linear regression, polynomial regression, analysis of covariance, and some categorical data techniques for student in the agriculture and natural resources sciences. Credit cannot be earned in more than one of the following courses: STAT 2100, STAT 3050, STAT 5050, 5060, STAT 5070, STAT 5080.

Cross Listed STAT 5080.

Prerequisite: STAT 2050 or equivalent.

ENTO5300 - Applied Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Dual Listed ENTO 4300.

Prerequisite: ENTO 1000 or 9 hours of biology or ecology related coursework.

ENTO5601 - Insects for Teachers: Collection and Identification of Insects

Credits: 1

Designed for school teachers K-12. Basic concepts such as insect classification, insect habitats, insect metamorphosis, and destructive and beneficial insects are discussed with emphasis on the presentation of these concepts in the school classroom. Half of the class is devoted to field trips, laboratories, workshop activities, and films. Each student will make an insect collection, and learn how to preserve, mount, and identify specimens to order level. Course may be taken independently of ENTO 5602. Identical to NASC 4790.

Prerequisite: junior standing. Offered summer term only.

ENTO5602 - Insects in the Classroom: Insects and Their Ways

Credits: 1

Designed for school teachers K-12. Basic concepts of insect structure and function (insect morphology, insect physiology, insect ecology, and insect behavior) are discussed with emphasis on the presentation of these concepts using living insects in the classroom. Half of the class is devoted to field trips, laboratories, workshop activities, and films. Each student will design, conduct, and write-up an experiment with insects. Course may be taken independently of ENTO 5601. Identical to NASC 4790.

Prerequisite: junior standing. Offered summer term.

ENTO5678 - Aquatic Entomology

Credits: 3

Biology, ecology, distribution and taxonomy of aquatic insects will be emphasized. Additional material covered will include aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 4678.

Prerequisite: 1 year of basic biology.

ENTO5682 - Insect Physiology

Credits: 5

Structure and function of the insect body, with particular emphasis on the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 4682.

Prerequisite: ENTO 1000.

ENTO5684 - Classification of Insects

Credits: 4

A study of insect orders, families and taxonomic treatises. Collection of adult insects representing 100 families, or equivalent museum project, is required for completion of course requirements.

Dual Listed ENTO 4684.

Prerequisite: ENTO 1000; ENTO 4670 is recommended.

ENTO5686 - Problems in Entomology

Credits: 1-3

Max Credit (Max. 6)

Individual library, laboratory or field study of insects.

Dual Listed ENTO 4686.

Prerequisite: 4 hours of biological science and 3 hours of entomology.

ENTO5687 - Insect Evolution

Credits: 3

Examines major events of insect evolution including origins, fossils, wings and flight, metamorphosis, extinct orders, diversification patterns of modern orders, climate change, plate tectonics, coevolution with plants, parasitism, social behavior, and origin of modern faunas.

Dual Listed ENTO 4687.

Prerequisite: ENTO 4684/ENTO 5684 required. Recommended: ENTO 4670/5670, ENTO 4682/ENTO 5682.

ENTO5689 - Topics in Entomology

Credits: 1-4

Max Credit (Max. 6)

Current topics in entomology taught by entomology faculty, adjunct faculty or visiting faculty. Please check class schedule for current title.

ENTO5850 - Research in Entomology

Credits: 1-3

Max Credit (Max. 8)

Individual investigations of particular problems.

Prerequisite: graduate standing

ENTO5852 - Senior/Graduate Seminar

Credits: 1

Max Credit (Max. 6)

Discussion of important contributions to entomology.

Prerequisite: graduate standing.

ENTO5884 - Insect Behavior

Credits: 3

Fundamentals of insect behavior and an analysis of behavioral patterns.

Dual Listed ENTO 4884.

Prerequisite: one year of basic biology or equivalent; ENTO 5682 is recommended.

ENTO5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ENTO5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ENTO5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ENTO5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ENTO5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Entrepreneurship

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3020 - Comparison of Entrepreneurial Ecosystems

Credits: 3

The goal of this course is to expose students to different entrepreneurial ecosystems and let them think about how the environment, legal, technical, cultural, and economic, could impact their entrepreneurial endeavors. The class will accomplish this by visiting a developed country and a developing country to learn about the ecosystems and talk with entrepreneurs to see how the forces impacted their startups.

Cross Listed ES 3020.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

ENTR4700 - Business Model Creation and Launch

Credits: 3

Students build on previous learning to develop a complete business model including sales and marketing strategies, operations, financial forecasts, and partners. Deliverables include a pitch to start-up investors as part of a real-world entrepreneurship experience (for example, an entrepreneurship competition). Students learn primarily through hands-on application of concepts.

Prerequisite: ENTR 3700.

ENTR4750 - Theories of Entrepreneurship

Credits: 3

A broad examination of historical, literary, and business perspectives on entrepreneurship. Students explore the role of individuals, new ventures, and established organizations in the discovery, evaluation, and exploitation of opportunities. Emphasis is on the evolution of entrepreneurship theories over time, and current trends related to the application of these theories.

Prerequisite: ENTR 3700.

ENTR4900 - Independent Study in Entrepreneurship

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study on an individual basis, any aspect of Entrepreneurship not included in other structure Entrepreneurship courses

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

ENTR4910 - Topics in Entrepreneurship

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Prerequisite: Junior class standing, consent of instructor

Environment and Natural Resources

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ENR1100 - Environment and Natural Resource Problems and Policies

Credits: 2

Survey of environmental and natural resources issues and policies at local/regional, national, and global scales. Students are challenged to think critically as they dissect the causes, complexities, and solutions of contemporary, interdisciplinary environmental and natural resource challenges.

USP 2003-2014 Code U3I, U3L

ENR1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR1400 - Biodiversity: Science and Society

Credits: 3

Biodiversity lays the foundation for nature's ability to properly function. In turn humans depend on a healthy-functioning natural system. Adequate biodiversity provides us with many things including new genetic material for agriculture, medical discoveries, recreational opportunities and good mental health. This course will examine key themes in our understanding of biodiversity. Students enrolled in this course will have a better understanding of issues, challenges and potential solutions to our current biodiversity crisis. Course meetings will largely consist of group discussions of assigned readings. Discussions will focus on critically evaluating and analyzing information, hypotheses and knowledge that arise from the readings. Writing assignments will emphasize succinct but thorough interpretation of information, policy, conservation and societal impacts of biodiversity.

USP 2003-2014 Code U3I, U3L

ENR1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed GEOL 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

ENR2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed HIST 2030.

USP 2003-2014 Code [(none)< >H]

ENR2100 - Forest Management

Credits: 3

Principles of forest management. Topics include the laws affecting forest management, methods of harvesting wood from forests, fire and insect management, the effects of disturbances on stream flow and nutrient cycling, and the challenges of developing management plans for forests.

Cross Listed RNEW 2100.

Former Course Number [BOT 2100]

Prerequisite: LIFE 1101 or LIFE 1010.

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

USP 2003-2014 Code [CH< >(none)]

ENR2345 - Natural Resource Ethics

Credits: 3

Introduces students to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed PHIL 2345/RNEW 2345.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ENR2800 - Introduction to Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. Significant focus is on self-awareness, judgment, and decision-making. The specific skills and theories students learn throughout provide a foundation for other leadership endeavors.

Cross Listed ORTM 2800

Prerequisite: consent of instructor.

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making.

Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

ENR3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed REWM 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ENR3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed SOIL 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1

Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3

Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed AMST 4030.

Dual Listed ENR 5030.

Prerequisite: 3 hours in any interdisciplinary program.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

ENR4240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 4240.

Dual Listed ENR 5240.

Prerequisite: LIFE 2022 or LIFE 2023 and STAT 2050 or STAT 2070.

ENR4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 4285.

Dual Listed ENR 5285.

Prerequisite: University Studies QA.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

ENR4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ENR4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430/CHE 4430.

Prerequisite: CHEM 1020.

ENR4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 4450.

Dual Listed ENR 5450.

Prerequisite: completion of USP O requirement; junior standing.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of

students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

ENR4700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed COJO 4700.

Dual Listed ENR 5700.

Prerequisite: COMM 1000 or ENR 1200 or ENR 1500 or ENR 2000.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR4800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed AMST 4800.

Dual Listed ENR 5800.

Prerequisite: ARE 3020 or AMST 5400.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies

each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ENR4975 - Independent Study

Credits: 1-6
Max Credit (Max. 6)

Offers students the opportunity to independently complete special academic studies under direction of a faculty member. Readings, papers, and projects are completed as directed.

Dual Listed ENR 5975.

Prerequisite: 6 credits in ENR.

ENR5001 - Orientation to ENRS

Credits: 2

ENR 5001 aims to develop program culture and introduce resources and norms, provide common frames for understanding ENRS challenges, develop leadership and teamwork skills, and identify and explore some of the ENRS challenges in Wyoming.

ENR5030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed AMST 5030.

Dual Listed ENR 4030.

Prerequisite: graduate status.

ENR5050 - Techniques in Environmental Data Management

Credits: 4

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e. g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Cross Listed ECOL 5050/GEOG 5050.

Prerequisite: graduate standing.

ENR5100 - Foundations of ENRS

Credits: 3

This course, required of students in all ENR graduate programs, provides students with language and conceptual frameworks for understanding a range of perspectives that stakeholders bring to ENRS issues. It builds students' "epistemological toolbox" for interacting with others who bring different paradigms of thought, values, ways of

knowing, and terminology into the "big tent" of environmental studies.

Prerequisite: Graduate student status.

ENR5150 - Environmental Science: Perspectives and Methods

Credits: 3

This course will use complex, real-world environmental challenges to explore fundamental scientific principles. Students will learn how scientists tackle environmental issues by formulating objectives, collecting and analyzing scientific data, as well as to critically evaluate information sources and limitations to scientific approaches due to constraints associated with each study.

Prerequisite: graduate standing.

ENR5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 5240.

Dual Listed ENR 4240.

ENR5270 - Writing and Reviewing Science

Credits: 4

This course will help students prepare a scientific manuscript for submission to a peer-reviewed journal; in so doing, students will become more effective, efficient, and confident writers. Students will learn principles of effective writing, how to prepare a manuscript for publication, navigate the peer-review process, and write a constructive review.

Cross Listed ZOO 5270.

Prerequisite: Students must have graduate standing and an analyzed dataset on which the manuscript will be based. Students must have approval from their advisors and key collaborators before embarking on this journey. Students are also encouraged to maintain this approval throughout the semester.

ENR5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 5285.

Dual Listed ENR 4285.

Prerequisite: graduate standing and University Studies QA.

ENR5310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 5310.

Dual Listed ENR 4310.

Prerequisite: ANTH 1200.

ENR5450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGECE 5450.

Dual Listed ENR 4450.

Prerequisite: completion of USP O requirement; junior standing.

ENR5500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 4500.

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

ENR5550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 5550.

Dual Listed ENR 4550.

Former Course Number [5700]

Prerequisite: QA.

ENR5560 - Conservation Entrepreneurship

Credits: 3

This course introduces students to foundational concepts in social entrepreneurship and applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches. Prerequisites: graduate standing.

Dual Listed ENR 4560

Prerequisite: Graduate standing.

ENR5600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 4600

Prerequisite: Graduate standing.

ENR5700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed COJO 5700.

Dual Listed ENR 4700.

Prerequisite: graduate standing.

ENR5750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these

problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 4750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR5800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed AMST 5800.

Dual Listed ENR 4800.

Prerequisite: ARE 3020 or AMST 5400.

ENR5870 - Graduate Seminar

Credits: 1

Max Credit (Max. 6)

Faculty-student discussion, reading, and study focused on a selected topic and interest.

Prerequisite: graduate standing.

ENR5890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 4890.

Prerequisite: ENR 5100 or consent of instructor.

ENR5900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 4900.

Prerequisite: graduate standing and ENR 5100.

ENR5910 - Collaborative Practice Methods

Credits: 3

This course introduces students to the principles, concepts, and methods of collaborative decision making as it is practiced in a variety of settings. Students acquire collaborative skills and competencies in collaborative processes such as working in teams and facilitating groups, negotiating and managing conflict, conducting situation assessments and issue analyses, and developing methods and standards for integrating technical information in collaborative decision making. The course will involve extensive use of cases, role-plays, and related participative activities.

Prerequisite: Admission by consent of instructor.

ENR5921 - Collaborative Practicum

Credits: 1-3

Max Credit (Max. 3)

Under the guidance and instruction of ENR faculty, students will have the opportunity to apply the skills and information gained in ENR 5910 to real-world situations. Students will gain practical experience in collaboration, facilitative leadership, and conflict resolution and to develop and refine skills in one or more of the learning objectives and expected competencies.

Prerequisite: ENR 5910.

ENR5940 - Continuing Registration: Off Campus

Credits: 1-2

Prerequisite: Advanced degree candidacy.

ENR5950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 5950.

Dual Listed ENR 4950.

Prerequisite: ENR 3700 and consent of instructor.

ENR5960 - Thesis Research

Credits: 1-12

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: Enrollment in a graduate degree program.

ENR5961 - Plan B Projects

Credits: 2

Max Credit (Max. 6)

Limited to students enrolled in a Plan B graduate program. Students will be involved in non-course scholarly activities in support of the Plan B project.

Restricted Restricted to ENR graduate students.

ENR5975 - Independent Study

Credits: 1-6

Max Credit (Max. 6)

Offers students the opportunity to independently complete special academic studies under direction of a faculty member. Readings, papers, and projects are completed as directed.

Dual Listed ENR 4975.

Prerequisite: 6 credits in ENR.

Environmental Engineering

ENVE5410 - Advanced Biological Wastewater Treatment

Credits: 3

Theory and practice of advanced biological treatment processes for municipal and industrial wastewaters, sludges, groundwater bioremediation and solid waste. Emphasis is on fundamental principles applied to the design and control of existing processes and the development of innovative systems.

Cross Listed CE 5410/CHE 5410.

Prerequisite: consent of instructor.

ENVE5430 - Environmental Engineering Chemistry

Credits: 3

Focus includes inorganic, organic, physical, equilibrium, biochemistry, colloidal and nuclear chemistry with an emphasis on the problems/solutions encountered by environmental and civil engineers.

Prerequisite: CHEM 1020.

ENVE5445 - Environmental Remediation

Credits: 3

The contamination of soil, air, and groundwater by improper disposal of hazardous wastes is covered. Control and cleanup of contaminated groundwater plumes, treatment of polluted soils and soil gases is emphasized. Case studies are extensively used.

Cross Listed CE 5445.

Prerequisite: CE 3400.

ENVE5450 - Advanced Physical Chemical Treatment

Credits: 3

A study of physical and chemical processes for treatment of water, and waste water.

Cross Listed CE 5450.

Prerequisite: CE 4400.

ENVE5885 - Problems

Credits: 1-3

Max Credit (Max. 6)

Special course designed to make possible individual investigation of problems of environmental engineering selected to fit student's educational research needs.

Prerequisite: consent of instructor.

ENVE5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Environmental System Sciences

ESS1000 - Wyoming in the Earth System

Credits: 3

Introduces the study of environmental systems science by investigating Earth's anthrosphere, atmosphere, biosphere, and lithosphere. Studying Wyoming's unique environments and current issues, students will access, analyze, and interpret data to understand how natural and human-caused changes influence larger Earth and environmental systems.

USP 2003-2014 Code U3I, U3L
USP 2015 Code U5PN

ESS2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed GEOL 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

ESS4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed BOT 4780.

Dual Listed ESS 5780.

Prerequisite: Consent of instructor.

ESS4950 - Exploring the Earth System

Credits: 3

Conduct critical and interdisciplinary assessments on complex topics addressing physical, biological, and human components of the Earth System. Through multiple written, oral, and digital communication products, students will work independently and collaboratively to critically review existing literature, define knowledge gaps, analyze evidence, and synthesize results for multiple audiences.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ESS 1000 and either ESS 3480 or ENR 3450.

ESS4970 - Internship in Earth System Science

Credits: 1-6

Max Credit (Max. 6)

Offers students an individualized opportunity to connect their academic training, professional experiences, and future goals. Students must first consult with their Haub School advisor and have completed and appropriate internship, professional and/ or applied experience that provides exposure to complex environmental systems, scientific practices, and relevant interactions in the professional world.

Prerequisite: ESS 1000.

ESS5780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed BOT 5780.

Dual Listed ESS 4780.

Prerequisite: Consent of instructor.

Family and Consumer Science

FCSC1009 - Introduction to Family and Consumer Sciences

Credits: 1-3

Introduction to Family and Consumer Sciences is an introductory course for high school students directed by faculty and extension educators. Topics include human nutrition and food; human development and family sciences; and textiles, design, merchandising and textiles.

FCSC1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC1185 - Introduction to Design, Merchandising and Textile Industry

Credits: 3

Introduction to the functions of the design, merchandising and textiles industry. This course will give a base of knowledge of the industry including textile and garment production and manufacturing, design processes for apparel and interiors, and retailing. Students will also be introduced to potential career paths within the industry.

FCSC2050 - Safety, Nutrition and Health in Early Childhood Programs

Credits: 2

Designed to enrich students' understanding of practices which support children's health development. Issues to be explored include record keeping related to child care health and safety, use of health consultants, accident and injury prevention, immunizations, nutrition and food safety in child care settings.

When Offered (Offered alternate summers.)

FCSC2101 - Special Topics In:

Credits: 1-3
Max Credit (Max. 6)

Provides freshman and sophomore level undergraduate students opportunities to pursue a class of special interest or of a timely subject in a selected family and consumer sciences area and for faculty to pilot lower division courses.

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3
Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4
Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2122 - Child Development Lab

Credits: 1
Laboratory observation course designed for students with a background in child development theory. Students learn child observation techniques, how to write laboratory reports, and how to apply them to evaluating a child's development in all domains.

Prerequisite: PSYC 2300.

FCSC2131 - Family Relations

Credits: 3
Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3
Use of social science theory and research to understand psycho-socio-cultural influences in the development of

personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2135 - Women and Aging

Credits: 3

Focuses on women and the aging process with emphasis given to both the problems and promises of aging. Topics to be explored within a multicultural, sociological framework include the definition of self, relationships, community, health and health care, work and service, retirement, economic realities and new perspectives on aging.

Cross Listed WMST/SOC/NURS 2135.

Prerequisite: ENGL 1080/SOC/GWST 1080 or SOC 1000 or FCSC/NURS/SOC 2120.

FCSC2141 - Nutrition Controversies

Credits: 2

This course expands upon nutrition concepts covered in FCSC 1141 by exploring current nutrition-related controversies. Skills related to the interpretation of research literature will be emphasized.

Prerequisite: FCSC 1141.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2175 - Fashion Illustration

Credits: 3

Introduces the fashion figure, light and dark contrasts, color, fabric and texture sketching techniques. Computer applications for layout of the design are also covered.

When Offered (Offered alternate fall semesters)

Prerequisite: FCSC 1180 or ART 1110; FCSC 1175.

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC2185 - Trend Forecasting and Analysis

Credits: 3

This course introduces concepts and techniques for color, textile, interior and fashion trend forecasting. Students will learn how to recognize current trends in lifestyle and ready-to-wear as well as signals for predicting forthcoming trends which impact retail merchandising and marketing decisions.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC2210 - Fashion Show Event Planning

Credits: 2

Provides students with a real-world, integrative experience with planning a large-scale special event, specifically, a fashion show. Opportunities include garment and model acquisition and organization, production (music planning, scheduling judges, MCs and guest speakers), promotion, budgeting and stage/runway design. Students experience the entire process of planning, setup and execution.

FCSC2270 - Advanced Apparel Construction

Credits: 3

Development of advanced apparel construction and tailoring techniques. Continued development of decision-making skills in selection, use and evaluation of materials.

Former Course Number [3170]

Prerequisite: FCSC 1170.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3129 - Social Development in Young Children

Credits: 3

Designed to provide professional child development and early childhood education majors with an opportunity to learn more about how to encourage healthy social development in young children. In addition, topics of self-esteem, emotional regulation, and secure attachment will be discussed in depth with regards to how they affect overall development.

Prerequisite: FCSC 2121 or PSYC 2300.

FCSC3142 - Geriatric Nutrition

Credits: 2

Studies nutrition requirements in elderly as effected by physiological changes with aging and the impact of nutrition and healthy lifestyle on prevention and treatment of age related conditions, diseases and social issues.

Former Course Number [4142]

Prerequisite: FCSC 1141; LIFE 1010.

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

FCSC3150 - Intermediate Foods

Credits: 2

Examines food management concepts in regards to the service of safe food, modified menu development, and understanding of federal food regulations for food and nutrition labelling.

Prerequisite: FCSC 1150; CHEM 1020; MOLB 2021; junior standing and FCSC majors and minors.

FCSC3152 - Food Systems Production

Credits: 3

Quantity food purchasing and production, along with institutional food services experience.

Former Course Number [4152]

Prerequisite: FCSC 3150 and LIFE 1010.

FCSC3160 - Merchandise Retailing and Buying

Credits: 3

Provides students with the knowledge involved in the buying function of the merchandising and retailing process, including merchandise planning and retail math. Gives students the necessary skills to pursue a career in retail buying.

Prerequisite: FCSC 2185 and MATH 1000 or MATH 1400.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC3173 - Visual Merchandising and Promotion

Credits: 3

Principles of visual merchandising, consumer behavior for effective promotions, and selling techniques are discussed. Topics include brand development, advertising, visual display, publicity, fashion shows, special events, store space planning and layout. Students will have hands-on experience with several techniques.

When Offered (Offered alternating fall semesters, odd years)

Former Course Number [4173]

Prerequisite: FCSC 1180 and FCSC 2188.

FCSC3174 - Flat Pattern Design

Credits: 3

Principles and instructions for drafting and hand grading patterns using slopers through standard or individual measurements. Techniques of garment design are learned to create three-dimensional designs using the flat pattern method.

When Offered (Offered alternate spring semesters)

Former Course Number [4170]

Prerequisite: FCSC 2175 and FCSC 2270.

FCSC3175 - Apparel Design Through Draping

Credits: 3

Draping garment patterns through fabric manipulation, molding, and shaping to create three-dimensional form utilizing couture construction techniques.

Prerequisite: FCSC 2270

FCSC3180 - Contract Design I

Credits: 3

Interior design course focused on designing sustainable contract spaces primarily for the hospitality industry. As needed, other public space design may be explored. Design development and communication through advanced design and rendering software will be utilized. Students will learn to write specifications and practice design development through evidence based design.

Prerequisite: FCSC 2188 and FCSC 3288 or concurrent enrollment, or consent of instructor.

FCSC3185 - Product Development Through Design Thinking

Credits: 3

Students will expand their understanding of design and the strategies utilized to bring desirable and human-centered products to market. Techniques and skills for developing textile, interior and apparel products will be discussed. Students will gain understanding and recognition of the elements of design through product analysis.

Prerequisite: FCSC 1180.

FCSC3188 - Interior Design Studio II

Credits: 3

Building upon skills developed in ID Studio 1, students will gain advanced knowledge of lighting, building codes and systems, specifications, materials, and space planning through more complex residential design problems. Design thinking and human centered design are emphasized. Explores design development and communication through CAD based and hand rendering techniques.

Prerequisite: FCSC 2188.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of

bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC3288 - Environmental Psychology and Inclusive Design

Credits: 1

Online design primer focused on preparing students for the contract interior design series. Explores how humans interact with, experience, and behave in public spaces. Advances understanding of design inclusivity by interpreting and applying ADA regulations, along with considerations for diverse ages, circumstances, and abilities.

Prerequisite: FCSC 2180 , FCSC 2188 , or concurrent enrollment in 2188

FCSC4044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 5044.

Former Course Number [3140]

Prerequisite: FCSC 1141; LIFE 1010; ZOO 3115.

FCSC4104 - Field Studies in Family and Consumer Sciences

Credits: 1-3

Concentrated on-site study of family and consumer sciences-related businesses, agencies and organizations to better understand challenges and potentials of various career opportunities in family and consumer sciences.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: junior standing.

FCSC4105 - Family and Consumer Sciences Internship

Credits: 6-8

Max Credit (Max. 8)

Gives students experience in workplace related to selected family and consumer sciences options (i. e. , retail store, social service agency and preschool or day care).

Prerequisite: junior standing in family and consumer sciences and consent of instructor.

FCSC4106 - Special Problems in Family and Consumer Sciences

Credits: 1-3

Provides advanced undergraduate students opportunities to pursue a topic of special interest in a selected family and consumer sciences area, under guidance of a department faculty member.

Prerequisite: junior or senior standing and advanced consultation with department head and an instructor in subject matter area.

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC4113 - Consumer Issues

Credits: 3

Provides research/ applied understanding of consumer rights/ responsibilities, government/business roles, legislation, advocacy, and redress. Emphasizes introductory consumer law/legal research, critical thinking, self-reflection, and cultural examination. Ethical theories and issues examined within an interdependent world. Meets requirements for certification in family and consumer sciences education. Internship opportunities possible upon successful completion. Companion web site used.

Prerequisite: ECON 1000 or SOC 1000 or PSYC 1000; WB/COM2.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

FCSC4118 - Family Policy

Credits: 3

Explores the relationships between public programs/policies/laws and family functioning. The roles of family professionals in advocacy and education regarding policies will be discussed. Attention will be paid to current events

relevant to family policy issues and the policy process at the state level.

Dual Listed FCSC 5118.

Prerequisite: FCSC 2131; junior standing.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4125 - Professional Practices in Human Development and Family Sciences

Credits: 3

Explores key professional and ethical issues related to professional practice in Human Development and Family Sciences. Reviews Family Life Education history, purpose, and methodology. Emphasizes skills and knowledge needed to work in various settings with individuals and families across the lifespan. This class is a prerequisite for HDFS student internships (FCSC 4130; FCSC 4131; FCSC 4132).

When Offered (Offered fall semester only)

Prerequisite: FCSC 2110, FCSC 3119, FCSC 3122, FCSC 3220 AND FCSC 2131.

FCSC4127 - Directing Preschool and Daycare Programs

Credits: 3

Effective methods for establishing and operating preschool and day-care programs for children under six years of age. Includes programming, classroom management, parent involvement and administration of food and nutrition programs.

USP 2003-2014 Code U3WC

Prerequisite: FCSC 2121, EDEC 1020 or 3210; junior standing.

FCSC4130 - Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early childhood education majors with an in-depth experience working with children from birth to age five. Students gain experience including planning lessons, teaching, assessing children and conducting parent conferences.

Prerequisite: FCSC 2121; EDEC 3000; EDEC 3220; senior standing.

FCSC4131 - Administration Internship in Child Development

Credits: 6-8
Max Credit (Max. 8)

Provides professional child development and early education majors with an in-depth experience working with families and staff. Students gain experience in observing and assessing early childhood programs, planning and presenting staff trainings/professional workshops, staff supervision, writing newsletters, and other professional documents and professional activities.

Prerequisite: FCSC 2121; FCSC 4127; senior standing.

FCSC4132 - Internship in Human Development and Family Sciences

Credits: 4-6
Max Credit 6

Students will acquire skills and gain familiarity in direct services, policy development, or program planning in a human services agency/organization. Opportunities to apply theories and knowledge gained in classroom settings to professional practice will be provided. Offered spring or summer semesters.

When Offered (Offered spring and summer semesters only)

Prerequisite: FCSC 4125

FCSC4135 - Program Evaluation

Credits: 3

Explores techniques for evaluating programs in the public and/or private sectors. Includes determining need, identifying/communicating with stakeholders, developing program theory/logic models, implementation, evaluation methods/instruments, and interpreting/reporting evaluation results.

Dual Listed FCSC 5135.

Prerequisite: Junior standing.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4150 - Experimental Foods

Credits: 3

Studies physical and chemical properties of raw and processed food materials and tests for evaluation of food quality. Students develop ability to use and interpret recent research findings, as well as skills in planning, conducting and reporting food experiments.

Prerequisite: FCSC 1150, CHEM 2300, STAT 2020, ENGL 4010, FCSC major.

FCSC4160 - Merchandising Strategies and Technology

Credits: 3

Students will be exposed to advanced merchandising strategies for retail buying and planning. Technologies used for gathering pertinent retail data, such as foot traffic and inventory management software, will be introduced. Course will expand on concepts introduced in prerequisite coursework.

Prerequisite: FCSC 3160.

FCSC4171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 5171.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4172.

FCSC4172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 5172.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4171.

FCSC4176 - Historic Clothing

Credits: 3

Surveys history of clothing in the Western World. Includes information from approximately 3000 B.C. through the 20th century. Dual listed with FCSC 5176.

Cross Listed FCSC 5176

When Offered (offered alternate spring semesters, odd years)

Prerequisite: FCSC 2165

FCSC4178 - Fiber Arts

Credits: 3

Max Credit (Max. 6)

Development and enhancement of technical and creative apparel design skills with a focus on embellishment techniques and creative pattern-making culminating in the creation of a distinctive piece of wearable art.

Dual Listed FCSC 5178.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

FCSC4182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 5182.

When Offered (Offered alternate spring semesters)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: completion of USP WB/COM2 requirement.

FCSC4185 - Product Development and Technology

Credits: 3

This course introduces students to various technologies used to bring products to market. 3-D body scanning, computer apparel pattern digitizing, grading, marker making and repeats for digitally-printed, knit and woven fabrics will be discussed. Students will complete product technical packages based on product specifications.

Prerequisite: FCSC 3185, FCSC 4171, and FCSC 4172.

FCSC4188 - Contract Design II

Credits: 3

Explores space planning and design as applied to contract interiors. Focused on healthcare and corporate design, but may survey other public spaces as appropriate. Advanced design, rendering, and visualization software used to conceptualize and present design solutions. Sustainable, accessible and functional design is highlighted.

Dual Listed FCSC 5188.

Prerequisite: FCSC 2188 and FCSC 3288 (or concurrent enrollment), or consent of instructor.

FCSC4190 - Apparel Collection Development

Credits: 3

Students will utilize their pattern-making and apparel construction skills and continue to expand their knowledge of fit on live models through creation of their own apparel collection. They will be responsible for the creation of the collection from inspiration to final product. Collections will be showcased through a real-world fashion show.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4210 - Therapeutic Nutrition I: Nutrition Assessment and Diagnosis

Credits: 4

Nutrition assessment and diagnosis as part of the nutrition care process; experience in dietary and nutrient assessment of the apparently healthy and sick individual with discussion of case studies.

Dual Listed FCSC 5210.

Prerequisite: ZOO 3115, MOLB 3610, and FCSC 4145 or concurrent enrollment.

FCSC4220 - Therapeutic Nutrition II

Credits: 4

Rationale for dietary modifications in pathological conditions; experience with learning and applying the nutrition care process to develop nutrition care plans for individuals with various medical conditions with discussion of case studies.

Dual Listed FCSC 5220.

Prerequisite: MOLB 4100.

FCSC4230 - Therapeutic Nutrition Counseling

Credits: 2

Course is designed to help students develop basic nutrition counseling and communication skills. Students will learn how to apply the concepts learned during lecture through interactive classroom experiences with peers and outside of the classroom experiences with an assigned client.

Dual Listed FCSC 5230

A&S College Core 2015 Dietetics students only.

Prerequisite: FCSC 4220 or concurrent enrollment.

FCSC4288 - Professional Practice and Advanced Interiors Studio

Credits: 4

Explores standards of practice, project management, contract documents, portfolio development, and professional ethics and conduct in interior design. Studio based projects are focused on creating residential or contract designs through collaboration and integrated practice with interdisciplinary teams, and/or designs created for clients through service based learning.

Dual Listed FCSC 5288.

Prerequisite: FCSC 3180 or FCSC 4188.

FCSC4346 - Clinical Practicum in Dietetics

Credits: 1

Concentrated clinical practicum designed to provide dietetic majors with experience in the institutional, practitioner and clinical settings.

A&S College Core 2015 Enrollment is limited to dietetics students only.

Prerequisite: FCSC 4220 and permission of instructor.

FCSC4960 - International Study Tour FCS

Credits: 3

Max Credit (Max. 6)

Designed to provide students with an opportunity to learn more about food, design, and human services in international settings. Students will visit locations relevant to the Family and Consumer Science discipline.

When Offered (Offered based on sufficient demand and resources every other spring/summer term, odd years; international destinations vary)

Prerequisite: consent of instructor.

FCSC4970 - Design and Merchandising Internship

Credits: 3

Max Credit (Max. 6)

Provides practical experience in retail, interior design or apparel design settings.

Prerequisite: junior standing or consent of instructor.

FCSC4985 - Seminar: Development in Community Leadership

Credits: 2-3

Emphasizes basic core components of individual leadership: assessment of leadership skill and style; community-based experiences for understanding of community and resources; group community development projects for students; engagement with others and the community. Upon completion, students understand various leadership styles and philosophies and articulate their personal leadership philosophy.

Dual Listed FCSC 5985.

Prerequisite: senior or post-graduate equivalent status and consent of instructor.

FCSC5044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 4044.

Prerequisite: graduate standing.

FCSC5101 - Special Topics in Family and Consumer Sciences

Credits: 1-3

Max Credit (Max. 6)

Intended to accommodate a seminar series and a course offering by visiting faculty whose subject matter is not included in other course offerings.

FCSC5102 - Special Problems

Credits: 1-12

Max Credit (Max. 18)

Study in a selected problem area for broader perspective or greater specialization in the student program.

Prerequisite: advanced or graduate standing and consultation with department head and instructor in subject matter area.

FCSC5103 - Graduate Seminar in Family and Consumer Sciences I

Credits: 1

Integrative Seminar in Family and Consumer Sciences. Students are exposed to faculty research, discuss common readings and present their own research.

Prerequisite: graduate student standing.

FCSC5104 - Graduate Seminar in Family and Consumer Sciences II

Credits: 1

Integrative seminar in Family and Consumer sciences. Students are exposed to faculty research, will discuss common readings, and will present their own research. Graduate Seminar II can only be taken for a letter grade.

Prerequisite: FCSC 5103.

FCSC5107 - Family and Consumer Sciences Extension Practicum

Credits: 8

To provide experience in county extension programs.

Prerequisite: AGRI 4010, advanced standing and consent of instructor.

FCSC5112 - Family Decision and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/ contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection. Designed to meet family studies requirement for license in marriage and family therapy at graduate level. Companion website used.

Dual Listed FCSC 4112.

Prerequisite: graduate standing.

FCSC5117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 4117.

Prerequisite: graduate standing.

FCSC5118 - Family Policy

Credits: 3

Explores the relationships between family functioning and public/ private policies. The roles of family professionals in advocacy and education regarding policies are discussed. Attention is paid to the policy process at the state level.

Dual Listed FCSC 4118.

Prerequisite: graduate standing.

FCSC5120 - Infancy and Toddlerhood

Credits: 3

Examines development and behavior, focusing on a broad range of topics which includes: physical development, prenatal influences, sensory processes, biological factors, cognitive development, language development, social interaction and relationship. A broad family and consumer sciences perspective (the family in its environment) are applied.

Prerequisite: FCSC 2121 or equivalent course in child development.

FCSC5121 - Ethics in Research and Professional Practice

Credits: 3

Includes ethical theories, responsible conduct of research and professional practice defined by government, professional organizations, journals, and employers. Concepts include plagiarism, fabrication, falsification, conflict of interest, and conflict of commitment, and institutional review boards protecting human subjects. Concepts will be applied to research and professional practice in different settings.

Prerequisite: acceptance into a graduate program.

FCSC5122 - Developmental Contexts Across the Lifespan

Credits: 3

A variety of contexts in which children, adults, and families live and develop. Attention is given to the constant interactions that occur between humans and their environments, as well as how different environments may foster or hinder development. Includes discussions of the practical, professional and political implications of contextual research.

Prerequisite: graduate standing.

FCSC5123 - Positive Youth Development

Credits: 3

This course explores positive youth development (PYD), or the understanding and promotion of the well-being and health of youth. In this course, we will examine PYD theory and frameworks, research regarding how to best assess and foster PYD, and interventions designed to promote PYD and associated outcomes.

Prerequisite: graduate standing.

FCSC5135 - Program Evaluation

Credits: 3

Explores techniques for evaluating programs in the public and/or private sectors. Includes determining need, identifying/communicating with stakeholders, developing program theory/logic models, implementation, evaluation methods/instruments, and interpreting/reporting evaluation results.

Dual Listed FCSC 4135.

Prerequisite: Graduate standing.

FCSC5138 - Family Stress/Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative and nonnormative stressors and crises in the lives of families. Attention is paid to professional practice applications.

Dual Listed FCSC 4138.

Prerequisite: graduate standing.

FCSC5140 - Nutritional Aspects of Proteins and Amino Acids

Credits: 3

Advanced study of protein and amino acid metabolism in various physiological conditions.

Prerequisite: MOLB 3610 or equivalent; FCSC 4145 or equivalent.

FCSC5141 - Carbohydrate and Ethanol Metabolism

Credits: 3

Advanced study of carbohydrate and ethanol metabolism in various physiological conditions.

Prerequisite: MOLB 3610 or equivalent and FCSC 4145 or equivalent.

FCSC5145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 4145.

Prerequisite: graduate standing.

FCSC5147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological determinants of weight control emphasizing pathology, psychodynamics,

assessment, and treatment of obesity.

Dual Listed FCSC 4147.

Prerequisite: graduate standing.

FCSC5151 - Sensory Analysis

Credits: 1

Examines the principles and techniques applied to the subjective evaluation of food.

Prerequisite: graduate standing; STAT 5080.

FCSC5171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 4171.

Prerequisite: graduate standing.

FCSC5172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 4172.

Prerequisite: graduate standing.

FCSC5173 - Textile Science Seminar

Credits: 3

Advanced study of textile science, physical and chemical modification of fibers, developments in dyeing and finishing technology. Environmental aspects of textile technology. Extensive use of current literature is utilized.

FCSC5176 - Historic Clothing

Credits: 3

Surveys history of clothing in the Western World. Course content includes information from approximately 3000 BC through the 20th century.

Dual Listed FCSC 4176.

When Offered (Offered alternate spring semesters)

Prerequisite: graduate standing.

FCSC5178 - Fiber Arts

Credits: 3

Development and enhancement of technical and creative apparel design skills with a focus on embellishment techniques and creative pattern-making culminating in the creation of a distinctive piece of wearable art.

Dual Listed FCSC 4178.

Prerequisite: graduate standing.

FCSC5179 - Historic Textiles

Credits: 3

History of all major textile industries is explored. Processes and technical terms are explained. The role and impact of textiles in western economies and societies are examined.

When Offered (Offered alternate fall semesters)

Prerequisite: graduate standing.

FCSC5181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 4181.

When Offered (Offered alternate spring semesters)

Prerequisite: graduate standing.

FCSC5182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 4182.

When Offered (Offered alternate spring semesters)

Prerequisite: graduate standing.

FCSC5188 - Contract Design II

Credits: 3

Explores space planning and design as applied to contract interiors. Focused on healthcare and corporate design, but may survey other public spaces as appropriate. Advanced design, rendering, and visualization software used to conceptualize and present design solutions. Sustainable, accessible and functional design is highlighted.

Dual Listed FCSC 4188.

Prerequisite: graduate standing.

FCSC5210 - Therapeutic Nutrition I: Nutrition Assessment and Diagnosis

Credits: 4

Nutrition assessment and diagnosis as part of the nutrition care process; experience in dietary and nutrient assessment of the apparently healthy and sick individual with discussion of case studies.

Dual Listed FCSC 4210.

Prerequisite: graduate standing and permission of instructor.

FCSC5220 - Therapeutic Nutrition II

Credits: 4

Rationale for dietary modifications in pathological conditions; experience with learning and applying the nutrition care process to develop nutrition care plans for individuals with various medical conditions with discussion of case studies.

Dual Listed FCSC 4220.

Prerequisite: graduate standing.

FCSC5230 - Therapeutic Nutrition Counseling

Credits: 4

Students will develop basic nutrition counseling and communication skills. Students will learn how to apply the concepts learned during lecture through interactive classroom experiences with peers and outside of the classroom experiences with an assigned client. Dietetics students only.

Dual Listed FCSC 4230.

Prerequisite: graduate standing or permission of instructor.

FCSC5288 - Professional Practice and Advanced Interiors Studio

Credits: 4

Explores standards of practice, project management, contract documents, portfolio development, and professional ethics and conduct in interior design. Studio based projects are focused on creating residential or contract designs through collaboration and integrated practice with interdisciplinary teams, and/or designs created for clients through service based learning.

Dual Listed FCSC 4288.

Prerequisite: graduate standing.

FCSC5890 - Seminar in Food Science and Nutrition

Credits: 1

A seminar course on topics in food science and human nutrition.

Cross Listed FDSC 5890.

Prerequisite: graduate standing.

FCSC5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

FCSC5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

FCSC5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

FCSC5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

FCSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

FCSC5985 - Development of Community Leadership

Credits: 2-3
Max Credit (Max 98)

Emphasizes basic core components of individual leadership: assessment of leadership skill and style; community based experiences for understanding of community and resources; group community development projects for student engagement with others and the community. Upon completion of course, students will understand various leadership styles and philosophies and articulate their personal leadership philosophy.

Dual Listed FCSC 4985.

Prerequisite: senior or post graduate equivalent status and consent of instructor.

Finance

FIN2010 - Personal Finance and Investments

Credits: 3

A general course treating the fundamentals and organization of the securities markets, types of orders, elementary market computations, basic investment management and etc. For students university-wide who have an interest in investments.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [3010]

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

FIN3100 - Real Estate Development

Credits: 3

This course presents the basic principles involved in real estate development. Topics include: land acquisition and appraisal, site improvements, market feasibility analysis, development financing, real estate government approval and regulations, real estate engineering and construction issues, real estate marketing and property operations and performances.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ACCT 2010.

FIN3310 - Investment Management

Credits: 3

Fundamental principles of investments and practical implications of financial theory. Students acquire a framework for understanding returns on financial assets, risk and return, fundamentals of portfolio theory, efficient market hypothesis, and asset pricing models. Other topics include financial statement analysis, behavioral finance, and introduction to options and futures.

Former Course Number [4310]

Prerequisite: FIN 2100 and advanced business standing.

FIN3520 - Financial Markets

Credits: 3

Portfolio and capital market theory and the analysis of risk are introduced. Integrates theory into practical aspects of financial markets.

Former Course Number [4520]

Prerequisite: FIN 2100, STAT 2010 or STAT 2050/STAT 2070, and advanced business standing.

FIN4250 - Advanced Corporate Finance

Credits: 3

Give students a better appreciation of the techniques and theories of corporate finance and investments that may have been introduced in introductory finance courses.

USP 2015 Code U5C3

Prerequisite: FIN 2100.

FIN4340 - Portfolio Management I

Credits: 3

Manage, monitor and invest real money provided by the State of Wyoming and the University of Wyoming Foundation. Students should obtain from the course the ability to construct investment portfolios from scratch, to learn the signals from which to obtain sell and buy data and the ability to act on this information.

Prerequisite: FIN 3310 and advanced business standing.

FIN4350 - Portfolio Management II

Credits: 3

Manage, monitor and invest real money provided by the State of Wyoming and the University of Wyoming Foundation. Students should obtain from the course the ability to construct investment portfolios from scratch, to learn the signals from which to obtain sell and buy data and the ability to act on this information.

Prerequisite: FIN 3310 and advanced business standing.

FIN4360 - Options and Futures

Credits: 3

Provides an introduction to financial futures such as currency futures and interest rate futures. Explores the markets on which they are traded. Also analyzes pricing of options and other derivative securities. Includes the leverage and risk aspects of options.

Prerequisite: FIN 2100, FIN 3310.

FIN4400 - Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 5400.

Prerequisite: FIN 2100, FIN 3310, IMGT 2400, advanced business standing.

FIN4460 - Multinational Finance

Credits: 3

Deals with quantitative techniques used by financial managers and investors in global financial markets. Topics covered include exchange rate determination, management of foreign exchange exposure, international portfolio investment, and current topics in international finance.

Prerequisite: FIN 2100.

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

FIN4530 - Fixed Income Securities

Credits: 3

Provides an overview of the fixed income securities markets, pricing and risk management. In so doing, the course follows the CFA institute learning objectives of the CFA exam. We first introduce the major forms of fixed income securities. We then delve into valuation of these securities using a myriad of pricing techniques. We then embark on credit risk analysis, followed by fixed income portfolio management. Ultimately, the course aims at preparing students for most challenging and yet active fixed income markets: corporate bonds and mortgage securities.

Dual Listed FIN 5530.

Prerequisite: FIN 2100, advanced business standing.

FIN4540 - Banking Policy

Credits: 3

Intended to be taken either with or after FIN 4510, Bank Management, and will cover similar topics but in greater depth and breadth. Integrated application of these topics will take place in a selection of case studies, some of which will be analyzed in teams.

Prerequisite: FIN 4510 or concurrent enrollment in FIN 4510.

FIN4710 - Risk Management

Credits: 3

Analyzes the risk management and insurance problem in the business enterprise with emphasis on methodology for risk analysis; techniques for risk and loss control; and models for risk management decision-making.

Dual Listed FIN 5710.

Prerequisite: FIN 2100

FIN4800 - Real Estate Finance

Credits: 3

Exposes students to the fundamentals of real estate finance such as mortgage financing, commercial leases, pro-forma analysis, financial modeling, tax implications, leveraged real estate and valuation of income producing properties. While the theory of each topic will be presented, the focus is on the applications of the material.

Prerequisite: FIN 2100 and advanced business standing.

FIN4810 - Real Estate Investment

Credits: 3

Covers advance real estate investment topics such as investments risk and valuation sensitivity analysis, futures and real options, liquid real estate investments, analysis of development projects, and commercial mortgage backed securities. While the theory the topics will be presented, the course focus is on the application of the material.

Prerequisite: FIN 2100 and advanced business standing

FIN4900 - Ind. Study in Finance

Credits: 1-6

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Finance not included in other structured Finance courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

FIN4910 - Topics in Finance

Credits: 1-6
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

FIN5070 - Tax Planning for Financial Planners

Credits: 3
Focuses on principles, current law, and practice of income taxation and its impact on financial planning for individuals, couples, and families in their role as investors, employees, and business owners.

Dual Listed FIN 4070.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5250 - Cases in Corporate Finance

Credits: 3
Max Credit 3

The goal of this course is to enhance students' understanding of major corporate decisions, and to explore the role such decisions play in value creation within a corporation. Some issues covered in the course will include analyzing companies' historical performance, forecasting future performance, estimating hurdle rates, and analyzing resource allocation choices.

Restricted MS Finance and/or CFP Certificate

Prerequisite: Admission to MS Finance and/or CFP Certificate Program, or department approval

FIN5310 - Advanced Investment Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5320 - Corporate Finance and Governance

Credits: 3

Designed to provide a framework to analyze issues in corporate finance and governance. The firm is viewed as a nexus of contracts designed to reduce the costs of trade-and corporate finance is regarded as an investigation of the incomplete contracts that involve the providers of capital.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5400 - Advanced Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 4400.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5502 - Energy Finance: Project Evaluation

Credits: 3

This course introduces students to the key methods used to evaluate investments in energy industry projects from the perspective of the developer as well as the lender and other stakeholders. Topics include project finance modeling, techno-economic considerations, business structures, regulatory and legal issues, risk analysis, and deal terms.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director.

FIN5530 - Fixed Income Securities

Credits: 3

Provides an overview of the fixed income securities markets, pricing and risk management. In so doing, the course follows the CFA institute learning objectives of the CFA exam. We first introduce the major forms of fixed income securities. We then delve into valuation of these securities using a myriad of pricing techniques. We then embark on credit risk analysis, followed by fixed income portfolio management. Ultimately, the course aims at preparing students for most challenging and yet active fixed income markets: corporate bonds and mortgage securities.

Dual Listed FIN 4530.

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5710 - Risk Management

Credits: 3

Analyzes the risk management and insurance problem in the business enterprise with emphasis on methodology for risk analysis; techniques for risk and loss control; and models for risk management decision-making.

Dual Listed FIN 4710.

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5720 - Insurance and Retirement Planning

Credits: 3

This class is designed to help graduate students understand various topics in retirement and insurance planning for individuals and families.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5750 - Fundamentals of Financial Planning

Credits: 3

This is a survey course for financial planning and wealth management. The topics include insurance planning, tax planning, investment planning, retirement planning, estate planning, and professional conduct. The course will focus on acquiring a framework for understanding the major components of financial planning and developing a coordinated financial plan.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5780 - Estate Planning

Credits: 3

This course will cover general reliability modeling and evaluation; probability and stochastic processes; system modeling; methods of reliability assessment (state space, frequency balancing, cut-set and tie-set analysis,

decomposition, Monte Carlo simulation); and reliability modeling and analysis of electric power systems: bulk power systems, distribution systems, and industrial systems.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5800 - CFP Capstone

Credits: 3

This course will be organized around the four major areas of financial planning, as outlined by the College of Financial Planning curriculum. These four key areas are as follow: retirement planning; income tax planning; investment planning; and estate tax planning.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to the MS program or permission of the Department Head.

FIN5890 - Advanced Problems in Finance

Credits: 1-9

Max Credit (Max. 9)

An arrangement whereby a student is permitted to develop an advanced phase of finance not offered in the formally structured courses or to investigate a finance problem, a written report is required.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

FIN5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

FIN5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Food Science

FDSC1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

FDSC1410 - Scientific Study of Food

Credits: 3
Scientific Study of Food is an introductory course in the science of food, which includes selection, preparation, to meet physical, psychological, and social needs. This course fulfills the Physical and Natural World USP.

When Offered (Normally offered fall semester)
USP 2003-2014 Code PN

FDSC1411 - Scientific Study of Food Lab

Credits: 1
Max Credit 1

The Scientific Study of Food lab gives students a hands-on introductory experience with food science, food selection, and preparation, and food safety. Concurrent enrollment in FDSC 1410 is required for FCSC Dietetics students.

Restricted FCSC Dietetics student status

FDSC2040 - Principles of Meat Animal Evaluation

Credits: 3
Live animal and carcass evaluation of beef, sheep and swine. Slaughter, meat inspection and anatomy are discussed.

When Offered (Normally offered spring semester)

FDSC3060 - Principles of Meat Science and Muscle Biology

Credits: 3
Principles of muscle, adipose, and connective tissue growth, structure and metabolism; conversion of muscle into meat; fresh meat properties and quality; chemical properties of meat; meat microbiology, preservation and storage; meat by-products; HACCP.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000 and LIFE 1010.

FDSC3061 - Livestock Slaughter Practicum

Credits: 1

Students learn and practice proper techniques of livestock slaughter.

When Offered (Normally offered fall semester)

Prerequisite: 4 credits of biological sciences.

FDSC3062 - Carcass Fabrication

Credits: 2

Principles of carcass fabrication; Institutional Meat Purchase Specifications and North American

When Offered (Normally offered spring semester)

Prerequisite: 4 credits of biological sciences.

FDSC3063 - Meat Processing

Credits: 2

Principles of applicable meat protein chemistry, heat transfer and other processing parameters applicable to production of sausage, cured meat, and other processed products. A variety of processed meat products will be manufactured in lab.

When Offered (Normally offered spring semester)

Prerequisite: FDSC 3060 or concurrent registration.

FDSC3545 - Introduction to Meat Judging

Credits: 3

USDA grading standards, value pricing, yield and quality attributes of meat are used to evaluate products. Improve communication skills and terminology through oral and written reasons. Requires field trips.

When Offered (Normally offered fall semester)

Prerequisite: FDSC 2040.

FDSC3550 - Advanced Meat Judging

Credits: 1-2

Students representing the university in national and regional contests are selected from this course. Requires field trips.

Former Course Number [2100]

Prerequisite: FDSC 3545.

FDSC3720 - Applied Food Chemistry

Credits: 3

Study of chemistry and composition of nutrients in raw and processed foods.

When Offered (Normally offered spring semester)

Former Course Number [4720]

Prerequisite: CHEM 2300 or ANSC 2010.

FDSC4090 - Food Microbiology

Credits: 3

Discusses microorganisms and theory of their growth and survival in relation to spoilage and preservation of foods and health hazards in foods.

Cross Listed MICR 4090.

Dual Listed FDSC 5090.

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021 or MICR 2021.

FDSC4100 - Laboratory Techniques in Food Microbiology

Credits: 1

Lab techniques used in food microbiology.

Cross Listed MICR 4100.

Dual Listed FDSC 5100.

When Offered (Normally offered spring semester)

Former Course Number [610]

Prerequisite: FDSC 4090 or FDSC 5090, taken concurrently.

FDSC4800 - Problems in Food Science

Credits: 1-3

Examines special problems related to quality control, formulation and processing of meat, poultry and dairy foods. Offers research techniques and instrumentation in foods.

Prerequisite: 6 hours in FDSC, 6 hours in chemistry and consent of instructor.

FDSC4900 - Food Safety

Credits: 3

Issue-oriented lecture/ discussion course. Includes topics such as what is safe food, what makes food unsafe and how safety of a food is determined. Presents laws and regulations on food safety. In addition to a text, area experts are invited to discuss important issues.

When Offered (Offered fall semester of odd-numbered years)

Prerequisite: 6 hours of biological science.

FDSC4990 - Undergraduate Teaching Practicum

Credits: 1-2

Max Credit (Max. 4)

Participation of undergraduates in the teaching of FDSC courses under the supervision of faculty/staff.

Prerequisite: junior standing or consent of instructor.

FDSC5090 - Food Microbiology

Credits: 3

Discusses microorganisms and theory of their growth and survival in relation to spoilage and preservation of foods and health hazards in foods.

Dual Listed FDSC 4090.

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021 or MICR 2021.

FDSC5100 - Food Microbiology Laboratory

Credits: 1

Laboratory techniques used in food microbiology.

Dual Listed FDSC 4100.

When Offered (Normally offered spring semester)

Prerequisite: FDSC 4090 or FDSC 5090, taken concurrently.

FDSC5880 - Advanced Problems and Topics

Credits: 1-3

Max Credit (Max 6)

Designed to allow graduate students to pursue advanced research problems and advanced topics and to obtain experience in the teaching process.

Prerequisite: graduate standing and consent of instructor.

FDSC5890 - Seminar in Food Science and Nutrition

Credits: 1

A seminar course on topics in food science and human nutrition.

Dual Listed FDSC 4890.

Prerequisite: graduate standing.

FDSC5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

FDSC5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

FDSC5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may NOT be included in a graduate program of study for degree purposes.

FDSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

FDSC5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate degree program.

FDSC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

French

FREN1010 - First Year French I

Credits: 4
Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

FREN1020 - First Year French II

Credits: 4
Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: FREN 1010 or two years of high school French.

FREN2030 - Second Year French I

Credits: 4
Emphasizes the development of communication skills (listening, speaking, reading and writing) so as to help students function effectively in real-life contexts. Provides a systematic review of grammatical structures necessary for successfully communicating in French.

USP 2015 Code U5H

Prerequisite: FREN 1020 or three years of high school French.

FREN2040 - Second Year French II

Credits: 3
A course stressing the usage of the language through composition, conversation, oral presentations and grammar

review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2130 - Contemporary French Culture

Credits: 3

Designed as an introduction to contemporary French culture. It gives students an in-depth insight into contemporary French life. It also deals with issues affecting the French-speaking world in general: Quebec, Africa, New Caledonia, Switzerland, Monaco, etc.

USP 2015 Code U5H

Prerequisite: FREN 1020 or equivalent.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

FREN3990 - Independent Study

Credits: 1-4

Books or periodicals of special interest to the student, selected in consultation with a member of the staff; independent reading and reports.

Prerequisite: FREN 2030.

FREN4080 - Studies in the French Language

Credits: 3

Max Credit (Max. 9)

The topics explored under this general heading include: translation, history of the French language, French of the media and conversation.

Dual Listed FREN 5080.

Prerequisite: FREN 3060.

FREN4100 - A Survey of French Literature I

Credits: 3

A study of French Literature and civilization from the Middle Ages through the 18th century.

Prerequisite: FREN 2140 or equivalent.

FREN4110 - A Survey of French Literature II

Credits: 3

A study of French Literature and civilization from the 19th century to the present.

Prerequisite: FREN 2140 or equivalent.

FREN4120 - Medieval French Literature

Credits: 3

A survey of medieval French literature: epic, courtly poetry, Arthurian romance, theatre and the poetry of Villon.

Dual Listed FREN 5120.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4140 - 17th Century French Literature

Credits: 3

A survey of representative works from the major literary genres from the formative period to classicism and its aftermath.

Dual Listed FREN 5140.

USP 2003-2014 Code U3WC

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4200 - Introduction to Research

Credits: 3

Senior seminar on a topic varying from year to year.

USP 2015 Code U5C3

Prerequisite: COM2 (FREN 3050), Survey I and II courses (FREN 4100 and FREN 4110).

FREN4250 - 19th Century French Literature

Credits: 3

Development of romanticism from Rousseau on with excerpts from Chateaubriand and romantic poets like Hugo and Vigny. The period of realism-naturalism focuses on novels of Flaubert and Zola, while the symbolist school of poetry is represented by Baudelaire, Verlaine and Rimbaud.

Dual Listed FREN 5250.

Former Course Number [4150]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4260 - 20th Century French Literature

Credits: 3

The era since 1900 is divided into four parts: pre-World War I, between the wars, post-World War II and the New Wave. These periods are represented by authors including Valery, Proust, Malraux, Saint-Exupery, Camus, Sartre and others.

Dual Listed FREN 5260.

Former Course Number [4160]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4350 - Studies in French and Francophone Literatures

Credits: 3

An intensive study of a topic, period or author (pertaining to French or Francophone literature), to be selected according to interest and currency).

Dual Listed FREN 5350.

Prerequisite: FREN 3060; FREN 4100 and FREN 4110 strongly recommended.

FREN4990 - Advanced Independent Study

Credits: 1-3

Special projects designed to meet the needs of individual students, designed in consultation with instructor.

Prerequisite: FREN 3050 and consent of instructor.

FREN5080 - Studies in French Language

Credits: 3

Topics explored include: French translation, history of the French language, French of the media, and conversation.

Prerequisite: FREN 3060.

FREN5120 - Medieval French Literature

Credits: 3

A survey of medieval French literature: Epic, courtly poetry, Arthurian romance, theatre, and the poetry of Villon.

Dual Listed FREN 4120.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN5140 - 17th Century French Literature

Credits: 3

A survey of representative works from the major literary genres from the formative period to classicism and its aftermath.

Dual Listed FREN 4140.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN5160 - Graduate Readings

Credits: 1-5
Max Credit (Max. 6)

Prerequisite: undergraduate major or minor in the subject.

FREN5170 - Special Problems

Credits: 1-2
Max Credit (Max. 6)

Prerequisite: undergraduate major or minor in the subject.

FREN5250 - 19th Century French Literature

Credits: 3

Development of romanticism from Rousseau on with excerpts from Chateaubriand and romantic poets like Hugo and Vigny. The period of realism-naturalism will focus on novels each of Flaubert and Zola while the Symbolist School of poetry will be represented by Baudelaire, Verlaine and Rimbaud.

Dual Listed FREN 4250.

Prerequisite: FREN 2050; FREN 4100 and FREN 4110 strongly recommended.

FREN5260 - 20th Century French Literature

Credits: 3

The era since 1900 is divided into 4 parts: Pre- World War I, between the wars, post-World War II and the New Wave. These periods are represented by such authors as Valery, Proust, Malraux, Saint-Exupery, Camus, Sartre and others.

Dual Listed FREN 4260.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN5350 - Studies in French and Francophone Literatures

Credits: 3

An intensive study of a topic, period or author (pertaining to French or Francophone literature, to be selected according to interest and currency).

Dual Listed FREN 4350.

Prerequisite: FREN 3060; FREN 4100 and FREN 4110 strongly recommended.

FREN5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

FREN5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

FREN5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

FREN5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

FREN5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

FREN5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Gender and Women's Studies

GWST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed LTST 1030/AAST 1030/AMST 1030/NAIS 1030.

USP 2003-2014 Code U3D, U3I

A&S College Core 2015 ASD

GWST1080 - Intro Gender & Women's Studies

Credits: 3

This course serves as an introduction to the field of Gender and Women's Studies. Students will examine a range of GWST topics, gain knowledge of gender, feminist, and intersectional theories, and learn to apply course concepts and frameworks to analyses of socio-political and representational issues, primarily in U.S. contexts.

Cross Listed ENGL 1080.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical and cultural aspects of leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed SOWK 1900.

USP 2003-2014 Code U3L, U3O

Former Course Number [4510]

GWST2000 - Introduction to LGBTQ/NS Studies

Credits: 3

Lesbian, Gay, Bisexual, Transgender, Queer and New Sexuality Studies (LGBTQ/NS) explores the interdisciplinary study of sexuality and its importance to the organization of social relations and social institutions. Primary among its concerns is the study of the lives, the politics, and the creative work of sexual minorities.

USP 2003-2014 Code U3C, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST2060 - Topics in Women's Studies

Credits: 1-4

Popular and current topics in women's studies.

GWST2070 - Gender and Religion

Credits: 3

Aims to help students understand how religion constructs and reinforces gender roles in religion and society. Looks at traditional gender roles in Christianity and the transformation they have undergone in the past century or so.

Cross Listed RELI 2070.

GWST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed HIST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

GWST2500 - Gender and Society

Credits: 3

Examines the social construction of gender using interdisciplinary methods of analysis. The readings and assignments emphasize the importance of denaturalizing the gender stereotypes and norms that impact women's and men's lives. Intersections between gender, race, class, age, and sexual orientation are examined within their cultural contexts. This course will prepare students for advanced work in Gender and Women's Studies.

USP 2003-2014 Code U5C2

Former Course Number [3500]

Prerequisite: GWST 1080 or cross listed equivalent.

GWST2700 - Gender and Disability

Credits: 3

Disability studies draws upon critical theory to investigate disability as a discursive construction. Investigates how intersecting conceptions of disability and gender have shaped cultural meanings and the social positioning of specific groups, especially women with disabilities. Topics include non-normative embodiment, issues of representation and subjectivity, and the politics of health, sexuality, and care.

Cross Listed WIND 2700.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/AMST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

GWST3200 - Perspectives in Chicana Studies

Credits: 3

An interdisciplinary introduction to the study of the history, culture, gender relations, and contemporary political, economic status of Chicanas/Mexican American women. Examines the origins, development of Chicana studies as a major emphasis in Chicano/ Chicana studies.

Cross Listed LTST 3200.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: LTST 1100.

GWST3300 - Psychology of Gender

Credits: 3

In this course, we will examine a variety of psychological theories and research on the experiences and behaviors of men and women. We will study attitudes about gender, theories of gender development, and research about similarities and differences between men and women.

Cross Listed PSYC 3300.

Prerequisite: A grade of C or better in PSYC 1000.

GWST3400 - Popular Music and Sexualities

Credits: 3

Looks at ways in which popular music has intersected with sexual and gendered identities as a means and expression of both oppression and liberation.

Cross Listed AMST 3400.

USP 2003-2014 Code U3CH, U3D

Prerequisite: WA.

GWST3710 - Gender and Humanities

Credits: 3

Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity and class.

Cross Listed ENGL 3710/ART 3710.

When Offered (Offered once a year)

USP 2003-2014 Code U3CH

USP 2015 Code U5C2

Prerequisite: GWST 1080 or ENGL 1010.

GWST3800 - Chicanas/os in Contemporary Society

Credits: 3

Focuses on three major movements within the Chicana/o community; labor, nationalism, and feminism. Students will assess these three movements to determine what role they have played in transforming the social conditions and political identity of the Chicana/o and Latina/o population in the US.

Cross Listed AMST/ LTST 3800.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: LTST 1100 or GWST 1080 or AMST 2010.

GWST4200 - Gender and Race in the Economy

Credits: 3

Focuses on the role gender and race play in the economy; specifically the way that gender and race affect economic outcomes for individuals in the United States.

Cross Listed AGEC 4200.

Dual Listed GWST 5200.

A&S College Core 2015 ASD

Prerequisite: AGEC 1020 or equivalent, or SOC 1000, or GWST 1080, and WB.

GWST4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society.

Cross Listed Cross-listed with AAST 4233 and COJO 4233;

Dual Listed dual-listed with GWST 5233.

USP 2003-2014 Code U3D, U3WC

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

GWST4300 - The Politics of Sexuality

Credits: 3

Addresses issue of how sexuality has become gendered with different meanings for both males and females as to reproductive behavior, especially how women's bodies are defined in sexual terms.

When Offered (Offered every other year)

Prerequisite: GWST 1080, 3500 or GWST 3710.

GWST4335 - Women and Islam

Credits: 3

Examines women's lives in Islamic societies from the seventh century to the present in the Middle East and throughout the world. Themes include women's position in Islamic law, society and culture, Western images of Muslim women, veiling and Islamist movements, theoretical readings on power, gender and agency.

Cross Listed HIST 4335 and RELI 4335.

Dual Listed GWST 5335.

Prerequisite: 9 hours of HIST, WMST, INST, or RELI.

GWST4360 - American Indian Women

Credits: 3

Explores the lives of American Indian women in a variety of contexts through time. The complexity and diversity of Indian women's experiences throughout history are emphasized. Much of the class concerns Indian women's lives within the reality of European American colonization and its consequences for Indian peoples.

Cross Listed NAIS 4360/SOC 4360.

Prerequisite: 6 hours of 2000-level NAIS classes.

GWST4430 - Queer Theory

Credits: 3

Introduces students to the intellectual lens used to evaluate the messages regarding gender and sexuality of many institutions and the way in which some actual experiences fall out of line with those norms.

Cross Listed AMST 4430.

Dual Listed GWST 5430.

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: Consent of instructor.

GWST4440 - Queer Life Through Memoir

Credits: 3

This reading intensive class explores queer life in the late 20th and early 21st centuries in the United States of America. Through close reading and analysis of the texts and discussions, issues of sexuality, race, class, violence and place are explored.

Cross Listed GWST 5440

Prerequisite: GWST 2000 , GWST 4430 , or GWST 5430 or graduate standing, or permission of instructor

GWST4450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 5450.

Prerequisite: 6 hours in WMST, PHIL, and/or ENR.

GWST4500 - Special Topics in Women's Studies

Credits: 1-4

Presents current research issues by visiting and regular faculty.

Prerequisite: GWST 1080, 3500, GWST 3710 or consent of instructor.

GWST4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540.

When Offered (Offered every other year)

Prerequisite: ENGL 1080/GWST 1080, WMST/SOC 3500, or CRMJ 2400/SOC 2400 , WMST/GWST 2500

GWST4630 - Gender and Politics

Credits: 3

Max Credit 3

Using theoretical perspectives of pluralism, elitism, and intersectionality, this course examines how sex and gender operate in U.S. political processes, including elections, parties, interest groups, and social movements. Specific focus will be on women in politics and analyses of power dynamics in shaping marginalized identities; sex/gender, race and ethnicity, sexual orientation, class and ability.

Cross Listed POLS 4630

Prerequisite: GWST/ENGL 1080, GWST 2000, or POLS 1000; at least 9 hours combined credit hours in POLS or GWST, and junior standing.

GWST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve

as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 4650/LTST 4650/INST 4650.

Dual Listed GWST 5650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

GWST4675 - USWomen of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed AAST 4675/LTST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: junior standing and/or a combination of

GWST4700 - Feminist Theories

Credits: 3

Surveys contemporary feminist theories and places those theories within the framework of social, literary, and artistic criticism. Uses feminist theories to address questions such as nature of meaning in literature and artistic forms; construction of science; and identity of the individual as these phenomena are affected by gender construction.

When Offered (Offered once a year)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 12 hours of women's studies.

GWST4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the twentieth century.

Cross Listed ART 4780.

Dual Listed GWST 5780.

Prerequisite: ART 2010 or ART 2020 or 3 hours of Women's Studies courses; and WB.

GWST4830 - Victorian Women's Lives: Their Art, Literature and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage and divorce.

Cross Listed ART 4830/ENGL 4830.

Dual Listed GWST 5830.

When Offered (Offered every other year)

A&S College Core 2015 ASG

Prerequisite: Either ART 2020 or GWST 1080/ENGL 1080.

GWST4960 - Women's Bodies, Women's Minds

Credits: 3

Explores women's physiologic and psychologic development and the influences of patriarchal society upon the interpretation of what constitutes normalcy across the female life cycle. Historical, cultural and contemporary attitudes of the health care system and women's perspectives on menstruation, childbearing, breastfeeding and menopause will be analyzed.

When Offered (Offered every other year)

USP 2003-2014 Code U3CS

Prerequisite: upper division status.

GWST4965 - Senior Honors Project

Credits: 3

The student consults with the director/faculty supervisor to identify a topic and (a) produces a 30-40 page research paper or (b) a shorter 15-20 page paper plus a creative or service learning component, showing originality, firm knowledge of the discipline(s), and solid research skills, with a thesis defense as culmination.

Former Course Number [4980]

Prerequisite: GWST 4700, or concurrent enrollment with instructor consent, and a 3.500 GPA.

GWST4970 - Internship

Credits: 3

Max Credit (Max. 12)

Students gain practical experience in the application of principles learned in women's studies courses. Students will work with the director of women's studies internships to select a site; will intern approximately ten hours per week in the host organization; and will complete written assignments which reflect the student's work.

Former Course Number [4000]

Prerequisite: 12 semester hours of WMST coursework,

GWST4975 - Independent Studies

Credits: 1-4
Max Credit (Max. 9)

Offers the advanced student the opportunity to pursue a topic of interest with the assistance and direction of an instructor in women's studies.

Former Course Number [4970]

Prerequisite: 6 hours in women's studies or consent of instructor.

GWST5000 - Special Topics

Credits: 1-4
Max Credit (Max. 8)

Presents findings from current research and new areas of inquiry into women's studies at the graduate level, by present and visiting faculty.

Prerequisite: 18 hours of undergraduate women's studies.

GWST5200 - Gender and Race in the Economy

Credits: 3
Focuses on the role gender and race play in the economy; specifically the way that gender and race affect economic outcomes for individuals in the United States.

Cross Listed AGEC 5200.

Dual Listed GWST 4200.

Prerequisite: AGEC 1020 or equivalent, or SOC 1000, or GWST 1080, and WB.

GWST5233 - Race, Gender, Ethnicity in the Media

Credits: 3
Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society. Cross-listed with AAST 5233 and COJO 5233; dual-listed with GWST 4233.

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

GWST5335 - Women and Islam

Credits: 3
Examines women's lives in Islamic societies from the seventh century to the present in the Middle East and throughout the world. Themes include women's position in Islamic law, society and culture, Western images of Muslim women, veiling and Islamist movements, theoretical readings on power, gender and agency.

Dual Listed GWST 4335.

Prerequisite: graduate standing.

GWST5360 - American Indian Women

Credits: 3

Explores the lives of American Indian women in a variety of contexts through time. The complexity and diversity of Indian women's experiences throughout history are emphasized. Much of the class concerns Indian women's lives within the reality of European American colonization and its consequences for Indian peoples.

Cross Listed SOC 5360.

Dual Listed GWST 4360.

Prerequisite: 6 hours of NAIS 2000-level classes.

GWST5430 - Queer Theory

Credits: 3

Introduces students to the intellectual lens used to evaluate the messages regarding gender and sexuality of many institutions and the way in which some actual experiences fall out of line with those norms.

Cross Listed AMST 5430.

Dual Listed GWST 4430.

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: Consent of instructor.

GWST5450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 4450.

Prerequisite: six credits from women's studies, philosophy, and/or ENR.

GWST5540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540/ 5540

Dual Listed GWST 4540

Prerequisite: ENGL/WMST/GWST 1080 , WMST/GWST 2500 , CRMJ/SOC 2400 , or WMST/SOC 3500

GWST5650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 5650/LTST 5650/INST 5650.

Dual Listed GWST 4650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

GWST5710 - Feminist Theoretical Perspectives

Credits: 3

Intensive introduction to the epistemology and application of a wide range of trans-historical, trans-cultural, and trans-national feminist theories. Students will be asked to apply self-selected feminist theories to their own thesis work and graduate fields, as well as to current examples of sex, gender, gender performance, and gendered coding in American media.

Prerequisite: graduate standing.

GWST5780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the twentieth century.

Dual Listed GWST 4780.

Prerequisite: ART 2010 or ART 2020 or 3 hours of Women's Studies courses; and WB.

GWST5830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage and divorce.

Cross Listed ENGL 5830.

Dual Listed GWST 4830.

Prerequisite: ART 2020 or ENGL 1080/GWST 1080.

GWST5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Students are expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

GWST5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

GWST5960 - Thesis Research

Credits: 1-6
Max Credit 6

Designed for graduate students who are involved in gender studies research for their thesis project, especially students in gender and women's studies or queer studies graduate minor programs.

Prerequisite: Enrollment in a graduate degree program

GWST5970 - Independent Studies

Credits: 1-4
Max Credit (Max. 8)

Allows the graduate student to pursue studies in gender issues with the supervision of an instructor from the Women's Studies faculty.

Prerequisite: graduate standing.

GWST5990 - Internship

Credits: 1-12
Max Credit (Max. 12)

Prerequisite: graduate standing.

Geography

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1000]

GEOG1010 - Introduction to Physical Geography

Credits: 4

Systematically studies natural aspects of geographic environments, including weather and climate, landforms, soils and vegetation. Lab fee required.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Former Course Number [G&R 1010]

GEOG1020 - Introduction to Human Geography

Credits: 3

Analyzes spatial patterns of and interaction between the world's great cultural systems. Includes settlement patterns, behavioral patterns, agricultural land use and resource utilization.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Former Course Number [G&R 1020]

GEOG1101 - Surviving the Apocalypse: The Geography of Natural Disasters (FYS)

Credits: 3

Students examine the natural and human dimensions of disasters by focusing on environmental settings, risk assessment, recovery, and reducing impacts of environmental hazards and disasters globally. Course considers human vulnerability, mitigation, protection, and adaptation to different hazards in both more developed and less developed nations.

USP 2015 Code U5FY

GEOG2370 - Chicano History: Origins to GEOG 1900

Credits: 3

General survey that traces the geographic distribution and historical processes that have shaped the life experiences, socio-economic development and cultural contributions of peoples of Mexican descent in the United States from their indigenous and Hispanic origins to the end of the 19th century.

Cross Listed LTST 2370/HIST 2370.
USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

GEOG3030 - Geography and Development

Credits: 3

Examines distribution of wealth and poverty in the world; theories of development, from traditional modernization theories through Marxist critiques and sustainable development; and case studies from around the world of development successes and failures, chosen to illustrate and illuminate theories of development.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG
Former Course Number [G&R 3030]

Prerequisite: GEOG 1000 or GEOG 1020 or 3 credit hours of social science with global focus.

GEOG3050 - Economic Geography

Credits: 3

Economic Geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples

and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS

Former Course Number [G&R 3550]

GEOG4000 - Terrain Analysis

Credits: 3

Studies techniques for acquiring and analyzing spatial data from maps, remotely sensed imagery and field surveys for

landscape assessment. Emphasizes deriving maps that describe physical suitability of landscapes for specific human activities. Field trip required.

Former Course Number [G&R 4000]

Prerequisite: Completion of USP PN requirement or consent of instructor.

GEOG4013 - Political Geography

Credits: 3

Geographic space mediates political action and is generated by it, and spatial forms are produced by governmental agencies that must respond or adapt to emerging patterns of political disruption and tendencies of social change. Students in this course learn to think about the relationship between politics and space at multiple scales and in global context. They also develop an inter-disciplinary approach to the sub-discipline of political geography in social and historical context, and, in that sense, develop a capacity to think and act as political geographers.

Cross Listed GEOG 5013 , INST 4013, INST 5013

Prerequisite: 6 hours in social science

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOG4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/1405 or MATH 1450.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

GEOG4441 - Advanced Climate Variability

Credits: 3

Max Credit 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Cross Listed GEOG/GEOL 4441-5441

Prerequisite/Corequisite: GEOG 3450/ENR 3450/ GEOL 3450 or instructor consent

GEOG4450 - Fluvial Geomorphology

Credits: 4

A systematic examination of rivers and related land forms. Emphasizes understanding how processes of flow and sediment transport influence channel form and behavior. Considers rivers systems across a range of scales, from movement of individual sediment particles to organization of continental drainage basins. Explores connections to aquatic ecosystems and human impacts.

Dual Listed GEOG 5450.

Former Course Number [G&R 4450]

Prerequisite: GEOG 3010 or GEOL 2100 or GEOL 2150 or consent of instructor.

GEOG4460 - Biogeography

Credits: 3

A systematic study of the distribution of plants and animals, communities and ecosystems, the processes that produce patterns of distribution and their change over time. Interactions of climate, soil geomorphology, biota and human activities are emphasized.

Former Course Number [G&R 4460, 3460]

Prerequisite: junior standing and GEOG 1010 or LIFE 2022 or LIFE 2023.

GEOG4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG/GEOL 4470/5470

Former Course Number [G&R 4470]

Prerequisite: Some basic knowledge of Earth processes GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

GEOG4500 - The American Landscape

Credits: 3

This course trains students to interpret patterns and processes of contemporary landscapes of the Americas (North, Central, and South America) by viewing those landscapes historically. We investigate the relationship between landscape, politics, and economy, or, more generally, the relationship between landscape as a geographical form and cultural politics in the hemisphere. Students are introduced to research techniques and methodologies in historical geography.

Cross Listed Cross listed with GEOG 5500, INST 4500, INST 5500

Former Course Number [G&R 4500]

Prerequisite: 6 credits of international studies or social science coursework

GEOG4502 - Images of Wyoming and the West

Credits: 3

The West is nothing more than a barren, desolate landscape to some while to others it offers great spiritual and cultural significance. Examines how individuals and groups perceive Wyoming and the West, how such perceptions have been constructed over time, and how these differing views create images of the region both real and imagined.

Dual Listed GEOG 5502.

Prerequisite: GEOG 1000 or GEOG 1020 and junior standing.

GEOG4550 - Geography of Wine

Credits: 3

Examine the regional influence of climate, terrain and cultural characteristics on the production of grape varieties and demonstrate the implications of this influence on the location and distribution of wines produced. Discussion will focus on the world-wide production and consumption of wine and impacts of multi-national corporations.

Prerequisite: junior standing and at least 21 years of age.

GEOG4560 - Global Cities

Credits: 3

Globalization accelerates urbanization processes and creates a new type of city: the global city. This course investigates the debates over global cities, urban culture, new urban landscapes, urban planning practices, and social disparity. Using case studies from around the world, this class explores the diversity of global city formation processes.

Cross Listed INST 4560.

Dual Listed GEOG 5560.

USP 2015 Code U5H

Prerequisite: 9 hours of international studies or geography.

GEOG4570 - Cultural Geography

Credits: 3

Cultural Geography is an overview in qualitative cultural landscape studies. The course emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Students are exposed to readings in cultural geography from a wide array of viewpoints with an emphasis placed on classic works.

Cross Listed GEOG 5570, INST 4570, INST 5570

Prerequisite: 6 hours in social science

GEOG4580 - Sense of Place

Credits: 3

Examines how individuals and groups perceive specific geographic locations, how such perceptions are constructed, and how these differing views and feelings play out in our everyday.

Dual Listed GEOG 5580.

Former Course Number [4572]

Prerequisite: Completion of USP H requirement or consent of instructor.

GEOG4590 - Geography of Conflicts

Credits: 3

Explores the representation of place and how various groups often have differing views of how a place should be represented and/or thought of. Various local representations of contested land use, group place identity, and personal place identity are discussed.

Dual Listed GEOG 5590.

Former Course Number [4574]

Prerequisite: Completion of USP H requirement or consent of instructor.

GEOG4875 - Independent Studies

Credits: 1-6

Max Credit (Max. 6)

Considers current research topics in consultation with faculty member.

Dual Listed GEOG 5875.

Former Course Number [G&R 4875, 4950]

Prerequisite: 9 hours in subject area of topic of current research.

GEOG4880 - Current Topics

Credits: 1-6
Max Credit (Max. 6)

Special course on a topic of current interest.

Dual Listed GEOG 5880.
Former Course Number [G&R 4880, 4850]

Prerequisite: junior standing.

GEOG4885 - Seminar: (TOPICS)

Credits: 1-3
Max Credit (Max. 6)

Faculty-student discussion, reading, and study focused on a selected topic and interest.

Former Course Number [G&R 4885, 4900]

Prerequisite: GEOG 4750.

GEOG4960 - Field Studies

Credits: 1-6
Max Credit (Max. 6)

Intensive introduction to field methods used in geographic research in one or more of the subdivisions of geography.

Former Course Number [4860, G&R 4860]

GEOG4965 - Directed Studies/ Research Problems

Credits: 1-6
Max Credit (Max 6)

Intensive introduction to methods used in geographic research.

Former Course Number [4865, G&R 4865]

Prerequisite: consent of instructor and at least 12 hours in geography.

GEOG4990 - Internship/ Practicum

Credits: 1-6
Max Credit (Max. 12)

Experience in applying student skills and training in an agency, organization, or business.

Dual Listed GEOG 5990.
Former Course Number [4870, G&R 4990]

Prerequisite: for majors only, minimum of 12 hours in the major, junior standing and consent of the instructor.

GEOG5013 - Political Geography

Credits: 3

Geographic space mediates political action and is generated by it, and spatial forms are produced by governmental agencies that must respond or adapt to emerging patterns of political disruption and tendencies of social change. Students in this course learn to think about the relationship between politics and space at multiple scales and in global context. They also develop an inter-disciplinary approach to the sub-discipline of political geography in social and historical context, and, in that sense, develop a capacity to think and act as political geographers.

Cross Listed GEOG 4013, INST 4013, INST 5013
Dual Listed GEOG 4013.
Prerequisite: graduate standing.
Prerequisite/Corequisite: 6 hours in social science

GEOG5060 - Landscape Ecology

Credits: 3

A study of structure, function, and change in the biosphere on the scale of kilometers. Includes a consideration of the effects of human land uses, natural disturbances, and other processes on landscapes.

Prerequisite: GEOG 4460 or LIFE 3400 or BOT 4700.

GEOG5440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 4440 .
Prerequisite: Graduate standing.

GEOG5441 - Advanced Climate Variability

Credits: 3
Max Credit 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Cross Listed GEOG/GEOL 4441-5441

GEOG5450 - Fluvial Geomorphology

Credits: 4

A systematic examination of rivers and related land forms. Emphasizes understanding how processes of flow and sediment transport influence channel form and behavior. Considers rivers systems across a range of scales, from movement of individual sediment particles to organization of continental drainage basins. Explores connections to aquatic ecosystems and human impacts.

Dual Listed GEOG 4450.

Prerequisite: GEOG 3010 or GEOL 2100 or GEOL 2150 or equivalent and graduate standing.

GEOG5470 - Fire Ecology

Credits: 3

Natural and human-caused fires are an important phenomenon affecting ecosystems and human communities throughout the world. Explores the geography, ecology, and management of fires.

Dual Listed GEOG 4470.

Prerequisite: GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

GEOG5500 - Landscapes of the Americas

Credits: 3

This course trains students to interpret patterns and processes of contemporary landscapes of the Americas (North, Central, and South America) by viewing those landscapes historically. We investigate the relationship between landscape, politics, and economy, or, more generally, the relationship between landscape as a geographical form and cultural politics in the hemisphere. Students are introduced to research techniques and methodologies in historical geography.

Cross Listed Cross listed with GEOG 4500, INST 4500, INST 5500

Restricted Sophomore standing

Prerequisite: 6 credits of international studies or social science coursework

GEOG5502 - Images of Wyoming and the West

Credits: 3

The West is nothing more than a barren, desolate landscape to some while to others it offers great spiritual and cultural significance. Examines how individuals and groups perceive Wyoming and the West, how such perceptions have been constructed over time, and how these differing views create images of the region both real and imagined.

Dual Listed GEOG 4502.

Prerequisite: GEOG 1000 or GEOG 1020 or equivalent and graduate standing.

GEOG5560 - Global Cities

Credits: 3

Globalization accelerates urbanization processes and creates a new type of city: the global city. This course investigates the debates over global cities, urban culture, new urban landscapes, urban planning practices, and social disparity. Using case studies from around the world, this class explores the diversity of global city formation processes.

Cross Listed INST 5560.

Dual Listed GEOG 4560.

Prerequisite: 9 hours of international studies or geography.

GEOG5570 - Cultural Geography

Credits: 3

Cultural Geography is an overview in qualitative cultural landscape studies. The course emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Students are exposed to readings in cultural geography from a wide array of viewpoints with an emphasis placed on classic works.

Dual Listed GEOG 4570.

Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

GEOG5580 - Sense of Place

Credits: 3

Examines how individuals and groups perceive specific geographic locations, how such perceptions are constructed, and how these differing views and feelings play out in our everyday.

Dual Listed GEOG 4580.

Former Course Number [5572]

Prerequisite: GEOG 1000 or GEOG 1020.

GEOG5590 - Geography of Conflicts

Credits: 3

Explores the representation of place and how various groups often have differing views of how a place should be represented and/or thought of. Various local representations of contested land use, group place identity, and personal place identity are discussed.

Dual Listed GEOG 4590.

Former Course Number [5574]

Prerequisite: GEOG 1000 or GEOG 1020 or graduate standing.

GEOG5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

GEOG5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

GEOG5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

GEOG5990 - Internship/Practicum

Credits: 1-12
Max Credit (Max. 12)

Experience in applying student skills and training in an agency, organization, or business.

Dual Listed GEOG 4990.

Prerequisite: graduate standing.

Geology and Geophysics

GEOL1001 - Earth Science and Society

Credits: 1
Introduces students to the study of Earth Science and its role in society through examination and discussion of current events, and through projects researching geologic topics of societal interest.

USP 2003-2014 Code Y3I, U3L

Prerequisite: GEOL 1100 or concurrent enrollment.

GEOL1005 - Earth History

Credits: 4

Reviews the evolution of the Earth including: the creation of the Universe, formation of a layered earth, development and history of continents, controls on climate change, and the origin and evolution of life. Class introduces basic geologic, chemical, physical and biologic concepts used to decipher Earth history.

USP 2003-2014 Code U3S

GEOL1050 - Gold and the American West

Credits: 3

The gold rushes in the western United States offer a window into geologic principles and processes resulting to the accumulation of gold, and the consequences of resource extraction on the prospective geologic record of the Anthropocene. This course provides an interdisciplinary approach to natural resources.

USP 2015 Code U5PN

GEOL1060 - Geology of the National Parks

Credits: 3

This course provides an overview of the geologic settings and processes that form the landscapes and features in the US National Parks and Monuments. We will use the National Parks to explore fundamental geologic concepts, Earth materials, natural hazards, and the dynamic tectonic forces that have affected the planet throughout geologic history.

USP 2015 Code U5PN

GEOL1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society.

Cross Listed ASTR 1070.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Prerequisite: Math level 3 or equivalent courses, consent of instructor, elementary education major and EDCI 1450 must be taken concurrently.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1101 - The Anthropocene: Human's Control of Nature

Credits: 3

This course introduces students to the essential realities of living on a dynamic Earth. Students examine how geological events and processes (earthquakes, floods, landslides, volcanic eruptions, and long-term and short-term climate changes) affect our survival, evolution, and adaptation. The course also critically examines 'geoengineering', which has created many solutions to problems that would have otherwise impeded civilization's progress, but has also resulted in many unintended consequences. Most importantly, this course will encourage students to examine their potential to transform our civilization to one that is aligned to the essential symbiotic relationship we have with our dynamic Earth. Finally, as a First Year Seminar the course introduces incoming freshman and transfer students to fundamental academic essentials important to a successful University of Wyoming experience.

USP 2015 Code U5FY

GEOL1110 - Physical Geology for Engineers

Credits: 4

Introduction to geologic principles for engineers with emphasis on near surface processes and material properties. The first half will teach planetary basics, mineral/ rock and geologic structure, surface processes, geologic material strength and deformation, and geohazards. The final half covers methods and analysis with the collection of geophysical data on-campus to assess near-surface properties with a full lab report.

USP 2003-2014 Code [(none)< >PN]

Prerequisite: MATH 1400 and MATH 1405 or MPE score of 5 or higher or SAT Math score of 600 or higher or ACT Math score of 27 or higher.

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed ERS 1650.

USP 2015 Code U5PN

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2050 - Principles of Paleontology

Credits: 4

Max Credit 4

Examines principles, biological and geological, that underlie general study of ancient life on Earth. Includes interactions of evolutionary, taphonomic, and paleogeographic concepts within various approaches to paleobiology and systematic paleontology. Optional field trip.

When Offered (Normally offered spring semester)

Prerequisite: 1000-level GEOL or LIFE 1000 or LIFE 1010

GEOL2070 - Introduction to Oceanography

Credits: 4

Survey of ocean processes, including the major subdisciplines of physical, geological, chemical, and biological oceanography. Studies the form of the world ocean; composition and chemistry of seawater; circulation, currents, waves and tides; nutrients and organisms; estuaries and coastal processes; origin and distribution of deep-sea sediments; and impacts of human activities.

When Offered (Normally offered the first half of the fall semester)

Prerequisite: GEOL 1005, GEOL 1100, 1200, GEOL 1500 or ENR 1500; MATH 1405 or MATH 1450.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL2120 - Quantitative GeoMethods

Credits: 3

Focuses on fundamental mathematical concepts used in geosciences. This course provides the tools to solve quantitative problems in geosciences applications. Students should demonstrate mathematical skills needed to formulate, analyze, and interpret quantitative arguments in geosciences.

USP 2003-2014 Code U5Q

Prerequisite: Level 5 in Math Placement Test OR 23 in Math ACT OR 600 in Math SAT.

GEOL2150 - Geomorphology

Credits: 4

Discusses general principles of landform description and analysis.

Prerequisite: GEOL 1100 or equivalent.

GEOL2220 - Communicating Earth Science

Credits: 3

This course will focus on communicating science to non-scientists. Students will deliver earth science information through written, digital and oral presentations to be informative and interesting to the public.

USP 2015 Code U5C2

Prerequisite: grade of C or higher in GEOL 2010, COM1.

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL3040 - Introduction to Groundwater

Credits: 3

This class will introduce the basic principles of Groundwater Hydrology such as hydrological cycle, mass balance, fluid properties, mechanics of flow through porous media, Darcy's law, aquifer and aquitards, groundwater wells, groundwater geology, and surface water/ groundwater interaction.

Prerequisite: A grade of B or higher in MATH 1405 or MATH 1450.

GEOL3110 - Invertebrate Paleontology

Credits: 4

Encompasses taxonomy and morphology of major groups of invertebrate fossils. Includes examples of their use in correlation, environmental reconstruction and interpretation of evolution.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 1200.

GEOL3250 - Geosciences and Computers

Credits: 4

An integrated introduction to the basic components of modern scientific computing and to illustrate basic computing concepts through geoscience applications.

USP 2003-2014 Code [I< >(none)]

Prerequisite: One USP designated science course with lab.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

GEOL3450 - Weather and Climate

Credits: 3

Max Credit 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Prerequisite: GEOG 1010 OR any USP PN course.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4000 - Paleomagnetism in Geology/Geophysics

Credits: 3

Studies paleomagnetic solutions in geoscience topics. Includes plate reconstructions; sea-floor formation; structural geology; dating of structural/tectonic events; western North American tectonics; global geomagnetic polarity reversals and time scale; magnetostratigraphic correlation; stratigraphic dating; dating diagenetic events; characteristics of core and mantle; extraterrestrial impacts and geologic phenomena; environmental and climate change applications. Field trip and laboratory project required.

Dual Listed GEOL 5000.

Prerequisite: GEOL 1000 or GEOL 1100; GEOL 1200 desirable.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4010 - Exploration Geoscience

Credits: 3

Provides students with information and skills necessary to understand the energy exploration modeling process. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, and reservoir characterization.

Cross Listed ERS 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

GEOL4020 - Global Biogeochemistry

Credits: 3

Biogeochemistry is the exploration of the physical, chemical, and biological processes that govern the exchange of energy and elements between the biosphere and the geosphere. This course will examine pri

Prerequisite: GEOL/ESS 2000

GEOL4025 - Igneous and Metamorphic Petrology

Credits: 4

An advanced study of igneous and metamorphic rocks in hand sample and thin section. Covers optical techniques for identifying minerals, the use of phase diagrams and geochemistry to understand the evolution of igneous rocks and the formation conditions of metamorphic rocks. A field trip is required.

Prerequisite: GEOL 2020.

GEOL4030 - Groundwater Flow and Solute Transport Modeling

Credits: 3

Movement of groundwater and the dissolved solute is responsible for a variety of environmental, engineering, and geological processes of interest. Presents an overview of the analyses of groundwater flow and solute transport using numerical modeling. The principles of the Finite Difference Method are introduced.

Dual Listed GEOL 5030.

Prerequisite: MATH 2205 and GEOL 4444/GEOL 5444.

GEOL4050 - Geology of Wyoming

Credits: 3

Survey of the geologic history of Wyoming beginning in the Precambrian and extending to the present. Stratigraphic and sedimentation history, igneous activity, metamorphism, and orogenic activity are emphasized in the lectures. Occasional field trips are required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 1100 or an equivalent course.

GEOL4060 - Rocky Mountain Field Trip

Credits: 1

Max Credit (Max. 3)

A six-day geological field trip to various classic localities in the Rocky Mountains.

Prerequisite: senior standing and GEOL 2010 and GEOL 4610 or GEOL 4050.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

GEOL4125 - Igneous Petrology

Credits: 2

Studies igneous rocks in thin section. Lectures cover mineralogy, geochemistry, phase equilibria and occurrence of igneous rocks. Labs study suites of igneous rocks in thin section.

When Offered (Offered fall semester of odd numbered years)

Prerequisite: GEOL 2010.

GEOL4130 - Mathematical Geosciences

Credits: 3

The purpose of this course is to strengthen the quantitative skills of students in geosciences by reviewing basic concepts of linear algebra, precalculus, derivation and integration through applications to real datasets and problem sets, and introducing basic concepts of inverse theory, spatial science, data analytics, and geostatistics. The examples focus on applications to practical geoscience problems.

Prerequisite: Math 1400 and Math 1405 or consent from Instructor

GEOL4140 - Diversity Inclusion Geoscience

Credits: 1

The purpose of this course is to educate and promote the value of diversity and inclusion. We will discuss how our scientific community is affected by racial injustice. The goal of this class is to learn how to support equality, diversity, and inclusivity in our department and in the scientific community.

Cross Listed ENGL 1010 College Composition and Rhetoric OR ESL 1210 English Composition for International Students

Prerequisite: ENGL 1010 College Composition and Rhetoric OR ESL 1210 English Composition for International Students

GEOL4150 - Paleontology of Lower Vertebrates

Credits: 4

Explores evolutionary histories of lower vertebrates including fishes, amphibians, reptiles and birds. Optional field trip.

When Offered (Normally offered every third year)

Prerequisite: acceptable previous training in geology or zoology, 12 hours of biology and/or geology or ZOO 4000.

GEOL4160 - Regional Tectonics

Credits: 2

A field-based introduction to the Mesozoic to early Cenozoic tectonic evolution of the U. S. Cordillera.

Dual Listed GEOL 5160.

Prerequisite: GEOL majors and junior or senior level standing.

GEOL4170 - Paleontology of Cenozoic Placental Mammals

Credits: 4

Explores evolutionary histories of placental mammals' characteristic of Cenozoic era as documented through fossil record study. Optional field trip.

When Offered (Normally offered every third year)

Prerequisite: 12 hours of biology and/or geology or ZOO 4000.

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

GEOL4191 - Methods in Petroleum Geology

Credits: 3

Lectures and laboratory exercises are designed to give the student experience in working with various kinds of geoscientific data in relation to the exploration for and production of hydrocarbons. Most exercises utilize real data and real situations. Topics include recognition of hydrocarbons, interpretation of sample, mud and geophysical logs, geologic utilization of drill stem tests; subsurface correlation and mapping techniques; prospect generation.

Dual Listed GEOL 5191.

Prerequisite: GEOL 4190.

GEOL4200 - Topics in Geology

Credits: 1-3

Max Credit (Max. 9)

Studies particular geology topics in-depth at undergraduate level.

Former Course Number [GEOL 4010]

Prerequisite: senior standing and 20 hours in geology.

GEOL4210 - Topics in Geophysics

Credits: 1-3
Max Credit (Max. 9)

Studies particular geophysics topics in-depth at undergraduate level.

Former Course Number [GEOL 4020]

Prerequisite: senior standing and 20 hours in geology.

GEOL4214 - Topics in Economic Geology

Credits: 1-2
Max Credit (Max. 2)

Seminar in economic geology: topics will be influenced by the interest of students who register. For undergraduates looking to enroll in GEOL 4214, it is highly suggested that you have taken GEOL 4270 Ore Deposits before taking this class.

Dual Listed GEOL 5214.

Prerequisite: C or better in GEOL 2020.

GEOL4250 - Mathematical Geosciences

Credits: 3

The purpose of this course is to strengthen the quantitative skills of students in geosciences by reviewing basic concepts of linear algebra, precalculus, derivation and integration through applications to real datasets and problem sets, and introducing basic concepts of inverse theory, spatial science, data analytics, and geostatistics. The examples focus on applications to practical geoscience problems.

Dual Listed GEOL 5250

Prerequisite: MATH 1400 and 1405 or consent of instructor.

GEOL4270 - Hydrogeophysics

Credits: 3

Estimating groundwater parameters, contaminant transport, porosity and other hydrologic properties using geophysics. Integrates literature review, discussion, exercises and writing to introduce students to hydrogeophysics research. Students will acquire skills at reading technical publications, writing, and gain knowledge about current trends in the

field. Emphasis on critical thinking and analysis of writing.

Prerequisite: 20 hours of geology or engineering courses.

GEOL4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed BOT 4280.

Dual Listed GEOL 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

GEOL4310 - Advanced Stratigraphy

Credits: 3

Deals with characterizing and predicting the vertical and lateral distribution of sedimentary rocks. Includes correlation methods; use of facies models; facies delineation; impact of tectonics and changes in relative sea level on sedimentary record; transgressions and regressions; concept and construction of stratigraphic framework; and sequence stratigraphy.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2100.

GEOL4320 - Cenozoic Stratigraphy

Credits: 4

Studies areal distribution, depositional environment, paleohydraulics, provenance, and correlation of global Cenozoic deposits. Required field trip.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: GEOL 2100.

GEOL4420 - Sedimentary Rocks

Credits: 4

Encompasses origin, classification and interpretation of sedimentary rocks including sandstones, mudrocks and carbonates. Topics also include depositional environments and basin analysis. Field trip required.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: GEOL 2010 and GEOL 2100.

GEOL4440 - High-Performance Computing for Scientists and Engineers

Credits: 3

Gives students an integrated introduction to the design, analysis and implementation of parallel codes on modern HPC systems. This course is interdisciplinary in nature, involving case studies in biology, physics, mathematics and geosciences. HPC systems at ARCC will be used for hands-on exercises.

GEOL4441 - Advanced Climate Variability

Credits: 3

Max Credit 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Cross Listed GEOG/GEOL 4441-5441

Prerequisite: GEOG 3450/ENR 3450 or instructor consent

GEOL4444 - Geohydrology

Credits: 4

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 5444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL4460 - Planetary Geology

Credits: 3

Examines basic principles of planetary geology and their application to specific planetary examples. Core topics include solar system formation, impact cratering, and comparative planetology. Provides an opportunity to test terrestrial theories under extreme conditions, and provides insight into both early earth history and ongoing geological processes.

Prerequisite: GEOL 2010 and GEOL 2100 and (MATH 1400/MATH 1405 or MATH 1450).

GEOL4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG 4470/5470

Dual Listed GEOL 5470

Prerequisite: GEOG 4460, BOT 4700, or LIFE 3400; junior or senior standing.

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust. Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL4666 - Plate Tectonics

Credits: 3

Studies theory of plate tectonics including quantitative assessment of observations which lead to its acceptance. Includes geometry of plate tectonics, plate boundaries and plate motions at present and in the past, evolution of plates including sea floor spreading and subduction processes, as well as driving mechanisms. Two lectures, one laboratory/discussion per week.

Dual Listed GEOL 5666.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: GEOL 4610, geology/geophysics math requirements.

GEOL4717 - Field Course in Geology

Credits: 1-8

Reviews field observation of geologic phenomena, methods of geologic mapping and interpretation of data collected. Course includes a six-week field trip.

When Offered (Offered early summer)
Former Course Number [GEOL 5100]

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4720 - Ore Deposits

Credits: 4

Teaches principles of economic geology of ore minerals. Lectures cover geochemistry of ore minerals and environments in which various ore minerals are found. Labs include identification of ore minerals in hand sample and under microscope and methodology of economic geology.

Dual Listed GEOL 5720

When Offered (Normally offered fall semester)
Former Course Number [GEOL 4700]

Prerequisite: a grade of C or better in GEOL 2020.

GEOL4760 - Rates and Timescales of Surface Processes

Credits: 3

Explores methods for quantifying rates and timescales of weathering, erosion, soil formation, nutrient cycling and other surface processes. Focus includes cosmogenic nuclides, tracer thermochronometry, U-series disequilibrium, fallout radionuclides, and optically stimulated luminescence. Course features a mix of instructor-driven lectures on fundamentals and student-driven discussion of cutting-edge research from recent literature.

Dual Listed GEOL 5760.

Prerequisite: GEOL 2150 or GEOG 3010 or GEOL 4880 and MATH 2205 and CHEM 1020 and PHYS 1100.

GEOL4777 - Geochemistry of Natural Waters

Credits: 3

Studies physical chemistry applied to natural waters, and chemistry of rock weathering, sources and controls on major, minor and trace elements, plus problems related to introduced pollutants.

Cross Listed GEOL 5777.

Prerequisite: CHEM 1030 OR consent of instructor.

GEOL4800 - Independent Study

Credits: 1-3

Encompasses field, laboratory or library research for senior students in department.

Prerequisite: senior standing and not fewer than 20 hours in geology.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

GEOL4835 - Applied/Exploration Geophysics

Credits: 3

Discusses the fundamentals of Applied or Exploration Geophysics, encompassing lecture, laboratory classes and discussion of case histories. It covers the Seismic Refraction, Seismic Reflection, Gravity, and Magnetics methods. Provides a solid grounding about the exploration of the Earth's subsurface for mineral and hydrocarbon resources, and environmental issues.

Dual Listed GEOL 5835.

Former Course Number [GEOL 4970]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210 and MATH 2200.

GEOL4850 - Principles of Digital Filtering and Time Series Analysis

Credits: 3

Studies principles and applications of data processing techniques as used in seismic exploration, oceanography, gravity and magnetic prospecting, remote sensing and other areas of earth science. Includes discrete versus continuous time series; fourier and Z-transforms; layer matrix analysis; reflectivity function; deconvolution and predictive deconvolution; digital filter design; array analysis; velocity filters; and migration.

When Offered (Normally offered fall semester)

Prerequisite: mathematics through calculus.

GEOL4880 - Earth Surface Processes

Credits: 3

Quantitative interpretation of Earth's surface processes. Uses a quantitative approach to demonstrate how the development of landforms can be modeled.

Prerequisite: MATH 2205 (MATH 2210 preferred), PHYS 1210.

GEOL4888 - Glaciology

Credits: 3

Dynamics of frozen water. Covers behavior of ice masses, in the form of glaciers or ice-sheets, and geomorphic aspects of glacial erosion and deposition. Includes forcing and feedbacks between cryosphere and global climate.

When Offered (Offered every second year spring semester)

Prerequisite: MATH 2205, PHYS 1210 (PHYS 1310).

GEOL5020 - Fundamentals of Research

Credits: 2

Lectures, discussion and projects centered on three fundamental aspects of research: development of research tools, understanding the scientific method, learning how to write a grant, read the literature and present a talk. Class is designed for all incoming graduate students in the department.

Prerequisite: graduate standing.

GEOL5030 - Groundwater Flow and Solute Transport Modeling

Credits: 3

Movement of groundwater and the dissolved solute is responsible for a variety of environmental, engineering, and geological processes of interest. Presents an overview of the analyses of groundwater flow and solute transport using numerical modeling. The principles of the Finite Difference Method are introduced.

Dual Listed GEOL 4030.

Prerequisite: MATH 2205, GEOL 5444.

GEOL5050 - Introduction to Isotope Geology

Credits: 3

Understanding of atomic structure, radioactive decay, mass spectrometry, dating techniques and petrologic uses of isotopic systems. Emphasis will be placed on evaluating dating methods in relation to particular geologic problems and possible sources of error. The use of isotopes in defining magmatic sources and crustal contamination are discussed.

Prerequisite: CHEM 1020, CHEM 1110, MATH 2200, MATH 2205.

GEOL5060 - Rocky Mt. Field Trip

Credits: 3

Max Credit 3

A five-day geological field trip to various classic localities in the Rocky Mountains.

Prerequisite: Graduate standing required. For undergraduates, GEOL 2100 and GEOL 4610 are required OR consent of the instructor.

Prerequisite/Corequisite: GEOL 4060

GEOL5113 - Geological Remote Sensing

Credits: 4

Acquaint students with aircraft and spacecraft remote sensing of the environment, emphasizing geological application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. The laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Dual Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 OR MATH 1450.

GEOL5120 - Tectonic Evolution of the North American Cordillera

Credits: 4

Phanerozoic tectonic evolution of western North America viewed through the paradigm of plate tectonics. Course involves intensive literature review, guest speakers, a possible field trip, and an in depth regional tectonic analysis to be done by each student.

Prerequisite: GEOL 2020, GEOL 2100, and GEOL 4610.

GEOL5140 - Diversity Inclusion Geoscience

Credits: 1

The purpose of this course is to educate and promote the value of diversity and inclusion. We will discuss how our scientific community is affected by racial injustice. The goal of this class is to learn how to support equality, diversity, and inclusivity in our department and in the scientific community.

Dual Listed dual listed with GEOL 4140

Prerequisite: ENGL 1010 College Composition and Rhetoric OR ESL 1210 English Composition for International Students

GEOL5150 - Metamorphic Petrology

Credits: 4

Lectures on field occurrence, macroscopic and microscopic characteristics of igneous rocks, followed by lectures on application of physical chemistry to genetic study of igneous rocks. Laboratory devoted to the study of suites of igneous rocks from classical areas.

Prerequisite: GEOL 2020 and GEOL 4490; graduate standing.

GEOL5160 - Regional Tectonics

Credits: 2

A field-based introduction to the Mesozoic to early Cenozoic tectonic evolution of the U. S. Cordillera.

Dual Listed GEOL 4160.

Prerequisite: graduate standing.

GEOL5180 - Reflection Seismology

Credits: 3

Lectures treating seismic methods applied to the study of earth structures ranging from exploration to crustal structure. Topics covered include wave propagation recording techniques, processing, modeling, resolution and interpretation. Laboratory exercises give practical experience on lecture topics and emphasize use of instruments and data analysis. Computer processing introduced.

Prerequisite: GEOL 1200, one year of calculus and one year of physics.

GEOL5190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 4190.

Prerequisite: GEOL 2100, GEOL 4610.

GEOL5191 - Methods in Petroleum Geology

Credits: 3

Lectures and laboratory exercises are designed to give the student experience in working with various kinds of geoscientific data in relation to the exploration for and production of hydrocarbons. Most exercises utilize real data and real situations. Topics include recognition of hydrocarbons, interpretation of sample, mud and geophysical logs, geologic utilization of drill stem tests; subsurface correlation and mapping techniques; prospect generation.

Prerequisite: GEOL 5190.

GEOL5200 - Topics in Geology

Credits: 1-3

Max Credit (Max. 9)

Provides a detailed study at a graduate level of a particular topic in geology.

Prerequisite: graduate standing in geology and geophysics and permission of the instructor.

GEOL5210 - Topics in Geophysics

Credits: 1-3

Max Credit (Max. 9)

Provides a detailed study at a graduate level of a particular topic in geophysics.

Prerequisite: graduate standing in geology and geophysics and permission of instructor.

GEOL5211 - Seminar in Structural Geology and Tectonics

Credits: 1

Max Credit (Max. 6)

Selected topics in structural geology and tectonics. On-going research among undergraduate and graduate students is emphasized.

Prerequisite: GEOL 4610 or equivalent course.

GEOL5212 - Sedimentary Seminar

Credits: 1

Max Credit (Max. 3)

Seminar in selected topics in sedimentary geology. Designed to bring, and keep, graduate students up to date with the current literature and new, unpublished ideas. Visiting lecturers and presentations of student and faculty research.

Prerequisite: graduate standing.

GEOL5213 - Seminar in Tectonics

Credits: 2

Graduate topical seminar focused on tectonic. The class is a mixture of lectures, readings, and original research involving the compilation/ generation, analysis, and interpretation of data to understand geodynamic processes and events.

Prerequisite: graduate standing.

GEOL5214 - Topics in Economic Geology

Credits: 1-2

Max Credit (Max. 2)

Seminar in economic geology: topics will be influenced by the interest of students who register. For undergraduates looking to enroll in GEOL 4214, it is highly suggested that you have taken GEOL 4270 Ore Deposits before taking this class.

Dual Listed GEOL 4214.

GEOL5215 - Inverse Theory

Credits: 3

Inverse theory is about learning the techniques to invert data for an acceptable model. The simplest example is least-squares fitting of a line. Covers inversion of both over and under-determined inverse problems, regularization techniques, bayesian theory, along with probabilistic viewpoints.

Prerequisite: graduate standing in geology and geophysics; linear algebra, MATLAB programming.

GEOL5216 - Global Seismology

Credits: 3

Introductory class in theoretical seismology with emphasis on wave propagation. Topics include elastic wave theory for body and surface waves, normal modes, anisotropic wave propagation, source processes, and derivation of the wave equation, the ray theoretical approximation, representation theorems, stress/strain constitutive relations, normal modes, surface waves, and attenuation operators.

Prerequisite: graduate standing in geology or geophysics and permission of the instructor.

GEOL5217 - Geodynamics

Credits: 3

Examines the fundamental physical processes necessary for the understanding of plate tectonics and a variety of other geological phenomena. Provides a solid grounding for future study and research covering plate tectonics, stress & strain, elasticity, isostasy & the flexural strength of the lithosphere, gravity, and thermal processes.

Prerequisite: GEOL 1100, one year of college level Physics and MATH 2210.

GEOL5220 - Vertebrate Morphology and Evolution

Credits: 2

Course for paleontology majors and vertebrate anatomists involving advanced concepts, recent literature, and research training in the areas of morphology and evolution of fossil vertebrates.

Cross Listed ZOO 5220.

Prerequisite: GEOL 4150/ZOO 4150 or GEOL 4160/ZOO 4160, or GEOL 4170/ZOO 4170 or ZOO 4000.

GEOL5230 - Vertebrate Paleobiogeography

Credits: 2

Lectures and discussions devoted to use of data from the fossil record of vertebrates in interpreting ancient distributions of landmasses and seaways, recognizing paleoclimatic changes, and documenting the evolution of zoogeographic provinces.

Prerequisite: GEOL 4150/ZOO 4150, or GEOL 4160/ZOO 4160 or GEOL 4170/ZOO 4170.

GEOL5250 - Mathematical Geosciences

Credits: 3

The purpose of this course is to strengthen the quantitative skills of students in geosciences by reviewing basic concepts of linear algebra, precalculus, derivation and integration through applications to real datasets and problem sets, and introducing basic concepts of inverse theory, spatial science, data analytics, and geostatistics. The examples focus on applications to practical geoscience problems.

Dual Listed GEOL 4250

GEOL5270 - Hydrogeophysics

Credits: 3

Estimating groundwater parameters, contaminant transport, porosity and other hydrologic properties using geophysics. Integrates literature review, discussion, exercises and writing to introduce students to hydrogeophysics research. Students will acquire skills at reading technical publications, writing, and gain knowledge about current trends in the field. Emphasis on critical thinking and analysis of writing.

Prerequisite: 20 hours of geology or engineering courses.

GEOL5280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed BOT 5280.

Dual Listed GEOL 4280.

Prerequisite: graduate standing.

GEOL5300 - Sedimentary Basins

Credits: 4

Sedimentary basin evolution are examined from the view point of plate tectonics, thermal histories, and lithospheric processes. Quantitative basin modeling techniques are applied to understanding subsidence histories, sea level changes, and the primary controls on the formation of stratigraphic sequences.

Prerequisite: 1 year of calculus.

GEOL5321 - Engineering and Environment Geophysics

Credits: 3

Theoretical background for electrical, electromagnetic, georadar, and other near-surface geophysical measurements. Practical exercises focused on modeling, inversion, data analysis and experimental design. Discussion of applications to engineering and environmental problems. Basic knowledge of MATLAB programming language is helpful, but not required.

Cross Listed CE 5321.

Prerequisite: MATH 2250 or MATH 2200.

GEOL5330 - Mechanics of Sediment Transport, Erosion and Deposition

Credits: 4

Erosion, transport, and deposition of sediments are examined from a first-principles basis. Physical processes are derived from fluid dynamics, statistical mechanics, and mass conservation. These topics are then used to explore landscape and seascape evolution, morphodynamics, and stratigraphic construction.

Prerequisite: GEOL 2100 or equivalent.

GEOL5340 - Advanced Tectonics and Sedimentation

Credits: 3

Lectures, seminars, and field observations on the relations between tectonism and the sedimentary record. Topics include a review of plate tectonic theory, characteristics of major types of sedimentary basins, techniques for evaluating tectonic activity from evidence in the sedimentary record and large-scale tectonosedimentary elements.

Prerequisite: graduate standing, GEOL 2100, and GEOL 4610.

GEOL5410 - Applied Geochemical Analysis

Credits: 3

Applied course in common geochemical analytical methods. Consists of lectures and laboratories with individual hands-on training. Includes sample handling, method development, and data interpretation for several analytical instruments including but not limited to inductively coupled argon plasma emission and ion chromatography. Other analytical methods are also treated.

Prerequisite: GEOL 4490.

GEOL5420 - Surfaces and Interfaces

Credits: 3

Examines the role of surfaces and solid-solution interfaces in regulating the chemistry of the Earth's surface. Subjects to be covered includes surface tension, capillarity, and the thermodynamics of surfaces; the equilibrium and kinetic chemistry of absorption-desorption; dissolution-precipitation kinetics and controlling factors; surface catalysis; and surface oxidation-reduction reactions. Presented in the context of geochemically and environmentally important processes such as chemical weathering, partitioning of solutes between water and surfaces, and the transport and degradation of pollutants.

Prerequisite: One of the following: GEOL 4490, GEOL 4777, GEOL 5777, CHEM 3020, CHEM 4507.

GEOL5441 - Advanced Climate Variability

Credits: 3

Max Credit 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrolic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Cross Listed GEOG/GEOL 4441-5441

Prerequisite: GEOG 3450/ENR 3450 or instructor consent

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5446 - Introduction to Geostatistics

Credits: 3

The development of the basic principles of geostatistics and its practical applications in the geosciences will be presented. Main topics include: spatial analysis, kriging, cokriging, geostatistical simulations (unconditional, conditional). If time permits additional topics include: simple kriging, indicator kriging and block kriging.

Prerequisite: MATH 2200, MATH 2205, MATH 2250 and STAT 2000.

GEOL5450 - Geochemical Modeling

Credits: 3

Modeling of geochemical processes in fluid-rock systems of the Earth's crust. Emphasizes development and application of conceptual models as well as quantitative numerical models. Reinforces and expands fundamental skills in aqueous and fluid-rock geochemistry to better understand geochemical processes and solve problems in fluid-rock systems.

Prerequisite: GEOL 4777/GEOL 5777 or GEOL 5610 or GEOL 4490.

GEOL5470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG 4470/5470.

Dual Listed GEOL 4470

Prerequisite: GEOG 4460, BOT 4700, or LIFE 3400; or graduate standing.

GEOL5525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 4525.

GEOL5550 - Numerical Methods in Ground Water Geology I

Credits: 3

Numerical solution of ground water flow equations with emphasis on steady state and elementary time dependent finite difference techniques.

Prerequisite: GEOL 4444 or GEOL 5444, competence in FORTRAN programming.

GEOL5560 - Numerical Methods in Ground Water Geology II

Credits: 3

Time dependent digital simulation models designed to forecast impacts of ground water developments.

Prerequisite: GEOL 5550.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

GEOL5600 - Theoretical Petrology

Credits: 3

Graphic and analytical techniques used to evaluate the genesis of igneous and metamorphic rocks. Principles of thermodynamics, activity-composition relations, and G-X diagrams will be reviewed. Igneous topics include: use of phase diagrams, heat and mass transfer, magma generation. Fluid rock equilibria and Schreinemakers' analysis will be used to evaluate the origin of metamorphic rocks.

Prerequisite: GEOL 4490.

GEOL5610 - Geological Thermodynamics I

Credits: 4

Laws of thermodynamics, conditions which constitute chemical equilibrium, and multiple component systems as

applied in geologic problems.

Prerequisite: MATH 2200, MATH 2205, CHEM 1030, consent of instructor.

GEOL5630 - Electronic Microprobe

Credits: 3

Lectures cover the theory of X-ray emission analysis, microprobe instrumentation, and data reduction procedures. Labs cover various uses of microprobe in solving geological problems.

Prerequisite: consent of instructor.

GEOL5640 - Advanced Igneous Petrology Seminar

Credits: 1-3

Max Credit (Max. 9)

Advanced training in igneous petrology emphasizing applications of chemical principles to the study of igneous rocks. Each year a different aspect of igneous petrology are covered in detail.

Prerequisite: GEOL 4490, GEOL 5050.

GEOL5650 - Advanced Metamorphic Petrology

Credits: 3

Review of the literature and study of the advanced concepts in metamorphic petrology.

Prerequisite: GEOL 5150.

GEOL5660 - Microstructural Analysis of Deformed Rocks

Credits: 4

The use of microscope in the interpretation of natural strain in rocks is emphasized. Lectures and extensive laboratory exercises are the principle components of the course. Microfabric analysis using the universal stage is introduced.

Prerequisite: GEOL 4610 required, GEOL 5150 recommended.

GEOL5666 - Plate Tectonics

Credits: 3

The theory of plate tectonics including a quantitative assessment of the observations which lead to its acceptance and limitations. Topics include: geometry of plate tectonics, plate boundaries and plate motions at present and in the past, evolution of plates including sea floor spreading and subduction processes, and driving mechanisms. Two lectures, one laboratory/discussion per week.

Dual Listed GEOL 4666.

Prerequisite: GEOL 4610, geology/geophysics math requirements.

GEOL5700 - Seminar in Structure and Development of the Earth's Crust

Credits: 3

Seminar in structure and development of the Earth's crust. Topics include structure and geochemistry of the Precambrian plate tectonics in the Precambrian early history of the Earth, seismic refraction crustal models, seismic reflection crustal models, and crustal genesis.

Prerequisite: admission is by consent of instructor, GEOL 4610 and one semester of geophysics.

GEOL5720 - Ore Deposits

Credits: 4

Teaches principles of economic geology of ore minerals. Lectures cover geochemistry of ore minerals and environments in which various ore minerals are found. Labs include identification of ore minerals in hand sample and under microscope and methodology of economic geology.

Dual Listed GEOL 4720.

Prerequisite: GEOL 2010.

GEOL5730 - Seismic Data Processing

Credits: 3

Fundamentals of seismic reflection data processing: processing of field tapes, cross-correlation, velocity analysis, stacking, and deconvolution. Statistics correct, migration, coherency filtering.

Prerequisite: GEOL 5180, MATH 4430, MATH 4440.

GEOL5760 - Rates and Timescales of Surface Processes

Credits: 3

Explores methods for quantifying rates and timescales of weathering, erosion, soil formation, nutrient cycling and other surface processes. Focus includes cosmogenic nuclides, tracer thermochronometry, U-series disequilibrium, fallout radionuclides, and optically stimulated luminescence. Course features a mix of instructor-driven lectures on fundamentals and student-driven discussion of cutting-edge research from recent literature.

Dual Listed GEOL 4760.

Prerequisite: GEOL 2150 or GEOG 3010 or GEOL 4880 and MATH 2205 and CHEM 1020 and PHYS 1100.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

GEOL5820 - Advanced Geomorphology

Credits: 1-3

Max Credit (Max. 6)

Graduate reading and discussion seminar on current topics in surficial processes. An indepth analysis of the literature and work, with the subject matter determined by student interest. May include lectures.

Prerequisite: senior or graduate standing in geology.

GEOL5835 - Applied/Exploration Geophysics

Credits: 3

Discusses the fundamentals of Applied or Exploration Geophysics, encompassing lecture, laboratory classes and discussion of case histories. Covers the Seismic Refraction, Seismic Reflection, Gravity, and Magnetics methods. Provides a solid grounding about the exploration of the Earth's subsurface for mineral and hydrocarbon resources and environmental issues.

Dual Listed GEOL 4835.

Prerequisite: graduate standing in geology.

GEOL5850 - Economic Geology

Credits: 1-6

Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5851 - Environmental Geology

Credits: 1-6

Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5852 - Geochemistry

Credits: 1-6

Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5853 - Geomorphology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5854 - Geophysics

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5855 - Ground Water Hydrology

Credits: 1-6
Max Credit (Max. 7)

Prerequisite: graduate standing in geology.

GEOL5856 - Mathematical and Statistical Geology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5857 - Mineralogy and Crystallography

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5858 - Paleontology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5859 - Petrology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5860 - Sedimentology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5861 - Stratigraphy

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5862 - Structural Geology

Credits: 1-6
Max Credit (Max. 6)

Prerequisite: graduate standing in geology.

GEOL5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

GEOL5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

GEOL5940 - Continuing Registration: Off Campus¹

Credits: 2
Max Credit (Max 16)

Prerequisite: advanced degree candidacy.

GEOL5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

GEOL5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

GEOL5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

GEOL5990 - Internship

Credits: 1-12
Max Credit (Max. 14)

Prerequisite: graduate standing.

Geospatial Information Science Technology

GIST1001 - GIST Orientation and Portfolio

Credits: 1
Introduces students to the GIST degree, the resources necessary to be successful in the program, and the broader geospatial field and its impact on society. Topics include a survey of domain applications, the ethical, legal and social implications of using geospatial data, and geospatial certifications and credentialing.

GIST1200 - Geospatial Foundations

Credits: 3
Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2110 - Techniques in Cartography

Credits: 3
Max Credit 3

This course covers cartographic theory, techniques, and hands-on map-making. Students design thematic and reference maps using different platforms including web mapping. Students learn principles of graphic design and data journalism for effective communication, and they evaluate map purpose, design, data quality, and cognitive and political bias in maps.

GIST2140 - Survey of Remote Sensing Applications

Credits: 3
This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN
Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3
Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST2190 - Intro to Programming

Credits: 3
Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3
Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

GIST4410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 5410.

GIST4420 - UAS Mission Planning

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 5420.

GIST4430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 5430.

GIST4440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 5440.

GIST4450 - UAS Photogrammetry and Image Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery acquired by unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 5450.

Prerequisite: Junior/Senior standing or approval from the instructor.

GIST4790 - Special Topics in Geospatial Information Science and Technology

Credits: 3

Advanced and specialized topics in GIS&T are addressed through guided student discussions of current literature and possible hands-on analyses.

Dual Listed GIST 5790.

GIST4870 - Internship in Geospatial Information Science and Technology

Credits: 1-12

Max Credit (Max. 12)

Provide undergraduates with the opportunity to receive credit for practical experience in geospatial information science and technology. Internship opportunities must be approved by faculty and work supervisors.

GIST4950 - Undergraduate Research in Geospatial Information Science and Technology

Credits: 1-6

Max Credit (Max. 6)

Undergraduate research in Geospatial Information Science and Technology (GIST) under the mentorship of UW faculty. Students are encouraged to present their research at professional meetings and to publish their work. GIST is multidisciplinary, so research problems span a wide range of topics.

GIST5002 - Geospatial Forum

Credits: 1

Students attend a geospatial sciences speaker series and contribute by presenting their proposed or completed research to faculty and other students in a professional manner analogous to presenting scientific research at professional meetings.

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Former Course Number GEOG 5050] **Restricted** Grad students only

GIST5100 - Foundations of Geospatial Information Science and Technology

Credits: 3

This online and on-campus graduate-level course provides an introduction to key concepts in geospatial information science and technology (GIST) including spatial data structures, coordinate systems, cartographic principles, spatial

analysis, modeling, spatial cognition, and applications of GIS in a multidisciplinary context. Lecture and project-based (poster).

GIST5111 - Introduction to Remote Sensing

Credits: 3

Combined online lecture and laboratory course introduces students to fundamental principles and techniques of remote sensing and the application of digital satellite and aerial imagery to the study of the earth's surface. Includes hands-on application of digital imaging processing techniques discussed in lecture.

Former Course Number [BOT 5111; GEOG 5111]

GIST5120 - Integration of RS and GIS Data

Credits: 3

Many geospatial analyses involve combining remotely sensed (RS) data and products with other geospatial data stored in GIS. This 3-credit online course will overview the topics pertaining to the integration of RS data in raster format with GIS data stored in vector format.

Prerequisite: graduate standing.

GIST5130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Dual Listed GIST 4130.

Former Course Number [BOT 5130; RNEW 5130]

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5200 - Geographic Visualization

Credits: 3

This online lecture and lab course emphasizes advanced theory and hands-on practice for creating applying interactive, dynamic, and multidimensional graphical representations of geographic data. Students will be introduced to web programming to allow them to develop mobile and online visualization tools.

GIST5211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 4211.

Former Course Number [BOT 5211; GEOG 5211]

Prerequisite: GIST 5111 or GIST 5130.

GIST5220 - Spatial Modeling & Data Analysis

Credits: 3

Using raster modeling, hybrid vector/raster approaches, and geo-computational techniques, this course will explore a variety of modeling concepts and related issues. This course will examine a variety of both practical and theoretical issues, with special emphasis on understanding spatial questions that are not readily addressed by basic GIS. We will also consider issues related to error, resolution, scale, and a variety of other factors.

Former Course Number GEOG 5220

GIST5280 - Navigating GIST Professions

Credits: 1

An introduction to work in the geospatial profession for online GIST master's program students. Focus is on workplace, management and occupation-specific competencies across and within specific domain application areas. Topics include evaluation and appropriate use of technology and data, developing career pathway options, the role of professional certification, and the value of continuing education and professional network connections.

GIST5300 - Web Mapping and Internet GIS

Credits: 3

With a combination of lecture-based information and hands-on lab exercises, students learn to design, develop, and implement web- and internet-based GIS and mapping applications. Commonly used web and internet GIS tools are used, and students learn to assess the quality, utility, and legal aspects of web GIS products.

GIST5350 - Enterprise GIS

Credits: 3

This course provides a comprehensive overview of the design, development, and management of enterprise GIS platforms. In addition to learning about enterprise architecture, students set up cloud services for managing, sharing, and processing spatial data using proprietary and open source tools.

GIST5410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 4410.

GIST5420 - UAS Mission Planning

Credits: 1

This 1-credit online course provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 4420.

GIST5430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 4430.

GIST5440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 4440.

GIST5450 - UAS Photogrammetry and Imagery Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery data acquired by unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 4450.

Prerequisite: graduate standing or approval from the instructor.

GIST5780 - GIS&T Capstone

Students demonstrate advanced competency in GIS&T by designing and completing a semi-independent geospatial project that applies GIS&T concepts, tools, and methods. Students share their project in the form of scientific reports.

and oral presentations at a formal geospatial forum.

Prerequisite: GIST 5002 (co-requisite).

GIST5790 - Special Topics in Geospatial Information Science and Technology

Credits: 3

Advanced and specialized topics in GIS&T are addressed through guided student discussions of current literature and possible hands-on analyses.

Dual Listed GIST 4790.

GIST5960 - GIST Thesis Research

Credits: 1-12

Max Credit 24

This course provides credit for students who are conducting thesis research and for students who have finished their coursework and are writing their master's degree thesis.

Restricted GIST Research M.S. students only

German

GERM1010 - First Year German I

Credits: 4

Explores fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

GERM1020 - First Year German II

Credits: 4

Examines fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: GERM 1010 or two years of high school German.

GERM1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

GERM2030 - Second Year German I

Credits: 4

Includes reading simple novels, short stories, and dramas; grammar review; and conversation. Eight required laboratory exercises.

USP 2015 Code U5H

Prerequisite: GERM 1020 or three years of high school German.

GERM2040 - Second Year German II

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5H

Prerequisite: GERM 2030 or three years of high school German.

GERM3006 - 20th Century German Culture and Civilization

Credits: 3

Major political, ideological and cultural developments in Germany between 1871 and the present. An interdisciplinary approach (history, art history, film and literature) allows students to explore and assess a nation's culture and civilization as well as far-reaching events (WWI, WWII and the Holocaust) from various perspectives.

USP 2003-2014 Code U3CH, U3WC

Prerequisite: junior standing.

GERM3050 - Third Year German I

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3060 - Introduction to German Literature

Credits: 3

Introduces literature of Germany. Analyzes major literary types and elements of criticism. Emphasizes compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Prerequisite: GERM 3050.

GERM3150 - German History and Culture

Credits: 3

Taught in English, this class engages students both theoretically and practically with German history and culture throughout the ages from the Middle Ages to today. Reading content is complemented with outings to culturally and historically significant sites in Germany as part of a summer study abroad program.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WA or equivalent.

GERM3990 - Independent Study

Credits: 1-4

Focuses on books or periodicals of special interest to the student selected in consultation with a staff member; independent reading and reports.

Prerequisite: GERM 2030.

GERM4070 - Fourth Year German

Credits: 3

Emphasizes weekly compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Dual Listed GERM 5070.

When Offered (Offered every other year)

Prerequisite: GERM 3060.

GERM4080 - German-English and English- German Translation

Credits: 3

Encompasses written translation exercises based on contemporary and relevant texts in both English and German. Addresses specific translation problems arising in both English and German, when translating into the other language.

When Offered (Offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: GERM 3050 and/or GERM 3060.

GERM4100 - A Survey of German Literature I

Credits: 3

Studies German literature and civilization from the Middle Ages to the 17th century.

Dual Listed GERM 5100.

Prerequisite: GERM 2140 or equivalent.

GERM4110 - A Survey of German Literature II

Credits: 3

Studies German literature and civilization from the 18th century to the end of the 20th century.

Dual Listed GERM 5110.

Prerequisite: GERM 2140 or equivalent.

GERM4145 - Weimar Classicism

Credits: 3

Introduces student to Weimar Classicism, one of the crucial periods in German literature and culture. Explores the foundation of the movement, its cultural and historical contexts, aesthetic and philosophical principles, and significant works during this period. Primary language for instruction for this course is German.

Dual Listed GERM 5145.

Prerequisite: GERM 2140 or equivalent.

GERM4180 - German Poetry

Credits: 3

Surveys poetry from the Middle Ages to the present. Emphasizes poetry after 1600. Treats formal elements and genre categories.

Dual Listed GERM 5180.

Prerequisite: GERM 2140.

GERM4200 - Introduction to Research

Credits: 3

Max Credit 9

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2015 Code U5C3

Prerequisite: 12 hours of 4000-5000-level courses.

GERM4240 - German Literature of the Romantic Period

Credits: 3

Introduces the philosophical bases of German Romanticism and analyzes representative works of prose and poetry.

Dual Listed GERM 5240.

Prerequisite: GERM 2140 or equivalent.

GERM4255 - 19th Century German Novellas

Credits: 3

Studies a wide selection of significant German novellas from the period when this genre flourished in the German-speaking world, with a popularity unparalleled in the rest of Europe. Examines the form's origins, evolution, reception, and theory.

Dual Listed GERM 5255.

Prerequisite: GERM 2140 or equivalent.

GERM4275 - Contemporary Migration Literature

Credits: 3

Introduces students to a range of recent cultural production by artists identified with immigrant communities or communities of color. Topics examined include intersections of gender, race, nation, culture, and class; experiences of different minorities; question of national and transnational identity, self-representation, immigration, multiculturalism and integration debates. Course is taught in German.

Dual Listed GERM 5275.

Prerequisite: GERM 2140 or equivalent.

GERM4285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities. Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the Americanization of German culture, minorities in contemporary Germany.

Dual Listed GERM 5285.

Prerequisite: WB.

GERM4990 - Advanced Independent Study

Credits: 1-3

Encompasses special projects designed to meet needs of individual students, designed in consultation with instructor.

Prerequisite: GERM 2140 and consent of instructor.

GERM5070 - 4th Year German

Credits: 3

Emphasizes weekly compositions and corrective practice, stylistic analysis of representative texts, and group discussions on prepared topics.

Dual Listed GERM 4070.

Prerequisite: GERM 3060.

GERM5100 - A Survey of German Literature I

Credits: 3

A study of German literature and civilization from the Middle Ages to the seventeenth century.

Dual Listed GERM 4100.

Prerequisite: GERM 2140 or equivalent.

GERM5110 - A Survey of German Literature II

Credits: 3

A study of German literature and civilization from the eighteenth century to the end of the twentieth century.

Dual Listed GERM 4110.

Prerequisite: GERM 2140 or equivalent.

GERM5145 - Weimar Classicism

Credits: 3

Introduces students to Weimar Classicism, one of the crucial period in German literature and culture. Explores the foundation of the movement, its cultural and historical contexts, aesthetic and philosophical principles, and significant works written by Goethe and Schiller during this period. Taught in German. Students are expected to read, write and discuss in German.

Dual Listed GERM 4145.

Prerequisite: graduate standing.

GERM5160 - Graduate Readings

Credits: 1-5

Max Credit (Max. 6)

Prerequisite: undergraduate major or minor in the subject.

GERM5180 - German Poetry

Credits: 3

A survey of poetry from the Middle Ages to the present. Emphasis on poetry after 1600. Treatment of formal elements and genre categories.

Dual Listed GERM 4180.

Prerequisite: GERM 2140.

GERM5240 - German Literature of the Romantic Period

Credits: 3

An introduction to the philosophical bases of German Romanticism and analysis of representative works of prose and poetry.

Dual Listed GERM 4240.

Prerequisite: GERM 2140 or equivalent.

GERM5255 - 19th Century German Novellas

Credits: 3

Studies a wide selection of German novellas from the period when this genre flourished in the German-speaking world, with a popularity unparalleled in the rest of Europe. Examines the form's origins, evolution, reception, and theory.

Dual Listed GERM 4255.

Prerequisite: GERM 2140 or equivalent.

GERM5275 - Contemporary Migration Literature

Credits: 3

Introduces students to a range of recent cultural productions by artists identified with immigrant communities or communities of color. Topics examined include: the intersections of gender, race, culture, and class; experiences of different minorities in unified Germany; question of national and transnational identity, self-representation, immigration, multiculturalism and integration debates. Taught in German. Students are expected to read, write and discuss in German.

Dual Listed GERM 4275.

Prerequisite: GERM 2140 or equivalent.

GERM5285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities. Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the Americanization of German culture, minorities in contemporary German. Taught in English.

Dual Listed GERM 4285.

Prerequisite: graduate standing.

GERM5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

GERM5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is

complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

GERM5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Greek

GRK1010 - First Year Greek I

Credits: 4
Studies fundamentals of grammar, composition and reading in Classical Greek.

When Offered (Offered based on sufficient demand and resources)

GRK1020 - First Year Greek II

Credits: 4
Studies grammar, composition and reading in Classical Greek.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: GRK 1010.

GRK2030 - Second Year Greek

Credits: 4
Explores reading simple texts, stories and dramas, as well as grammar review.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: GRK 1020 or equivalent.

GRK2040 - Second Year Greek II

Credits: 4
Further studies in grammar and reading simple texts, stories, and dramas.

When Offered (Offered based on sufficient demand and resources.)

Prerequisite: GRK 2030 or the equivalent.

GRK3990 - Independent Study

Credits: 1-4

Encompasses independent reading, selected in consultation with instructor.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: GRK 1020 or equivalent.

Higher Education

HIED5000 - Community College Leadership

Credits: 3

This course will introduce students to the challenges associated with instructional leadership at the community college. The course will identify and distinguish the macro (organizational) level of change but also the micro (individual) level of change in community college settings.

Prerequisite: Admission into MA program.

HIED5020 - Higher Education Systems

Credits: 3

The purpose of this course is to provide students with an overview of higher education as an industry, as a cultural institution, and social stability while also promoting social mobility. Special focus is given to the stratification and diversity of American higher education.

Prerequisite: Admission into MA program.

HIED5030 - Continuing and Professional Education

Credits: 3

This course will introduce graduate students to the main issues, trends, and problems that have defined the field of continuing and professional education. The course will also provide students with the foundational knowledge and skills needed to administer continuing and professional education programs.

Prerequisite: Admission into MA program.

HIED5040 - Higher Education Staffing

Credits: 3

This course provides students with a theoretical and practical overview of the research and best practices associated with the development of instructional staff at higher education institutions. Special attention is given to the use of mentoring higher education instructional staff.

Prerequisite: Admission into MA program.

HIED5050 - Workforce Training

Credits: 3

In this course, students study the process of preparing objectives, retaining instructional staff, defining content, selecting learning activities, and evaluating student learning in workforce education programs delivered by higher education institutions.

Prerequisite: Admission into MA program.

HIED5060 - Program Budgets and Instructions

Credits: 3

The purpose of this course is to familiarize managers with the core tasks needed for effective financial planning. Students are also introduced to the budgeting process in various public higher education institutions.

Prerequisite: Admission into MA program.

HIED5090 - Masters Capstone

Credits: 3

Provides exposure to situations students will likely encounter professionally. It establishes a forum where students apply and refine theories, principles, and skills learned during their programs. Students examine and critique current scholarship and document general degree specific competencies.

Cross Listed ITEC 5090.

Prerequisite: Check with advisor and complete required sequence of courses for Educational Administration (Adult and Postsecondary Education) or Instructional Technology masters degree programs prior to enrollment.

HIED5240 - Teaching Adults

Credits: 3

Developed upon the premise that individuals teach as they would expect to be taught. Focuses on methods for teaching adults in formal as well as informal settings. The learning styles literature is reviewed and implications for instructional settings are analyzed. Participants also critique their teaching performance through videotaped sessions.

Prerequisite: graduate standing.

HIED5260 - Educational Issues Race, Class, and Gender

Credits: 3

Designed to help participants examine the current issues and debates in the literature of race, class, and gender from theoretical and practical perspectives. Related areas of ethnicity, national origin, sexual orientation, language, physical appearance, body size, and other constructs of difference will also be addressed.

Prerequisite: graduate standing.

HIED5600 - Higher Education Finance

Credits: 3

Provides an overview of the economics and finance of higher education in the United States with an emphasis on the analysis of financial policies and current issues at the institutional, state, and national levels.

Prerequisite: Admission to the program.

HIED5610 - Planning and Evaluation of Instructional Systems

Credits: 3

Participants investigate the concepts, issues, methods, and attitudes involved in the planning and evaluation of instructional systems. Topics covered include planning processes, theory and technique, promotion, evaluation, setting objectives, and trend analysis.

Prerequisite: graduate standing.

HIED5630 - Advanced Organizational Leadership

Credits: 3

Examines central issues in advanced organizational leadership to prepare practitioners for leadership roles in educational settings. Working individually and as a member of a group, students will conduct conceptual analyses and complete a literature review paper and an organizational case study.

Prerequisite: Admission to the program.

HIED5640 - Leadership Development

Credits: 3

Examines central issues in the internal dimension of leadership to prepare leaders in postsecondary educational settings. Working individually and as a member of a group, students will conduct conceptual analyses and complete a literature review paper and a biographical case study of a postsecondary educational leader.

Prerequisite: Admission to the program.

HIED5650 - Law of Higher Education

Credits: 3

Examine specific legal issues encountered by instructional leaders in higher education settings. Critically examines the basic rights and duties of institutional employees and students. It also explains when and how instructional leaders should refer matters to legal counsel.

Prerequisite: Admission to the program.

HIED5660 - Community College

Credits: 3

Concerns the philosophy, organization, program, and administration of the community college.

Prerequisite: graduate standing and consent of instructor.

HIED5670 - Community College Issues and Leadership

Credits: 3

Examine, analyze, the primary responsibility of instructional leaders at the community college, management of the curriculum. In particular, focus on the remedial/ developmental education programs, general education, the liberal arts transfer curriculum, technical education, and noncredit and contract training programs.

Prerequisite: Admission to the program.

HIED5680 - Issues in Higher Education

Credits: 3

Through examination of historical foundations and current trends, ADED 5680 delves into pressing issues in the academy, including but not limited to topics of tenure, governance, professional colleges, access and equity, curriculum and international needs.

Prerequisite: graduate standing.

History

HIST1101 - FYS: Hamilton's America: Beyond the Musical

Credits: 3

Over the last few years, Hamilton: An American Musical has taken the world by storm. Taking the musical as a starting point, we will consider the real Alexander Hamilton's life and times; the relationship between history, memory, storytelling, and art: and the newfound love of an historical figure who was, in his own time, less than universally popular. This course fulfills the First-Year Seminar (FYS) requirement of the 2015 University Studies Program.

USP 2015 Code U5FY

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

HIST1210 - United States History I

Credits: 3

Surveys U. S. history 1607-1865. Together with HIST 1220, it is the foundation on which all U. S. history courses offered by the department are based. Students cannot receive credit for both HIST 1210 and HIST 1211 .

USP 2003-2014 Code U3VT

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1220 - United States History II

Credits: 3

Surveys U.S. history from reconstruction to recent past. Together with HIST 1210, it is the foundation for all U. S. history courses offered by the department. Students cannot receive credit for both HIST 1220 and HIST 1221.

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1250 - History of Wyoming

Credits: 3

A study of Wyoming from its beginning to the present. Students cannot receive credit for both HIST 1250 and HIST 1251.

USP 2003-2014 Code U3VT

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1290 - History of the U.S. West

Credits: 3

An introductory survey of the American West, with consideration of developments in both the 19th and 20th centuries.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

HIST2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed ENR 2030.

USP 2003-2014 Code [(none)< >H]

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST2060 - Topics in History

Credits: 2-3

Max Credit 6

Discusses special topics that fall outside traditional chronological and geographical framework of history; content varies from semester to semester in accordance with faculty interest and student demand.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2105 - Medieval Europe in Film

Credits: 3

Historical depictions in films help to shape people's view of the past. Uses commercial films to study major themes in the development of western European civilization between 500 and 1500. Students view, discuss and write about films, learning to evaluate films historically and to view films critically, developing media literacy.

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

HIST2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed RELI 2225.

USP 2015 Code U5H

HIST2230 - The History of Russia to 1855

Credits: 3

General survey of modern Russian history from earliest times to 1855.

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed RELI 2250.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2252 - American Religious History II (1865 to 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed RELI 2252.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed INST 2280.
USP 2015 Code U5C2

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

HIST2315 - History of Non-Western Religions

Credits: 3

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed RELI 2315.
USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

HIST2360 - African-American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed AAST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5C2

A&S College Core 2015 ASD

HIST2370 - Chicano History: Origins to 1900

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2370/GEOG 2370.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2380 - Latin American History 1500 to 2000

Credits: 3

Provides introduction to Latin American history, from colonial contacts to the present. Explores important themes and connections across the colonial and modern periods, such as race, national identity, foreign involvement, indigenous peoples' role in nation-states, religion, social movements, economic systems, and globalization.

USP 2003-2014 Code U3G

USP 2015 Code U5H

HIST2385 - Chicano History : 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

HIST2390 - US West Between the World Wars

Credits: 3

Examines two pivotal decades (1918-1942) in the US West that encompasses prosperity, Depression, and reform, through the use of historical documents, art, film, literature, and music.

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4

Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

HIST2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed ECON 2500.

HIST2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in long-distance trade.

Cross Listed ANTH 2600.
USP 2015 Code U5H

HIST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/AMST 2700/ANTH 2700.
USP 2003-2014 Code U3CH

HIST2705 - Museology II

Credits: 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes. Cross listed between Anthropology, History, American Studies, and Art.

Cross Listed AMST 2705 / ANTH 2705 / ART 2705

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 6 hours of HIST or NAIS.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of

historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB
Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/POLS 3050.
Prerequisite: WB or COM2.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/PHIL 3160.
Prerequisite: WB or COM2.

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.
USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000 or RELI 2225/HIST 2225.

HIST3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500 - 1500 CE, concentrating on the Latin West. It examines the growth of Christian institutions and practices, the Church's role as sole governing entity, along with conflicts with secular governments as they developed in later centuries.

Cross Listed RELI 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

HIST3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: RELI 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

HIST3275 - World Christianities

Credits: 3

Examines the development of Christianity primarily in Africa, Asia and South America.

Cross Listed RELI 3275

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WB and CH

HIST3300 - Secret History of Science

Credits: 3

Explores developments in science from prehistory to the present. It focuses on the lesser-known men and women who contributed to science, as well as on seemingly superstitious beliefs that were nonetheless important to advances in

knowledge.

Restricted Restricted to junior standing or higher.

Prerequisite: 6 hours in HIST or 6 hours of PN coursework, or a combination of both.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

HIST3500 - Colonial America

Credits: 3

This course covers the history of European colonization from roughly 1492 to 1763. Our geographic focus will be on the (future) United States, but will also learn how transatlantic forces influenced its people.

Prerequisite: 12 hours of HIST courses or permission of instructor.

HIST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia, and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed AAST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/HIST 2360.

HIST3880 - Comparative History

Credits: 3

Explores comparative history from a variety of topics, such as colonialism, memory, nationalisms, frontiers, or cultural history. This course will introduce students to at least one of these themes from at least two regions, time periods, or groups of people to understand patterns and change in human societies through time.

Prerequisite: 6 hours of HIST.

HIST3900 - Historical Archaeology

Credits: 3

This course introduces students to the field of historical archaeology, the archaeological and archival study of literate societies. Students will be introduced to the history of the discipline, a survey of contemporary historical archaeological practice.

Cross Listed ANTH 3900

Former Course Number [none < > none]

Prerequisite: ANTH 1300

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000

Dual Listed HIST 5000

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

HIST4060 - Independent Study

Credits: 1-3

Max Credit 6

Credit not to exceed 6 hours maximum, to be arranged in either European or American history. Primarily for juniors and seniors who can profit from independent work with minimal supervision.

Prerequisite: 12 semester hours in history; written permission of instructor required.

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

HIST4100 - Early Medieval Europe

Credits: 3

Studies development of European civilization from decline of Rome to 12th century.

Dual Listed HIST 5100.

Prerequisite: 9 hours of HIST.

HIST4110 - The High Middle Ages

Credits: 3

Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 5110.

Prerequisite: 9 hours of HIST.

HIST4112 - History of the Medieval City

Credits: 3

After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000 Europe began its rise to world prominence and cities contributed to that rise. Examines development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 5112.

Prerequisite: 9 hours of HIST.

HIST4113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what some would call heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed RELI 4113.

Dual Listed HIST 5113.

Prerequisite: 9 hours of HIST or RELI.

HIST4120 - Europe During the Renaissance

Credits: 3

Intensely studies European history in 14th and 15th centuries.

Prerequisite: 9 hours of HIST.

HIST4130 - Europe During the Reformation

Credits: 3

Intensely studies European history in the 16th century.

Prerequisite: 9 hours of HIST.

HIST4140 - Europe During the Age of the Baroque

Credits: 3

Intensely studies European history in 17th century.

Prerequisite: 9 hours of HIST.

HIST4150 - Europe During the Age of the Enlightenment

Credits: 3

Intensely studies European history in 18th century.

Prerequisite: 9 hours of HIST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed RELI 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

HIST4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed RELI 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 5305.

USP 2003-2014 Code U3G

Prerequisite: 9 hours of HIST, INST, or POLS.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 4380.

Dual Listed HIST 5380.

Prerequisite: 9 hours of HIST or INST.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

HIST4405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African and Asian people from pre-contact through the mid-19th century.

Dual Listed HIST 5405.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 5406

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST.

HIST4410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 5410.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 5415.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 5425.

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4450 - The Civil War and Reconstruction

Credits: 3

Studies crisis of the Union, 1861-1877. Examines experiences of both the North and South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 5450.

Prerequisite: 9 hours of HIST.

HIST4460 - Post-Civil War America: The Gilded Age

Credits: 3

Intensively covers economic, cultural and political developments which marked the U.S. in post-Civil War era, such as rise of industry, emergence of distinctive national culture and party struggles shaping America's Gilded Age.

Dual Listed HIST 5460.

Prerequisite: 9 hours of HIST.

HIST4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed NAIS 4462.

Dual Listed HIST 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

HIST4463 - American Indian History 1783 to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied moving west.

Cross Listed NAIS 4463.

Dual Listed HIST 5463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural, social and political forms that help create an American Indian identity.

Cross Listed NAIS 4464.

Dual Listed HIST 5464.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed NAIS 4466.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST, NAIS, or ANTH.

HIST4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed NAIS 4468.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U. S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between depression of the 1890s and that of the 1930s.

Dual Listed HIST 5470.

Prerequisite: 9 hours of HIST.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

HIST4480 - Growth of Modern America, 1929 to 1960

Credits: 3

Studies political and diplomatic developments in the U.S. in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasizes economic crisis, growth of government, reform traditions, anti-communism and civil rights.

Dual Listed HIST 5480.

Prerequisite: 9 hours of HIST.

HIST4485 - U.S. Latino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U.S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives' responses are stressed.

Cross Listed LTST 4485/INST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Cross Listed LTST 4492.

Dual Listed HIST 5492.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST or INST.

HIST4494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 5494.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or INST.

HIST4495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 5495.

Former Course Number [4720]

Prerequisite: 9 hours of HIST or INST.

HIST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed LTST 4496.

Dual Listed HIST 5496.

Former Course Number [4800]

Prerequisite: 9 hours of HIST or INST.

HIST4505 - The Old South, 1820 to 1861

Credits: 3

Studies history of the South from emergence of southern identity to the Civil War. Emphasizes southern society and culture.

Dual Listed HIST 5505.

Former Course Number [4500]

Prerequisite: 9 hours of HIST.

HIST4510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 5510.

Former Course Number [4950]

Prerequisite: 9 hours of HIST.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

HIST4530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 5530.

Former Course Number [4630]

Prerequisite: 9 hours of HIST.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

HIST4540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 5540.

Former Course Number [4640]

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

HIST4560 - American Social History in the 20th Century

Credits: 3

Explores history of social mobility and conflict in 20th century. Emphasizes impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting and architecture.

Dual Listed HIST 5560.

Prerequisite: 9 hours of HIST.

HIST4582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed INST 4582.

Dual Listed HIST 5582.

Prerequisite: 9 hours of HIST or INST.

HIST4610 - Seminar Topics in the History of Wyoming I

Credits: 3

An intensive research and writing course dealing with topics in the period before statehood in 1890.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4620 - Seminar Topics in the History of Wyoming II

Credits: 3

Allows students to do intensive research and writing dealing with topics in Wyoming history from 1890 to present.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4965 - Senior Thesis

Credits: 3

Working closely with a faculty advisor, a history major will develop a research proposal that, after approval by the History department faculty, will lead to in-depth research and writing, producing a minimum 50-page thesis that demonstrates an excellent grasp of historical methods and a high degree of writing skill.

Prerequisite: 12 hours of HIST; senior class standing; HIST major.

HIST4990 - Topics in _____

Credits: 1-6

Max Credit (Max. 12)

Affords students opportunity to study in-depth various topics in history not offered in regular courses or independent study.

Former Course Number [4080]

Prerequisite: 9 hours of HIST.

HIST5000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Dual Listed HIST 4000.

Prerequisite: 6 hours of HIST or NAIS; graduate standing.

HIST5055 - Archival Research Methods

Credits: 3

Students master advanced research strategies with interdisciplinary applications. Focuses on primary document research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Prerequisite: graduate standing.

HIST5077 - Book History: Topics

Credits: 3

An in-depth, hands on study of books within their historical contexts. The topic varies each time, and focuses on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Prerequisite: graduate standing.

HIST5100 - Early Medieval Europe

Credits: 3

The study of the development of European civilization from the decline of Rome to the twelfth century.

Dual Listed HIST 4100.

Prerequisite: graduate standing.

HIST5110 - The High Middle Ages

Credits: 3

Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 4100.

Prerequisite: graduate standing.

HIST5112 - History of the Medieval City

Credits: 3

After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000, Europe began its rise to world prominence, and the birth of the cities contributed to that rise. This course examines the development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 4112.

Prerequisite: graduate standing.

HIST5113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what we would call heresy, but also encompasses such marginal groups as Jews and witches. This course examines development of orthodoxy and the persecution of religious diversity between the 11th and 16th centuries. It also studies the historical context of the times.

Cross Listed RELI 4113.

Dual Listed HIST 4113.

Prerequisite: graduate standing.

HIST5170 - Europe in the 19th Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 4170

Prerequisite: graduate standing.

HIST5180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 4180.

Prerequisite: graduate standing.

HIST5270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 4270

Prerequisite: graduate standing.

HIST5290 - History of the Soviet Union

Credits: 3

Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social, and cultural manifestations.

Dual Listed HIST 4290.

Prerequisite: graduate standing.

HIST5305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 4305.

Prerequisite: graduate standing.

HIST5310 - World War II in Europe

Credits: 3

Covers the origins, course, and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as we know it today.

Dual Listed HIST 4310.

Prerequisite: graduate standing.

HIST5315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 5315.

Dual Listed HIST 4315.

Prerequisite: graduate standing.

HIST5320 - Memory and National Identity in 20th Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining national identity in modern-day Europe.

Dual Listed HIST 4320

Prerequisite: graduate standing.

HIST5340 - The Social History of American Women

Credits: 3

Explores the everyday life experiences of American women from the seventeenth century to the present with a focus on the complex influence of gender, race, and class in shaping those experiences. The course then turns to an analysis of the ways in which woman's dissatisfaction with the position in society formed American feminism and lead to the formation of an organized women's movement.

Dual Listed HIST 4340.

Prerequisite: graduate standing.

HIST5380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 5380.

Dual Listed HIST 4380.

Prerequisite: 9 hours of HIST or INST.

HIST5381 - Seminar in Recent United States History

Credits: 3

Max Credit (Max. 12)

Prerequisite: graduate standing.

HIST5400 - Graduate Topics in History

Credits: 1-6

Max Credit (Max. 12)

Opportunity to study in-depth various topics in history not offered in regular graduate seminars or graduate reading

courses.

Prerequisite: graduate standing.

HIST5405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from pre-contact to the mid-19th century.

Dual Listed HIST 4405

Prerequisite: graduate standing.

HIST5406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 4406.

Prerequisite: graduate standing.

HIST5410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 4410.

Prerequisite: graduate standing.

HIST5412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Dual Listed HIST 4412

USP 2003-2014 Code [(none)<>H]

Prerequisite: graduate standing.

HIST5415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 4415.

Prerequisite: graduate standing.

HIST5425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 4425.

Prerequisite: graduate standing.

HIST5450 - The Civil War and Reconstruction

Credits: 3

A study of the crisis of the Union, 1861-1877. Examination of the experiences of both the North and the South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 4450.

Prerequisite: graduate standing.

HIST5460 - Post-Civil War America: The Gilded Age

Credits: 3

An intensive study in the economic, cultural, and political developments which marked the U. S. in post-Civil War era, the rise of industry, the emergence of a distinctive national culture and the party struggles that shaped America's Gilded Age.

Dual Listed HIST 4460.

Prerequisite: graduate standing.

HIST5462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American revolution meant to the continent's Native peoples.

Cross Listed NAIS 5462.

Dual Listed HIST 4462.

Prerequisite: graduate standing.

HIST5463 - American Indian History to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied Indians moving west.

Cross Listed NAIS 5463.

Dual Listed HIST 4463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: graduate standing.

HIST5464 - American Indians in the 20th Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural, social and political forms that help create an American Indian identity.

Cross Listed NAIS 5464.

Dual Listed HIST 4464.

Prerequisite: graduate standing.

HIST5470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U.S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between the depression of the 1890s and that of the 1930s.

Dual Listed HIST 4470.

Prerequisite: graduate standing.

HIST5475 - American Environmental History

Credits: 3

History of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 4475.

Prerequisite: graduate standing.

HIST5480 - Growth of Modern America, 1929 to 1960

Credits: 3

A political and diplomatic overview of the United States in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasis on economic crisis, growth of government, reform traditions, anti-communism, and civil rights.

Dual Listed HIST 4480.

Prerequisite: graduate standing.

HIST5490 - Modern America, 1960 to Present

Credits: 3

A political and diplomatic overview of the United States since 1960 with emphasis on impact of Cold War social and political tensions at home, civil rights, and government policies.

Dual Listed HIST 4490.

Prerequisite: graduate standing

HIST5492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Dual Listed HIST 4492.

Prerequisite: graduate standing.

HIST5494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 4494.

USP 2015 Code U5H

Prerequisite: graduate standing.

HIST5495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 4495.

Prerequisite: graduate standing.

HIST5496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself, into a modern nation state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Dual Listed HIST 4496.

Prerequisite: graduate standing.

HIST5500 - Readings in Women's Studies

Credits: 3

An interdisciplinary course at the graduate level focusing on feminist criticism and theory, which draws on current debates in feminist analysis from the general areas of history, literature, and social science, to inform students of reformulations of research and unresolved issues.

Dual Listed GWST 5500.

Prerequisite: graduate standing.

HIST5505 - The Old South, 1820 to 1861

Credits: 3

The history of the South from the emergence of southern identity to the Civil War, with emphasis on southern society and culture.

Dual Listed HIST 4505.

Prerequisite: graduate standing.

HIST5510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 4510.

Prerequisite: graduate standing.

HIST5515 - American Legal History

Credits: 3

An intensive study in the history of American law, the judicial system, the legal profession, and legal administration from colonial times to the present.

Dual Listed HIST 4515.

Prerequisite: graduate standing.

HIST5530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 4530.

Prerequisite: graduate standing.

HIST5535 - History of Oil

Credits: 3

An intensive study in the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history will be an important component of the course.

Dual Listed HIST 4535.

Prerequisite: graduate standing.

HIST5540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 4540.

Prerequisite: graduate standing.

HIST5555 - American Encounters

Credits: 3

Examines the centrality of cross-cultural interchange in American history by focusing on a series of critical encounters between American, European, African, and Asian people from the 16th century to the present.

Prerequisite: graduate standing.

HIST5560 - American Social History in the 20th Century

Credits: 3

History of social mobility and conflict in the 20th century. Special emphasis on impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting, and architecture.

Dual Listed HIST 4560.

Prerequisite: graduate standing.

HIST5582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic racial and gender issues.

Cross Listed INST 5582.

Dual Listed HIST 4582.

Prerequisite: graduate standing.

HIST5585 - Conference on U.S. History

Credits: 1-3

Max Credit (Max. 6)

A reading and writing course designed to allow advanced students to investigate shifting ideas about important topics in 20th century American history. Primary focus varies from semester to semester, but will be designated in the class schedule.

Prerequisite: graduate standing.

HIST5600 - Graduate Readings

Credits: 1-6

Max Credit (Max. 12)

Fulfills two purposes in our graduate program in history. It allows students to do independent directed reading in preparation for their graduate examination in history and provides students with a flexible alternative to their programs to meet and complete requirements.

Prerequisite: graduate standing.

HIST5605 - Conference on Wyoming and the West

Credits: 1-4

Max Credit (Max. 9)

Prerequisite: graduate standing.

HIST5620 - Conference on Middle-Period and United States History

Credits: 1-4

Max Credit (Max. 9)

Prerequisite: graduate standing.

HIST5630 - Seminar on Western American History

Credits: 3

Prerequisite: graduate standing.

HIST5645 - Seminar on American Indian History

Credits: 3

Research seminar on American Indian history. The focus of the seminar may vary, but emphasis will usually be given to American Indians of the western United States in the nineteenth and twentieth centuries.

Prerequisite: graduate standing.

HIST5660 - Conference on Early Modern Europe

Credits: 1-4

Max Credit (Max. 9)

The student, in consultation with the instructor, chooses a topic on which they read extensively. The instructor provides bibliographical guidance. Normally the student discusses the reading at length with the instructor once a week. Written analysis of the reading may also be required. The course may be offered to a group of students who need extensive reading to go with the research experience they are receiving in seminars.

Prerequisite: graduate standing.

HIST5670 - Seminar on Early American History

Credits: 3

Prerequisite: graduate standing.

HIST5675 - Seminar on Middle-Period U.S. History

Credits: 3

Prerequisite: graduate standing.

HIST5685 - Conference on European 19th and 20th Century History

Credits: 1-4

Available for a maximum of 9 hours.

Prerequisite: graduate standing.

HIST5810 - Seminar on Latin American History

Credits: 1-4

Max Credit (Max. 12)

Students will select a topic of interest within the general field of Latin America and read the published works which deal with the subject. Instructor will direct this reading through the preparation of bibliography. Students then prepare an in-depth research paper based on primary source documents. Research paper will treat an aspect of the subject under

investigation that has not been dealt with in published materials.

Prerequisite: graduate standing.

HIST5880 - History Theory

Credits: 3

Intensive reading and writing course, designed to introduce graduate students to influential recent historical works, and to the faculty of the department and their research areas. Students will explore historical theories and the historiography of particular topics.

Prerequisite: graduate standing.

HIST5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Students are expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

HIST5910 - Seminar in History Profession

Credits: 3

This seminar introduces graduate students to the profession of history through targeted readings, projects, guest speakers, and workshops. Topics covered include: archival research and source analysis, schools of thought and methodologies used by professional historians, career options in history, college teaching and course design, grant applications, and professional networking.

Prerequisite: graduate standing in history.

HIST5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

HIST5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

HIST5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

HIST5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

HIST5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Health Education

HLED1006 - Personal Health

Credits: 3
Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

HLED1221 - Standard First Aid and Personal Safety

Credits: 1-2
Studies accident prevention, examination procedures and first aid care for victims of accidents or sudden illness before medical assistance is available. Presents new Red Cross content and CPR. CPR is incorporated in the sections offered for 2 credit hours.

HLED2006 - Health for Elementary Educators

Credits: 1

Acquaints students to the Wyoming Health Standards and Benchmarks, techniques/instruments for assessing the Wyoming Health Standards and Benchmarks, sample health curriculum models/approaches for elementary school K-6, lesson plans in health education for elementary learners, and health integration in language arts curricula.

Prerequisite: Declared major in KHP, PHET, or Elementary Education.

HLED3020 - Community and Public Health

Credits: 3

Public health aims to create the conditions where people can be healthy. This course introduces goals and applications of community and public health work in the US, illustrated with case studies from the most urgent health issues facing our nation.

Former Course Number [4050]

Prerequisite: HLED 1006, completion of a COM2 course, and minimum 2.750 GPA.

HLED4005 - Global Health in Modern Society

Credits: 3

Evidence-based approach to understand the interconnectivity of global health in modern society. Examination of health disparities, worldwide, to understand the impact of politics, culture, and economics on population health. Rural aspects of public health both domestically and internationally included. Students will discuss challenges and approaches to improving global public health.

A&S College Core 2015 ASG

Prerequisite: sophomore standing and minimum 2.750 GPA.

HLED4015 - Internship Experience in Health

Credits: 1-12

Max Credit (Max. 12)

Variable-credit (1-12) and S/U course required of Kinesiology and Health undergraduate majors to provide experiential learning in kinesiology and health in a real world setting. Intended to integrate theory and technique with practical application to expose students to areas of professional/career interest and assist with building professional careers. Must have CPR/AED/1st Aid Certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed KIN 4015.

Prerequisite: Grade of C or better in KIN 3024; 2.750 GPA; completion of a minimum of 18 credits in KIN/HLED upper division coursework.

HLED4016 - Research Experience in Kinesiology and Health

Credits: 3-6

Max Credit (Max. 6)

Offered to students who wish to gain a research experience in Kinesiology and Health. Meant for students who are interested in pursuing an advanced degree. Students may choose to complete KIN 4016/HLED 4016 instead of KIN 4015/HLED 4015. Must have CPR/AED/1st Aid certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed KIN 4016.

Prerequisite: minimum sophomore standing; declared KHP major; permission of instructor; and minimum 2.750 GPA.

HLED4020 - Food, Health, and Justice

Credits: 3

Maps ways our dominant national and global food systems affect health and equity in health, largely though not only negatively. Students will critically assess practiced and potential strategies for creating alternative food systems that support health and equity, particularly at the U. S. community level.

Dual Listed HLED 5020.

Prerequisite: Completed COM 2 course and minimum 2.750 cumulative UW GPA.

HLED4021 - Creating Conditions for Community Health

Credits: 3

In this course we will analyze and discuss how local, national and international environments impact individual and community health and how to improve health through changes in policy, economic, social, cultural and physical environments. The focus is primarily in the U. S. , though students can choose to focus assignments in other contexts.

Dual Listed HLED 5021.

Prerequisite: COM2 and a UW GPA of 2.750 or better.

HLED4025 - Teaching Sensitive Issues In Human Sexuality

Credits: 3

Prepares educators and other helping professionals whose work involves promoting healthy sexuality in children, young people, and adults. It also provides detailed investigation into important aspects of teaching sensitive issues related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 5025.

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4030 - Teaching About Alcohol and Substance Abuse

Credits: 3

Introduces students to the issues of societal and personal attitudes towards alcohol and substance use, misuse and abuse. Prepares an educator to teach about alcohol and substance abuse in the classroom and out of the school setting.

Prerequisite: Sophomore standing; minimum 2.750 GPA; or permission of instructor.

HLED4074 - Field Studies in (TOPIC)

Credits: 1-6

Offered only through distance education. Flexible course to accommodate students completing discipline specific and/or interdisciplinary program field studies experiences, e. g. , athletic performance, health/fitness application, minor in Outdoor Leadership, National Outdoor Leadership School programs.

Cross Listed KIN 4074.

HLED4097 - Individual Problems

Credits: 1-3

Max Credit (Max 6)

Provides flexible credit for students who wish to undertake intensive study and/or experiential activities in health education.

Prerequisite: Declared major in KHP or permission of instructor.

HLED4110 - Teaching Health in Schools K-12

Credits: 3

Presented appropriate knowledge and skills to become health literate. Explore ways to teach health skills and knowledge and use assessment strategies for health education.

When Offered (Offered fall semester)

Prerequisite: Grade C or better in KIN 3015 or certified K-12 teacher.

HLED4120 - Assessment in Health

Credits: 3

Provide students with an understanding of components of a balanced assessment system in school health education. Students review the basics of standards-based health education and explore innovations in assessment that provide teachers and students with a more complete and authentic picture of student learning.

Prerequisite: Minimum 2.500 GPA; concurrent enrollment in KIN 4099 or certified K-12 teacher.

HLED4130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 5130.

When Offered (Offered fall semester)

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4900 - Topics in:

Credits: 1-3

Max Credit (Max. 9)

Integrates kinesiology and/or health concepts necessary for graduates in multiple professions. Provides experiential learning and training for success in allied healthcare fields. Students may develop and present projects that relate their education and training to a hypothetical work-place environment.

Prerequisite: KIN 3021.

HLED5016 - Analysis and Supervision of Teaching Physical Education

Credits: 3

Students are introduced to various evaluative and supervisory techniques which are designed to improve teaching effectiveness and student learning. Emphasis is placed on utilizing various strategies of evaluation in instructional settings.

Prerequisite: graduate standing in KIN or permission of instructor.

HLED5020 - Food, Health, and Justice

Credits: 3

Maps ways our dominant national and global food systems affect health and equity in health, largely though not only negatively. Students will critically assess practiced and potential strategies for creating alternative food systems that support health and equity, particularly at the U. S. community level.

Dual Listed HLED 4020.

Prerequisite: graduate standing or permission of the instructor.

HLED5021 - Creating Conditions for Community Health

Credits: 3

In this course we will analyze and discuss how local, national and international environments impact individual and community health and how to improve health through changes in policy, economic, social, cultural and physical environments. The focus is primarily in the U. S. , though students can choose to focus assignments in other contexts.

Dual Listed HLED 4021.

Prerequisite: graduate standing.

HLED5022 - Unlocking the Potential of Public Health

Credits: 3

Introduces core concepts in community and public health. Using practical exercises and problem based learning,

students will investigate how social structures shape our health and how to alter them to improve community.

Prerequisite: Graduate standing or permission of the instructor.

HLED5023 - Using Epidemiology to Build Health

Credits: 3

Focusing on epidemiological questions generated by the student, this course introduces concepts essential to understanding epidemiology, the foundational science of public health. It is focused on using existing epidemiologic data to inform your work.

Prerequisite: Graduate standing or permission from the instructor.

HLED5024 - Increasing Support for PH

Credits: 3

Students learn how to effectively build support for improving the health of their communities. Support includes funding, coalition and partnership building, effective communications with the public and policy makers, and participatory project planning with community stakeholders. In addition, this course will cover how to establish project evaluation frameworks.

Prerequisite: Graduate standing or permission from instructor.

HLED5025 - Teaching Sensitive Issues in Human Sexuality

Credits: 3

Prepares educators and helping professionals whose work involves promoting healthy sexuality in children, young people and adults. Also provides detailed investigation into important aspects of teaching sensitive issues related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 4025.

Prerequisite: graduate standing or permission of instructor.

HLED5026 - Rural Community Health

Credits: 3

Max Credit 3

This course invites students to apply principles of community and public health in rural and frontier United States settings. It outlines challenges and assets that a rural or frontier setting brings to improving community health. It is designed to assist students to bridge gaps that rural settings face and create a plan for improvement within their chosen community or state.

Prerequisite: Graduate standing or permission from instructor.

HLED5050 - Community and Public Health Promotion

Credits: 3

Identifying, understanding, and working with unique needs and assets of communities is emphasized, including ethnic, religious, and social structures. Planning and implementation of community health programs is stressed. Open but not limited to students interested in the following areas: healthcare, health promotion, public health, the schools.

Prerequisite: graduate standing or permission of instructor.

HLED5085 - Research Methods in Health Education

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Cross Listed KIN 5085.

Prerequisite: graduate standing in KIN or permission of instructor.

HLED5097 - Individual Problems

Credits: 1-3

Max Credit (Max. 6)

Provides flexible credit for students who wish to undertake intensive study of a special problem identified in a regular class.

Cross Listed KIN 5097.

Prerequisite: graduate standing in KIN or permission of instructor.

HLED5130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 4130.

Prerequisite: graduate standing or permission of instructor.

HLED5586 - Seminar in Health Education

Credits: 1-6

Max Credit (Max. 8)

Graduate students in kinesiology and health work intensively on current issues and problems, and may pursue specific areas of emphasis. Although a total of 8 hours is permitted under this number, only 6 hours are allowed by the Division of Kinesiology and Health toward a student's graduate program.

Cross Listed KIN 5586.

Prerequisite: graduate standing in KIN or permission of instructor.

HLED5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing in KIN or permission of instructor.

HLED5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

HLED5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN4027 - Emergency Prep and Response

Credits: 3

Max Credit 3

This class provides an overview of emergency management. It teaches students skills that will help the prepare themselves, their families, and their community for natural and human made disasters. The class emphasis will be on active learning via role-playing assignments, communication planning, and personal preparedness plans.

Dual Listed HLED 4027/5027

Prerequisite: HLED 3020, OR Senior Standing, OR permission of the instructor

Health Sciences

HLSC1090 - SPARX: Topics in Interdisciplinary Health Care

Credits: 1
Max Credit (Max. 3)

Each semester a different topic or disease state is highlighted. Using film, lectures, and selected readings, students are introduced to interdisciplinary collaboration between health care and mental health professionals. Benefits to patient care and barriers in making interdisciplinary connections are addressed.

HLSC1101 - Aging in America

Credits: 3

The purpose of this class is to enhance understanding of the myriad issues related to aging in America while also fostering awareness of one's own views of aging. The class will utilize a variety of methods for learning, collaborating, and demonstrating your knowledge, and will include in-class activities, reading assignments, documentary films, and group work.

USP 2015 Code U5FY

HLSC4010 - Health Professions Admissions

Credits: 1
Max Credit 1

Course assists students in understanding and navigating the application and admissions processes for competitive graduate level health programs. Areas considered included requirements and expectations, processes, finances, timelines, and self-assessment. Students receive support in essay writing, interview prep and construction of realistic timelines.

Prerequisite: 2.75 GPA, 75+ credit hours completed

HLSC4100 - Global Public Health

Credits: 3

Introduces students to the global context of public health, to principles underlying global health, and to dimensions of public health particular to international settings. It examines major themes and policies in global health and analyzes health problems and varying responses to them in different parts of the world.

Cross Listed INST 4100.

Dual Listed HLSC 5100.

USP 2003-2014 Code U3G

Prerequisite: upper division student status.

HLSC4985 - Health Sciences Internship

Credits: 1-6
Max Credit (Max. 6)

Gives students an opportunity to gain practical experience in a health care field of their choice. The intense relationship with a mentor allows the student to become socialized into a health care field, gain practice skills, and relate to other health care professionals in an interdisciplinary way.

When Offered (Offered fall, spring and summer)

Prerequisite: completion of all other degree requirements.

HLSC4990 - Current Topics in the Health Sciences

Credits: 1-6

Max Credit (Max. 12)

Provides upper division/graduate students with the opportunity for critical analysis and in-depth examination of various current topics in health science fields.

Dual Listed HLSC 5990.

Prerequisite: Upper-division undergraduate status, or permission from instructor.

HLSC5990 - Topics In Health Sciences

Credits: 1-6

Max Credit (Max. 12)

Provides upper division/graduate students with the opportunity for critical analysis and in-depth examination of various current topics in health sciences fields.

Prerequisite: graduate standing,

Honors College

HP1020 - Honors Colloquium I

Credits: 3

Max Credit 3

Honors Colloquium I is the first course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

When Offered (Offered fall semester)

USP 2003-2014 Code U3L, U3WA

USP 2015 Code U5C1

Restricted Honors College

Prerequisite: participation in UW Honors College.

HP1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

HP1200 - People and Policy

Credits: 3

This course focuses on reading American and Wyoming political documents in an historical and interdisciplinary context, and extends the discussion into the present day, situating what we know about America as a political nation, Wyoming as a political state, and ourselves as people and citizens within both our founding political documents and the history of interpretations and extensions of those documents.

USP 2003-2014 Code U3V
USP 2015 Code U5V

Prerequisite: participation in UW Honors College.

HP2020 - Honors Colloquium II

Credits: 3
Max Credit 3

Honors Colloquium II is the second course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

USP 2003-2014 Code U3O, U3WB
USP 2015 Code U5C2

Prerequisite: WA. COM I

HP3151 - Modes of Understanding

Credits: 3
Max Credit (Max. 6)

Introduces study of nature and grounds of knowledge, its limits and validity. Examines epistemological basis of selected areas of academic thought. Topics vary from year to year. Required of UW Honors Program students.

Former Course Number [3150]

Prerequisite: COM1, COM2

HP3152 - Modes of Understanding

Credits: 3
Max Credit (Max. 6)

Introduces study of nature and grounds of knowledge, its limits and validity. Examines epistemological basis of selected areas of academic thought. Topics vary from year to year. Required of UW Honors Program students.

Former Course Number [3150]

Prerequisite: COM1, COM2

HP3153 - Modes of Understanding

Credits: 3

Max Credit (Max. 6)

Introduces study of nature and grounds of knowledge, its limits and validity. Examines epistemological basis of selected areas of academic thought. Topics vary from year to year. Required of UW Honors Program students.

Former Course Number [3150]

Prerequisite: COM1, COM2

HP4151 - Honors Seminar

Credits: 3

Max Credit (Max. 6)

Asks students to confront a complex social issue, examine it from several perspectives and take a stance on some aspect of the issue. Topics vary from year to year. Required of UW Honors students.

Former Course Number [4150]

Prerequisite: COM1, COM2

HP4152 - Honors Seminar

Credits: 3

Max Credit (Max. 6)

Asks students to confront a complex social issue, examine it from several perspectives and take a stance on some aspect of the issue. Topics vary from year to year. Required of UW Honors students.

Former Course Number [4150]

Prerequisite: COM1, COM2

HP4153 - Honors Seminar

Credits: 3

Max Credit (Max. 6)

Asks students to confront a complex social issue, examine it from several perspectives and take a stance on some aspect of the issue. Topics vary from year to year. Required of UW Honors students.

Former Course Number [4150]

Prerequisite: COM1, COM2

HP4154 - Honors Seminar

Credits: 3

Asks students to confront a complex social issue, examine it from several perspectives and take a stance on some aspect of the issue. Topics vary from year to year. Required of UW Honors Program students.

USP 2003-2014 Code U3C

Prerequisite: COM1, COM2

HP4975 - Independent Study

Credits: 1-3

Max Credit (Max. 6)

Supervised study and investigation in topics related to students' research.

USP 2003-2014 Code U3WC

HP4976 - Independent Study

Credits: 1-3

Max Credit (Max. 6)

Supervised study and investigation in topics related to student's research.

HP4990 - Topics: __

Credits: 1-3

Max Credit (Max. 6)

Accommodates a senior seminar series or a course offering by visiting faculty whose subject matter is not included in other course offerings.

When Offered (Offered based on sufficient demand and resources)

Hospitality

HOSP2000 - Foundations of Customer Service & Hospitality

Credits: 3

This course examines critical elements of excellent customer service in the hospitality industry.

HOSP3000 - Managing Profitability in Hospitality

Credits: 3

This course examines the complexities of profitability in the hospitality industry, driven by issues of pricing and cost management. Areas explored can include restaurants, hotels, and other hospitality ventures.

Prerequisite: ACCT 2010

HOSP4800 - Hospitality Operations Management

Credits: 3

This course provides a broad-reaching, applications-based understanding of hospitality operations and management. It provides a managerial perspective on the operations of each component of hospitality management and operations, including the financial aspect.

Prerequisite: HOSP 2000

HOSP4900 - Independent Study in Hospitality

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of hospitality not included in other structured Hospitality courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor.

HOSP4910 - Topics in Hospitality

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

Human Medicine

HLED5027 - Emergency Prep and Response

Credits: 3
Max Credit 3

This class provides an overview of emergency management. It teaches students skills that will help them prepare themselves, their families, and their community for natural and human made disasters. The class emphasis will be on active learning via role-playing assignments, communication planning, and personal preparedness plans.

Prerequisite: HLED 3020, OR Senior Standing, OR permission of the instructor

HM6506 - Clinical Preceptorship

Credits: 1
Students spend one morning or afternoon per week for approximately 10 weeks in a clinical setting. Students observe the practice of the physician and engage in one on one feedback sessions with the physician. The goal of the experience is to become comfortable in the clinical setting, observe clinical techniques, observe the patient-doctor interactions, and observe the healthcare team. Students should have an opportunity to discuss professional and personal aspects of a particular specialty practice including the business side of the practice.

Prerequisite: enrollment in or completion of HM 6513, HM 6522, or HM 6535.

HM6510 - Microscopic Anatomy: Histology

Credits: 4
Lecture/laboratory in microscopic anatomy designed to provide principles/concepts of histology, define morphological characteristics of cells, tissues, organs of human body and relate this information to functional processes studied in concurrent and subsequent courses.

Prerequisite: admission to the WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6511 - Anatomy and Embryology

Credits: 6
Structural organization of human body at the macroscopic level to provide a foundation for physical examination and functional assessment of the human organism. Integrates embryological development with study of cadaver and examination of normal living body. Concentrates on exploration of the body cavities and viscera they contain.

Prerequisite: admission to the WWAMI program or consent of instructor and approval of WWAMI coordinator or the dean of the College of Health Sciences.

HM6512 - Mechanisms in Cell Physiology

Credits: 4
Physiology of cell membrane, ionic and electrical gradients; active transport, excitability, action potentials; biophysics of sensory receptors; neuromuscular transmission; muscle energetics/contractility; spinal reflexes and central synaptic

transmission; autonomic nervous system; energy metabolism and temperature regulation; epithelial transport; gastrointestinal motility and secretions.

Prerequisite: admission to the WWAMI program or consent of instructor and approval of WWAMI coordinator or the dean of the College of Health Sciences.

HM6513 - Introduction to Clinical Medicine

Credits: 1

Instruction in communication skills and interview techniques to form the basis for the doctor-patient relationship and for the skills of communication with patients. The patient profile is obtained. Attention to developing comfort in the physician role.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6514 - Biochemistry 1A

Credits: 3

First portion of a coordinated course covering classical molecular and cellular biochemistry, cellular physiology and molecular genetics. Metabolic interrelationships as they occur in the individual are stressed and related to disturbances in disease states.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or the dean of the College of Health Sciences.

HM6516 - Systems of Human Behavior

Credits: 3

Sensitizes students to the impact of such factors as emotional and physical development, cultural backgrounds, social roles, families, sexual identities and belief systems upon their effectiveness as physicians. Teaches skills in analyzing behavior, defining behavioral objectives and designing precise treatment strategies to attain these objectives.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or the dean of the College of Health Sciences.

HM6521 - Microbiology and Infectious Disease 1A

Credits: 4

Pathogenesis and immunity of infectious diseases, natural barriers. Microbiology, epidemiology, clinical manifestations and control of representative bacterial, fungal, parasitic and viral infectious diseases. Chemotherapeutics and principles of chemotherapy. Sterilization, principles of asepsis, nosocomial and iatrogenic infections and their prevention.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or the dean of the College of Health Sciences.

HM6522 - Introduction to Clinical Medicine

Credits: 2

Medical history is introduced and instruction in data collection is begun. Experience in conducting medical interviews with patients to obtain the medical history and patient profile. Special problems related to interviewing are addressed.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6523 - Introduction to Immunology

Credits: 2

Basic concepts such as antigens; antibodies; complement; B- and T-lymphocyte functioning, including interactions with each other and with accessory cells; immunological tolerance; major histocompatibility complex; and role of these basic concepts in immunopathology (immunodeficiencies, hypersensitivities, autoimmunity, blood transfusion, and transplantation).

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6524 - Biochemistry 1B

Credits: 2

Second portion of a coordinated course covering classical molecular and cellular biochemistry, cellular physiology and molecular genetics. Metabolic interrelationships as they occur in the individual are stressed and related to disturbances in disease states.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6531 - Anatomy of Head and Neck

Credits: 4

Gross anatomy (including skull, pharynx and larynx), audition and balance, physiology and clinical evaluation, maxillofacial disorders, diseases of nasal passages, nasopharynx and oropharynx, accessory sinuses. Physical examination.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6532 - Nervous System

Credits: 5

Integrated approach to normal structure and function of the nervous system, including the eye. Neuropathological examples, as well as clinical manifestations of neurological disease are presented.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6534 - Microbiology and Infectious Disease 1B

Credits: 2

Pathogenesis and immunity of infectious diseases, natural barriers. Microbiology, epidemiology, clinical manifestations and control of representative bacterial, fungal, parasitic and viral infectious diseases. Chemotherapeutics and principles of chemotherapy. Sterilization, principles of sepsis, nosocomial and iatrogenic infections and their prevention.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6535 - Introduction to Clinical Medicine

Credits: 3

Adult screening physical examination is taught through the use of lecture, audiovisual aids, and small group tutorial, where students in supervised setting practice the physical examination on one another. Further practice in the performance and recording of the patient profile and medical history.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6553 - Musculoskeletal System

Credits: 5

Gross, surface, applied and X-Ray anatomy of system including entire spine but excluding head and neck. Histology of bone, cartilage, tendonmyotendinal junction and joints. Musculoskeletal trauma and healing. Pathology and clinical manifestations of other degenerative, inflammatory, metabolic, nutritional and congenital disorders. Physical examinations.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or Dean of the College of Health Sciences.

HM6590 - Medical Information for Decision Making

Credits: 1

Evidence Based Medicine (EBM) is now the predominant model by which medicine is practiced. The goal is to forge critical thinking skills and to teach analysis of the medical literature as a tool.

Prerequisite: admission to WWAMI program or consent of instructor and approval of WWAMI coordinator or dean of the College of Health Sciences.

HM6602 - Introductory Primary and Continuity Care Clerkship

Credits: 2

Introduces medical students to continuity of care by working with practicing physicians. The course demonstrates how

to work with an individual to help them achieve optimal health, and includes topics in primary and preventative care, geriatrics, rehabilitation, palliative care, behavioral health and pain management.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6603 - Clinical Studies

Credits: 2

Instruction in communication skills, interviewing techniques, physical examination, documentation and clinical reasoning. The course will include hospital based patient encounters and developing comfort and introduction to the physical role.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6610 - Molecular and Cellular Basis of Disease

Credits: 8

Introduces cell physiology and cell biology, function, genetics, and genetic diseases, genes. Topics include membrane physiology; sensory receptors; muscle energetics and contractibility; autonomic nervous system; tissue response to disease; pharmacodynamics and pharmacokinetics; genetic disorders; pharmacogenetics. Incorporates relevant fundamental principles in anatomy, pathology, and pharmacology.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6615 - Ecology of Health and Medicine Foundations I

Credits: 1

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

HM6620 - Invaders and Defenders

Credits: 7

Systems addressed include the immune system, microbial biology, infectious diseases, inflammation and repair, and skin and connective tissue. Topics discussed include the pathogenesis and immunity of infectious disease, immunodeficiencies, hypersensitivity, autoimmunity, the basis of immunologic diagnostics. Additionally, this course will include relevant fundamental scientific principles in anatomy, pathology, and pharmacology.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6625 - Ecology of Health and Medicine Foundations II

Credits: 1

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6630 - Circulatory System

Credits: 11

Provides an interdisciplinary approach to cardiovascular, respiratory, and renal-urinary medicine, including anatomy, physiology, radiology, pathology, medicine, and surgery. Topics include cardiac electrophysiology and cardiac muscle mechanics, myocardial infarction and cardiac repair, thoracic and pulmonary anatomy, ventilatory mechanics, gas exchange, obstructive, restrictive, and pulmonary-vascular diseases, renal function, and common kidney diseases.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6635 - Ecology of Health and Medicine Foundations III

Credits: 1

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6640 - Blood and Cancer

Credits: 3

Introduces students with the basic pathophysiologic mechanisms leading to disturbances of red cell, white cell, and platelet production, as well as abnormalities of hemostasis presenting clinical problems, with an emphasis on pathophysiology. Additionally, this course will include relevant fundamental scientific principles in anatomy, pathology, and pharmacology.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6645 - Ecology of Health and Medicine Foundations IV

Credits: 1

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Restricted Restricted to WWAMI medical students only.

HM6650 - Energetic and Homeostasis

Credits: 7

Integrates discussions of metabolism, nutrition, obesity, diabetes, gastrointestinal/liver physiology and endocrinology, including physiology and pathology of digestion and hepatic function, principles and practice of clinical nutrition,

endocrine metabolism, and clinically important endocrine pathophysiology. Relevant anatomy, pathology and pharmacology of the endocrine and gastrointestinal systems will be covered.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6660 - Musculoskeletal

Credits: 2
Max Credit 2

Comprehensive introduction and overview of musculoskeletal content for medical students, geared to gain knowledge on clinical manifestations in the musculoskeletal system and pathophysiology of trauma, aging, infection, and inflammation.

HM6700 - Research Methods

Credits: 2
The course will describe various types of medical studies along with the advantages and limitations of each. Students will explore statistical tools related to diagnostic testing, and treatment efficacy.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6710 - Fund. Medical Sci. & Research

Credits: 1
Max Credit 9

Comprehensive introduction to foundational basic science and research concepts in medicine. Topics covered include molecular and cell biology; human physiology, genetics and biochemistry; community health and disease; clinical epidemiology, research study design and data analysis. Incorporates fundamental principles of anatomy, pathology, and pharmacology, and medicine in society.

Restricted Restricted to WWAMI medical students

HM6715 - Foundations of Clinical Med 1

Credits: 1
Max Credit 1

Introduction to continuity of care by working with practicing physicians and coinciding with instruction in communication skills, interviewing techniques, physical examinations, documentation, and clinical reasoning. Includes hospital-based patient encounters with an introduction to the development of the physician role. This is the first of four courses in the sequence.

Restricted Restricted to WWAMI medical students

HM6720 - Infection & Immunity

Credits: 1
Max Credit 7

Comprehensive introduction to the fundamentals of the immune system; microbiology; infectious diseases; inflammation and repair. Topics covered include the pathogenesis and immunity of infectious disease, immunodeficiencies, hypersensitivity, autoimmunity, and the basis of immunologic diagnostics. Integrates relevant principles of anatomy, pathology, and pharmacology and medicine in society.

Restricted Restricted to WWAMI medical students

HM6725 - Foundations of Clinical Med 2

Credits: 2
Max Credit 2

Introduction to continuity of care by working with practicing physicians and coinciding with instruction in communication skills, interviewing techniques, physical examinations, documentation, and clinical reasoning. Includes hospital-based patient encounters with an introduction to the development of the physician role.

Restricted Restricted to WWAMI medical students

HM6730 - Cancer, Hormones & Blood1

Credits: 1
Max Credit 7

Comprehensive introduction to the fundamentals of endocrinology, hematology, and oncology. Topics covered include endocrine regulation of metabolism; normal physiology and pathophysiologic mechanisms responsible for clinically important endocrine disorders; disturbances in red cell, white cell and platelet production; abnormalities of hemostasis; and malignant neoplasia. Integrates relevant principles of anatomy, pathology and pharmacology, and medicine in society.

Restricted Restricted to WWAMI medical students

HM6735 - Foundations of Clinical Med 3

Credits: 3
Max Credit 3

Introduction to continuity of care by working with practicing physicians and coinciding with instruction in communication skills, interviewing techniques, physical examinations, documentation, and clinical reasoning. Includes hospital-based patient encounters with an introduction to the development of the physician role.

Restricted Restricted to WWAMI medical students.

HM6745 - Foundations of Clinical Med 4

Credits: 3
Max Credit 3

Introduction to continuity of care by working with practicing physicians and coinciding with instruction in communication skills, interviewing techniques, physical examinations, documentation, and clinical reasoning. Includes hospital-based patient encounters with an introduction to the development of the physician role.

Restricted Restricted to WWAMI medical students.

HM6750 - Cardiovascular System

Credits: 5
Max Credit 5

Provides an interdisciplinary approach to cardiovascular medicine, including anatomy, physiology, radiology, pathology, medicine, and surgery. Topics include thoracic anatomy, cardiac electrophysiology, cardiac muscle mechanics, myocardial infarction, and cardiac repair.

Restricted Restricted to WWAMI medical students.

HM6755 - Medicine, Health, & Society 1

Credits: 1
Max Credit 1

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Restricted WWAMI medical students only.

HM6760 - Respiration and Regulation

Credits: 6
Max Credit 6

Provides an interdisciplinary approach to respiratory and renal-urinary medicine, including anatomy, physiology, radiology, pathology, medicine, and surgery. Topics include ventilatory mechanics, gas exchange, renal function, and common renal & pulmonary-vascular diseases.

Restricted Restricted to WWAMI medical students.

HM6770 - Head, Neck, & Gut

Credits: 5
Max Credit 5

Integrates discussions of head/neck anatomy, metabolism, and gastrointestinal/liver physiology including physiology

and pathophysiology of digestion and hepatic function. Relevant anatomy, pathology, and pharmacology of the gastrointestinal systems will be covered.

Restricted Restricted to WWAMI medical students.

HM6775 - Medicine, Health, & Society 2

Credits: 3

Max Credit 3

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Restricted WWAMI medical students only.

HM6800 - Mind, Brain, Behavior

Credits: 9

Explains the foundational principles of the organization and function of the head, neck, and central nervous system with a focus on clinical application of this knowledge to systematically approach the differential diagnosis and management of major neurologic, psychiatric, and behavioral disorders. Covers current therapeutic approaches to disease including pharmacological, behavioral, surgical, and other therapies.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6900 - Life Cycles and Reproduction

Credits: 5

Covers normal and abnormal human development reproductive functions including formation and maturation of ova and sperm, menstruation, normal pregnancy, and labor and delivery. Provides information concerning infertility, family planning techniques, urinary disorders, and reproductive aging and demography of human population. Includes relevant fundamental scientific principles in pelvic anatomy, pathology, histology, imaging, and pharmacology.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

PHCY5249 - Clinical Research Regulation

Credits: 2

Max Credit 2

The record of atrocities in human experimentation is reviewed. Federal and state legal requirements for the conduct of human experimentation are examined, with a focus on the Belmont Report and the Common Rule. Legal case studies are utilized as the basis for regulatory compliance strategies.

Restricted Selection of leadership track in BAS program

Information Literacy

LBRY3010 - Research from a Distance

Credits: 1

Students locate, evaluate, and synthesize free and fee-based information resources used in academic and work environments, with a special focus on accessing information remotely. Course assignments are customized to student's academic major and career goals. Students discuss ethical and legal issues surrounding information use.

USP 2003-2014 Code U3L

Prerequisite: ENGL 1010 or equivalent, junior standing.

LBRY3020 - Research as Social Capital

Credits: 3

Prepares students to be critical thinkers and interdisciplinary researchers. Skills and habits of mind taught will enable students to locate, interact with, and present information in a service-learning framework and around the class theme of social capital, preparing them for university-level research and life after graduation.

USP 2003-2014 Code U3L

USP 2015 Code U5C2

Prerequisite: Successful completion of a COM1 course or equivalent.

LBRY5600 - Research Data Management

Credits: 3

A general approach to research data management for graduate students and researchers. Topics include: the case for data management, data management planning, meeting grant requirements, formatting and organizing, storing and transferring, legal and ethical issues, strategies for research teams, sharing data, and publishing, citing, and rights to research data.

Cross Listed ES 5600/GRAD 5600.

Prerequisite: graduate standing.

Information Management

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

IMGT4500 - Business Analytics

Credits: 3

This class prepares students to understand, manage, and visualize data. Students will learn how to apply the appropriate analytic tools, and communicate the findings and their relevance. Topics covered include data wrangling, descriptive analytics, predictive analytics, and prescriptive analytics.

Prerequisite: IMGT 1400, STAT 2050 or equivalent

IMGT4910 - Topics in Info. Management

Credits: 1-6

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

IMGT4990 - Contemporary Topics in Information Management

Credits: 1-3

Max Credit (Max. 6)

Concerned with contemporary topics in information management and serves as elective credits for a minor in information management. A variety of subjects may be considered for this course including corporate information systems, object oriented technology, management of information technology, decision support systems, and data communication and network.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: IMGT 3400 or concurrent enrollment.

International Business

INBU1040 - Introduction to International Business

Credits: 3

A broad survey of the field of international business which introduces basic concepts of international business activity and theory and reviews major foreign environmental forces--financial, economic and socioeconomic, physical, sociocultural, political, legal, labor, competitive and distributive.

Cross Listed INST 1040.

A&S College Core 2015 ASG
Former Course Number [BUSN 2000]

INBU4570 - Global Business Issues

Credits: 1-6
Max Credit (Max. 6)

Designed to give students a broad overview of current issues in international business. Includes classroom instruction and may include travel to a foreign country and visits to major foreign firms. A written assignment is required.

Dual Listed INBU 5570.
Former Course Number [BUSN 4540]

Prerequisite: consent of instructor.

INBU4900 - Independent Study in International Business

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of International Business operations not included in other structured International Business courses.

Former Course Number [BUSN 4900]**Restricted** Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

INBU4910 - Topics in International Business

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Former Course Number [BUSN 4910]**Restricted** Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor.

INBU4920 - International Business: Study Abroad

Credits: 1-6
Max Credit (Max. 6)

Credit for course work related to international business undertaken at foreign institutions. Students are responsible for submitting course materials for evaluation for credit by College of Business faculty prior to enrolling. Students arrange

for the foreign institutions to send performance evaluations to the Peter M & Paula Green Johnson Student Success Center.

Former Course Number [BUSN 4920]

Prerequisite: consent of department head.

INBU5570 - Global Business Issues

Credits: 1-6
Max Credit (Max. 6)

Designed to give students a broad overview of current issues in international business. Includes classroom instruction and may include travel to a foreign country and visits to major foreign firms. A written assignment is required.

Dual Listed INBU 4570.
Former Course Number [BADM 4540; BUSN 5540]

Prerequisite: consent of instructor.

International Studies

INST1040 - Introduction to International Business

Credits: 3
A broad study of the field of international business activity and theory and review major foreign environmental forces

Cross Listed INBU 1040.
Former Course Number [INST 2000]

Prerequisite: ECON 1010.

INST1060 - World Regional Geography

Credits: 3
Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed Cross listed with: GEOG 1000.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

INST1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

INST1200 - Non-Western Political Cultures

Credits: 3
Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed POLS 1200.
USP 2003-2014 Code U3CS, U3G

INST1250 - Introduction to Comparative Government

Credits: 3
How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed POLS 1250.
A&S College Core 2015 ASG

INST1330 - World History since 1750

Credits: 3
A history of the world's peoples and societies from 1750 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

INST2200 - Study Abroad Preparation

Credits: 1
Prepares students for long-term study in a foreign country, by helping them to adapt to and understand the host country's culture, history, geography, political, and economic context. The course provides the practical information necessary for a foreign experience by exploring the principles of culture shock, ethnocentrism, cultural relativism, and the fundamentals of cross-cultural communication.

INST2230 - Introduction to Asian Studies

Credits: 3
Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G

USP 2015 Code U5C2
A&S College Core 2015 ASG

INST2240 - Introduction to African Studies

Credits: 3

Confronts African stereotypes by exploring the continent's complex history and current affairs, with the help of different disciplinary perspectives, such as economics, political science, and anthropology. Equipped with the basics, students will be primed to tackle more advanced courses on Africa.

Cross Listed AAST 2240.
USP 2003-2014 Code U3WB
USP 2015 Code U5C2

INST2250 - Introduction to Latin American Studies

Credits: 3

An introduction to the culture, history and politics of Latin America, from the US/Mexico border to the Antarctic ice fields of Patagonia. We will consider historical events and encounters from pre-Conquest times to contemporary crises. Our toolkit includes geography, anthropology, history, political economy, literature and cultural studies.

USP 2015 Code U5C2

INST2260 - Foreign Locale

Credits: 3-6
Max Credit (Max. 9)

A UW course taught primarily or entirely in a foreign locale.

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.
USP 2015 Code U5C2

INST2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed POLS 2310.

USP 2003-2014 Code U3G
A&S College Core 2015 ASG

INST2350 - Introduction to Global Studies

Credits: 3

Taking an interdisciplinary approach to the study of globalization, the course explores the links between trade, consumption, civil society, social justice, and ecological integrity.

USP 2003-2014 Code U3CS, U3G

INST2990 - Topics in International Studies

Credits: 1-6

Max Credit (Max. 15)

Accommodates seminar series and/or course offerings including those by interdisciplinary teams and visiting faculty in international studies not covered by other courses.

INST3000 - Social Change

Credits: 3

Studies causes, processes and consequences of structural transformations in historical and comparative perspective. Reviews and assesses forces that account for sociological changes. Explores social change globally as well as in the U. S.

Cross Listed SOC 3000.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Former Course Number [2100]

Prerequisite: SOC 1000.

INST3050 - Economic Geography

Credits: 3

Economic geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Cross Listed GEOG 3050.

When Offered (Normally offered fall semester every other year)

Prerequisite: 6 hours of Social Sciences or International Studies.

INST3100 - Chinese Society

Credits: 3

Reviews origins and consequences of Chinese revolution in comparative and cultural perspectives. Discusses influence of historical traditions and social structure on individual lives and behavioral patterns.

Cross Listed SOC 3100.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000.

INST3200 - Comparative Political Cultures

Credits: 3

Histories and experiences of various societies have shaped their values, norms, beliefs, expectations, and attitudes. This class explores how the beliefs, values, and lifestyles of various societies shape peoples' views of their place in the politics of the state and of the state's place in their daily lives.

Cross Listed POLS 3200.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/INST 1250 or permission of instructor.

INST3250 - Global Justice

Credits: 3

Max Credit 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

Cross Listed PHIL 3250

USP 2015 Code U5H

Prerequisite/Corequisite: 3 hours of philosophy or international studies

INST3400 - Politics and Society of Turkey

Credits: 3

Examines the history of Turkey with an emphasis on its relationship with the Western world. Major topics include the Ottoman Empire; Ataturk and the founding of the Republic of Turkey; Turkey's role in the Cold War, Kurdish and other minority populations; the changing Turkish political landscape, the evolution of Islamist politics; and recent relations with the United States and European Union.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: INST 1200/POLS 1200 or POLS 1250 and INST 2310/POLS 2310 or permission of instructor.

INST3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. ,

poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed ANTH 3420.

Prerequisite: ANTH 1200.

INST3860 - World Food, Ag, & Development

Credits: 3

Explores economic approaches to improving nutrition, agriculture production, and the environment in developing regions of the world. Students gain understanding of complex conditions surrounding food security; institutions involved with food policy, aid, and production; environmental factors influencing agricultural production; inequality; and international cultural and societal food disparities.

Cross Listed AGECE 3860.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3G

USP 2015 Code U5H

Prerequisite: AGECE 1010/ECON 1010 or ECON 1020.

INST3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed SOC 3910.

When Offered (Offered once a year).

A&S College Core 2015 ASG

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

INST3933 - African Philosophy

Credits: 3

Examines the work of philosophers of Africa, of African descent and others who deal with the African diaspora. Topics include the nature of African philosophy and the African American struggle, African colonialism, philosophy, political philosophy and gender, traditional African thought.

Cross Listed AAST 3933/PHIL 3933.

USP 2015 Code U5H

A&S College Core 2015 ASG

Restricted Restricted to junior or senior class standing.

Prerequisite: A prior course in AAST, INST or PHIL.

INST4013 - Political Geography

Credits: 3

Geographic space mediates political action and is generated by it, and spatial forms are produced by governmental agencies that must respond or adapt to emerging patterns of political disruption and tendencies of social change. Students in this course learn to think about the relationship between politics and space at multiple scales and in global context. They also develop an inter-disciplinary approach to the sub-discipline of political geography in social and historical context, and, in that sense, develop a capacity to think and act as political geographers.

Prerequisite: 6 hours in social science

INST4050 - Development, Africa, and Culture

Credits: 3

Focuses on the complex and checkered relationships between Western-inspired development and African cultures. Striking a balance among ethnographic case studies, theoretical lenses, and practical implications, understand what Euro-American efforts at foreign development, including contemporary globalization, look like from an African perspective. Provides an understanding of African expectations of development and developers.

Cross Listed AAST 4050.

Dual Listed INST 5050.

Prerequisite: junior standing and instructor consultation.

INST4060 - NGOs, Development, and Culture

Credits: 3

Non-governmental organizations (NGOs) have grown exponentially in number and are often viewed as the new and best vehicle for international development. By focusing on international non-governmental organizations (INGOs), in the contexts of Western aid to post-colonial societies and the role they play in the international aid system, the course explores INGOs from historical, global, and cultural perspectives.

Dual Listed INST 5060.

Prerequisite: junior standing and instructor permission.

INST4100 - Global Public Health

Credits: 3

Introduces students to the global context of public health, to principles underlying global health, and to dimensions of public health particular to international settings. It examines major themes and policies in global health and analyzes health problems and varying responses to them in different parts of the world.

Cross Listed HLSC 4100.

Dual Listed INST 5100.

USP 2003-2014 Code U3G

Prerequisite: upper division student status.

INST4175 - Gender, Women, and Health

Credits: 3

Focuses on issues of gender, women and health, including the effects of gender bias in medical research and health care

practices and policies. Health care issues of specific concern to women, both nationally and internationally will be examined.

Cross Listed GWST 4175.

When Offered (Offered every other year)

USP 2003-2014 Code U3CS, U3G

Prerequisite: upper-division standing, lower division social or psychological science course.

INST4200 - China and Globalization

Credits: 3

The economic reforms in China have been political, cultural, and above all, global processes. Understanding these processes of economic reform tells us much about the role of government, culture, and globalization in the transition from socialism to capitalism, as well as about China's future role in the world.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/INST 1250 or HIST 2041 or SOC 3100.

INST4215 - European Union

Credits: 3

Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed POLS 4215.

Dual Listed INST 5215.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

INST4240 - Global Sex Work and Trafficking

Credits: 3

Drawing upon case studies from Africa, Asia, the Americas and Europe, this course explores the gendered intersections of power and privilege through the lens of sex work, broadly defined as the exchange of intimacy for something of value, and trafficking, defined as coerced forms of sex work.

Cross Listed GWST 4240.

Dual Listed INST 5240.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 3-6 hours of WMST or INST.

INST4250 - East Asia Society and Economy

Credits: 3

Designed to explore key issues to the historical development of Asian countries from both comparative and international political economy perspectives. Distinctive political, social, and economic characteristics of these nations will be analyzed.

Dual Listed INST 5250.
USP 2003-2014 Code U3G

INST4255 - Politics of Developing Nations

Credits: 3

An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed POLS 4255.

Dual Listed INST 5255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200 or POLS 1250 or POLS 2310, or permission of instructor.

INST4260 - Democratization and Regime Change

Credits: 3

Examines the theoretical/empirical research on causes of democratic transition and consolidation, including new waves of democratization and prospects for democratization in other contexts. Focus is given to a variety of theoretical/methodological perspectives such as the structural, strategic, social/cultural, institutional, and economic approaches.

Cross Listed POLS 4260.

Dual Listed INST 5260.

Prerequisite: 9 hours of political science or international studies, including POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

INST4290 - Inter-American Relations

Credits: 3

Surveys inter-American system and idea of hemispheric unity. Analyzes major issues confronting inter-American community.

Cross Listed POLS 4290.

Prerequisite: 9 hours of political science, including POLS 1200/INST 1200, or POLS 1250/INST 1250, or POLS 2310/INST 2310, or permission of instructor.

INST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed HIST 4315.

Dual Listed INST 5315.

Prerequisite: 9 hours of HIST or INST.

INST4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed POLS 4330.

When Offered (Normally offered once a year)

Prerequisite: 9 hours of political science or international studies including POLS 2310.

INST4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed POLS 4340.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

INST4350 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology. Identical to ANTH 4340.

Prerequisite: ANTH 1200.

INST4360 - International Peace and Conflict

Credits: 3

Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed POLS 4360.

Dual Listed INST 5360.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

INST4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed SOC 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 2100.

INST4375 - Transitional Justice

Credits: 3

Mechanisms provide accountability for gross human rights violations and acts of mass atrocity within nations. Case studies are used to examine types of transitional justice interventions; tensions between demands of justice at local, national, and international levels; and transitional justice's role in post-conflict peace-building and reconciliation.

Cross Listed POLS 4375.

Dual Listed INST 5375.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

INST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed HIST 4380.

Dual Listed INST 5380.

Prerequisite: 9 hours of HIST or INST.

INST4385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed POLS 4385.

Dual Listed INST 5385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

INST4445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed POLS 4445

GEOG 4445

LTST 4445

Dual Listed INST 5445

POLS 5445

GEOG 5445

LTST 5445

Prerequisite: 9 hours of international studies or social science coursework

INST4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 4455.

Dual Listed INST 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

INST4475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines the major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed POLS 4475.

GEOG 4475.

Dual Listed INST 5475.

POLS 5475.

GEOG 5475.

Prerequisite: 9 hours of international studies or social science coursework

INST4485 - USLatino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U. S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives responses are stressed.

Cross Listed HIST 4485/LTST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

INST4500 - Landscapes of the Americas

Credits: 3

This course trains students to interpret patterns and processes of contemporary landscapes of the Americas (North, Central, and South America) by viewing those landscapes historically. We investigate the relationship between landscape, politics, and economy, or, more generally, the relationship between landscape as a geographical form and cultural politics in the hemisphere. Students are introduced to research techniques and methodologies in historical geography.

Cross Listed GEOG 4500, GEOG 5500, INST 5500

Restricted Sophomore standing

Prerequisite/Corequisite: 6 credits of international studies or social science coursework

INST4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed MKT 4540.

Prerequisite: MKT 2100 and junior standing.

INST4555 - Political Ecology

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST/POLS 4555/5555 & GEOG 4555

Dual Listed INST/POLS 4555/5555 & GEOG 4555

Prerequisite: 9 hours of international studies or social science coursework.

INST4560 - Global Cities

Credits: 3

Globalization accelerates urbanization processes and creates a new type of city: the global city. This course investigates the debates over global cities, urban culture, new urban landscapes, urban planning practices, and social disparity. Using case studies from around the world, this class explores the diversity of global city formation processes.

Cross Listed GEOG 4560.

Dual Listed Dual listed with INST 5560.

USP 2015 Code U5H

Prerequisite: 9 hours of international studies or geography.

INST4570 - Cultural Geography

Overview in qualitative cultural landscape studies. Emphasizes what a cultural landscape is, how it can be examined, and what can be learned from such landscapes. Readings in cultural geography from a wide array of viewpoints with an emphasis on classic works.

Cross Listed GEOG 4570, INST 4570, INST 5570

Prerequisite: 6 hours in social science

INST4580 - Gender, Global Change, and Development

Credits: 3

Examines the global intersections of gender and public policy through its analysis of five central themes: [1] international development discourse in practice; [2] feminized labor and migration; [3] women's unequal access to resources (including land ownership and education); [4] agricultural production and sustainability; [5] health, reproduction and mothering.

Cross Listed GWST 4580.

Dual Listed INST 5580.

USP 2003-2014 Code U3CS, U3G

Prerequisite: 3-6 hours of WMST or INST courses.

INST4582 - 20th Century US Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed HIST 4582.

Dual Listed INST 5582.

Prerequisite: 9 hours of HIST or INST.

INST4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the 'lens' of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed MKT 4590.

Dual Listed INST 5590.

Prerequisite: advanced business standing.

INST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine

differences and similarities to complicate notions of immigration.

Cross Listed AMST 4650/LTST 4650/GWST 4650.

Dual Listed INST 5650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

INST4705 - Terrorism

Credits: 3

Examines the concept, causes, incidence, types, consequences of, and responses to terrorism. Highlights the distinction between domestic and international terrorism and expands on the latter within the framework of the global environment.

Cross Listed CRMJ 4705 and SOC 4705 and POLS 4705

Prerequisite: 9 hours in CRMJ, INST, POLS, or SOC coursework.

INST4710 - Why Economies Succeed and Fail

Credits: 3

The study of the successes and failures of alternative economic systems; origins, similarities, and differences across capitalist, socialist, and communist systems, including the UW, Chinese, European, Russian, Latin American, and African economies. What does history teach us? Are there different tools to grow economy?

Cross Listed ECON 4710.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3010; QA.

INST4881 - International Social Welfare and Social Development

Credits: 3

Examines the basic framework of social welfare analysis and social development programming in the international arena, employing a multinational comparative analysis approach to explore the wide array of responses to social need across the globe. Students employ multinational comparative analyses to an area of social concern.

Cross Listed SOWK 4881.

Dual Listed INST 5881.

Prerequisite: POLS 1000; ECON 1010 recommended.

INST4950 - Capstone in International Studies

Credits: 3

Integrative course taught by an international studies faculty member. Students analyze a topic in depth from one of a variety of international studies approaches, organizing their research in concert with others in the class. Emphasis is on the quality of research and presentation.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: senior standing in international studies.

INST4970 - Internship in International Studies

Credits: 1-6

Max Credit (Max. 15)

Integrates practical international experience with academic knowledge. Students are expected to participate in specifically assigned tasks and observe broader activities of sponsoring organization, and reflect on experience in written assignments.

Dual Listed INST 5970.

Prerequisite: 9 hours of international studies courses and consent of instructor.

INST4975 - Readings in International Studies

Credits: 1-3

Max Credit (Max. 9)

Outlines special programs of readings in international studies to meet the needs of individual students.

Prerequisite: 9 hours of international studies courses.

INST4990 - Topics:

Credits: 1-6

Max Credit (Max. 15)

Accommodates seminar series and/or course offerings including those by interdisciplinary teams and visiting faculty in international studies not covered by other courses.

Dual Listed INST 5990.

Prerequisite: junior standing and consent of instructor.

INST5013 - Political Geography

Credits: 3

Geographic space mediates political action and is generated by it, and spatial forms are produced by governmental agencies that must respond or adapt to emerging patterns of political disruption and tendencies of social change. Students in this course learn to think about the relationship between politics and space at multiple scales and in global context. They also develop an inter-disciplinary approach to the sub-discipline of political geography in social and historical context, and, in that sense, develop a capacity to think and act as political geographers.

Cross Listed GEOG 4015, GEOG 5013, INST 4013

Restricted Sophomore standing

Prerequisite: 6 hours in social science

INST5050 - Development, Africa, and Culture

Credits: 3

Focuses on the complex and checkered relationships between Western-inspired development and African cultures. Striking a balance among ethnographic case studies, theoretical lenses, and practical implications, understand what Euro-American efforts at foreign development, including contemporary globalization, look like from an African perspective. Provides an understanding of African expectations of development and developers.

Cross Listed AAST 5050.

Dual Listed INST 4050.

Prerequisite: junior standing and instructor consultation.

INST5060 - NGOs, Development, and Culture

Credits: 3

Non-governmental organizations (NGOs) have grown exponentially in number and are often viewed as the new and best vehicle for international development. By focusing on international non-governmental organizations (INGOs), in the contexts of Western aid to post-colonial societies and the role they play in the international aid system, the course explores INGOs from historical, global, and cultural perspectives.

Cross Listed AAST 5060.

Dual Listed INST 4060.

Prerequisite: junior standing and instructor permission.

INST5100 - Global Public Health

Credits: 4

Introduces students to the global context of public health, to principles underlying global health, and to dimensions of public health particular to international settings. It examines major themes and policies in global health and analyzes health problems and varying responses to them in different parts of the world.

Cross Listed HLSC 5100.

Dual Listed INST 4100.

Prerequisite: upper division or graduate standing.

INST5200 - Graduate Proseminar in International Studies

Credits: 3-6

Max Credit (Max. 6)

Introduces students to different interdisciplinary approaches - perspectives, theories, and paradigms - within International Studies in order to explain the economic, historical, social, cultural, and political dimensions of international processes and issues. Students explore emerging trends in the global system and the most pressing challenges facing states, societies, and peoples.

Prerequisite: graduate student status.

INST5210 - Seminar in Human Security

Credits: 3-6
Max Credit (Max. 6)

A broad interdisciplinary approach to the study of human security within the field of international studies and global politics in order to explore the theories and processes that explain past and emerging patterns of behavior in the international system, as well as key aspects of local to global policymaking.

Dual Listed POLS 5210.

INST5215 - European Union

Credits: 3
Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed POLS 5215.

Dual Listed INST 4215.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

INST5220 - Graduate Seminar in Development

Credits: 3
This seminar will explore political challenges facing developing nations in the twenty-first century. The objective is to equip students from a broad range of backgrounds with a firm grounding in current development approaches and debates.

Prerequisite: INST graduate standing.

INST5240 - Global Sex Work and Trafficking

Credits: 3
Drawing upon case studies from Africa, Asia, the Americas and Europe, this course explores the gendered intersections of power and privilege through the lens of sex work, broadly defined as the exchange of intimacy for something of value, and trafficking, defined as coerced forms of sex work.

Cross Listed GWST 5240.

Dual Listed INST 4240.

Prerequisite: 3-6 hours of WMST or INST.

INST5250 - East Asia Society and Economy

Credits: 3

Designed to explore key issues to the historical development of Asian countries from both comparative and international political economy perspectives. Distinctive political, social, and economic characteristics of these nations will be analyzed.

Dual Listed INST 4250.

USP 2003-2014 Code U3G

INST5255 - Politics of Developing Nations

Credits: 3

An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed POLS 5255.

Dual Listed INST 4255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200/INST 1200 or POLS 1250/INST 1250 or POLS 2310/INST 2310, or permission of instructor.

INST5260 - Democratization and Regime Change

Credits: 3

Examines the theoretical/empirical research on causes of democratic transition and consolidation, including new waves of democratization and prospects for democratization in other contexts. Focus is given to a variety of theoretical/methodological perspectives such as the structural, strategic, social/cultural, institutional, and economic approaches.

Cross Listed POLS 5260.

Dual Listed INST 4260.

Prerequisite: 9 hours of political science or international studies, including POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

INST5310 - Seminar in Human Rights

Credits: 3

This seminar will examine rights from interdisciplinary perspectives, with an emphasis on a social science approach.

Prerequisite: graduate standing.

INST5315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed HIST 5315.

Dual Listed INST 4315.

Prerequisite: graduate standing.

INST5330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors along with analysis of policy options.

Cross Listed POLS 5330.

Dual Listed INST 4330.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

INST5360 - International Peace and Conflict

Credits: 3

Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed POLS 5360.

Dual Listed INST 4360.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

INST5375 - Transitional Justice

Credits: 3

Mechanisms provide accountability for gross human rights violations and acts of mass atrocity within nations. Case studies are used to examine types of transitional justice interventions; tensions between demands of justice at local, national, and international levels; and transitional justice's role in post-conflict peace-building and reconciliation.

Cross Listed POLS 5375.

Dual Listed INST 4375.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

INST5380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed HIST 5380.

Dual Listed INST 4380.

Prerequisite: 9 hours of HIST or INST.

INST5385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and

the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed POLS 5385.

Dual Listed INST 4385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

INST5400 - International Social Science Research Methods

Credits: 3

Introduces students to a wide variety of interdisciplinary social science methodologies that have proven especially conducive to international research.

Prerequisite: graduate standing.

INST5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed POLS 5445.

Dual Listed INST 4445.

Prerequisite: graduate standing.

INST5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 5455.

Dual Listed INST 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

INST5475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed POLS 4475 /POLS 5475
INST 4475 /5475

GEOG 4475
Dual Listed POLS 4475/5475

INST 4475/5475

GEOG 4475
Prerequisite: graduate standing.

INST5500 - Landscapes of the Americas

Credits: 3

This course trains students to interpret patterns and processes of contemporary landscapes of the Americas (North, Central, and South America) by viewing those landscapes historically. We investigate the relationship between landscape, politics, and economy, or, more generally, the relationship between landscape as a geographical form and cultural politics in the hemisphere. Students are introduced to research techniques and methodologies in historical geography.

Cross Listed GEOG 4500, GEOG 5500, INST 4500
Restricted Sophomore standing

Prerequisite: 6 credits of international studies or social science coursework

INST5555 - Political Ecology

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST/POLS/GEOG 4555 & POLS 5555
Dual Listed INST/POLS/GEOG 4555 & POLS 5555
Prerequisite: 9 hours of international studies or social science coursework.

INST5560 - Global Cities

Credits: 3

Globalization accelerates urbanization processes and creates a new type of city: the global city. This course investigates the debates over global cities, urban culture, new urban landscapes, urban planning practices, and social disparity. Using case studies from around the world, this class explores the diversity of global city formation processes.

Cross Listed GEOG 5560.
Dual Listed INST 4560.
Prerequisite: 9 hours of international studies or geography.

INST5570 - Cultural Geography

Credits: 3

This course provides an overview of cultural-geographic approaches to cultural landscapes, places, and cultural politics, a foundation in key concepts (landscape, place, and culture), and some training in how to do research as a cultural geographer. Students learn the intellectual history of cultural-geographic concepts and methods, and develop their cultural-geographical perspective through US-based and international examples.

Restricted Sophomore standing

Prerequisite/Corequisite: 6 hours in social science

INST5580 - Gender, Global Change, and Development

Credits: 3

Examines the global intersections of gender and public policy through its analysis of five central themes: [1] international development discourse in practice; [2] feminized labor and migration; [3] women's unequal access to resources (including land ownership and education); [4] agricultural production and sustainability; [5] health, reproduction and mothering.

Cross Listed GWST 5580.

Dual Listed INST 4580.

Prerequisite: 3-6 hours of WMST or INST courses.

INST5582 - 20th Century US Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic racial and gender issues.

Cross Listed HIST 4582/HIST 5582.

Dual Listed 4582

Prerequisite: graduate standing.

INST5590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the 'lens' of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed MKT 5590.

Dual Listed INST 4590.

Prerequisite: advanced business standing.

INST5650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 5650/LTST 5650/GWST 5650.

Dual Listed INST 4650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

INST5881 - International Social Welfare and Social Development

Credits: 3

Examines the basic framework of social welfare analysis and social development programming in the international arena, employing a multinational comparative analysis approach to explore the wide array of responses to social need across the globe. Students employ multinational comparative analyses to an area of social concern.

Cross Listed SOWK 5881.

Dual Listed INST 4881.

Prerequisite: POLS 1000; ECON 1010 recommended.

INST5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

INST5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

INST5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

INST5970 - Internship

Credits: 1-12
Max Credit (Max. 24)

Integrates practical international experience with academic knowledge. Students are expected to participate in specifically assigned tasks and observe broader activities of sponsoring organization, and reflect on experience in written assignments.

Dual Listed INST 4970.

Prerequisite: 9 hours of INST core courses and consent of instructor.

INST5975 - Graduate Readings in International Studies

Credits: 1-3
Max Credit (Max. 12)

Outlines special programs of readings in international studies to meet the needs of individual students.

Prerequisite: graduate standing.

INST5990 - Topics:

Credits: 1-6
Max Credit (Max. 15)

Accommodates seminar series and/or course offerings including those by interdisciplinary teams and visiting faculty in international studies not covered by other courses.

Dual Listed INST 4990.

Prerequisite: junior standing and consent of instructor.

Leadership

LEAD3110 - Foundations for Leadership

Credits: 3
Max Credit 3

Students identify their leadership potential and prepare to lead in a principle-based way. Students examine leadership through a variety of theories and examples, develop their own personal code of conduct and style, and learn to ethically influence others and organizations through application of their style and leadership skills.

LEAD4110 - Leadership in Practice

Credits: 3

The culminating leadership experience of the university's leadership program. Students draw upon their prior learning to lead an experiential project, benefiting a UW stakeholder. Students continue to learn about effective leadership through the lens of practitioner-oriented literature and apply their learning in advanced casework. The instructor acts as a leadership coach who helps students refine their leadership competencies and enhance leadership potential.

Prerequisite: LEAD 3610 , MGT 2030

LEAD4900 - Ind. Study in Leadership

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Leadership not included in other structured Leadership courses.

Restricted Include: Juniors and Seniors, Exclude: Freshman, Sophomores

Prerequisite: Junior class standing and consent of instructor.

LEAD4910 - Topics in Leadership

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors and Seniors, Exclude: Freshman, Sophomores

Prerequisite: Junior class standing and consent of instructor.

Learning, Design, and Technology

ITEC1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

ITEC2360 - Teaching with Technology

Credits: 3
Introduction to effective utilization of computers and other instructional technologies for instruction; software/hardware selection; integrated, professional and instructional applications as applied to all areas and levels of P-12 education.

USP 2003-2014 Code U3L

Prerequisite: minimum 2.500 cumulative UW GPA.

ITEC4010 - Instructional Technology

Credits: 3

An introductory survey course in instructional technology. Covers psychological principles in communication theory, message design and instructional theory with emphasis on the application of technology toward achieving communications objectives. Includes hands-on experience with current presentation tools and techniques for a variety of instructional deliveries.

Dual Listed ITEC 5010.

Former Course Number [4120]

Prerequisite: junior standing.

ITEC4030 - Introduction to Online Teaching

Credits: 3

Includes basic theory, techniques, strategies of teaching and managing the online environment. Covers foundations and domains of online teaching. Emphasizes online learning issues, topics, and practices. Builds a knowledge base in topics such as the selection and integration of distance learning technologies in teaching and providing learner support.

Dual Listed ITEC 5030.

Prerequisite: senior standing or 12 hours of education.

ITEC4220 - Materials Production I

Credits: 2

The first in a series of laboratory experiences aimed at providing teachers, administrators and production specialists with skills in the design and production of instructional materials. Focuses on the basic processes (i. e. mounting, lettering, coloring, illustration, converting and duplicating). A materials fee will be assessed. May be used toward the practical and applied arts requirement.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ITEC 4120.

ITEC4340 - Technology Integration in Teaching

Credits: 3

This course is an intermediate practice in theory and application of integrating instructional technology into all types of classroom settings. Issues and topics include teaching and learning with technology, designing materials and activities for use with various technologies, and the role that technology plays in the delivery of instruction.

Former Course Number [4400]

Prerequisite: ITEC 2360 or equivalent.

ITEC4740 - Field Studies In (TOPIC)

Credits: 1-5

This course is offered only through extension services. It is broad and flexible and can be utilized in numerous situations to meet local needs. Credit in this course is not applicable toward advanced degrees.

A&S College Core 2015 (Please note that any course offered by the College of Education with the number 4740 is not applicable toward advanced degrees)

Prerequisite: junior standing.

ITEC5000 - Intro to the Field of Instructional Technology

Credits: 3

This course details faculty expectations and students' responsibilities in instructional technology graduate degree programs. It builds a knowledge base about program milestones, library research, APA writing guidelines, academic journals, and professional opportunities. ePortfolios are introduced and initiated to assess student progress over time.

Prerequisite: graduate standing in Instructional Technology.

ITEC5010 - Instructional Technology

Credits: 3

An introductory survey course in instructional technology. Covers psychological principles in communication theory, message design and instructional theory with emphasis on the application of technology toward achieving communications objectives. Includes hands-on experience with current presentation tools and techniques for a variety of instructional deliveries.

Dual Listed ITEC 4010.

Prerequisite: junior standing.

ITEC5020 - Technology and Distance Education

Credits: 3

A survey of the uses of telecommunication systems and other technologies in distance education. Covers instructional strategies, management concerns, and special issues associated with distance learning programs.

Prerequisite: graduate standing and consent of instructor.

ITEC5030 - Introduction to Online Teaching

Credits: 3

Includes basic theory, techniques, strategies of teaching and managing the online environment. Covers foundations and domains of online teaching. Emphasizes online learning issues, topics, and practices. Builds a knowledge base in topics such as the selection and integration of distance learning technologies in teaching and providing learner support.

Dual Listed ITEC 4030.

Prerequisite: senior standing or 12 hours of education.

ITEC5070 - Trends In Instructional Technology

Credits: 1-3
Max Credit (Max. 6)

Provides reading, discussion, research and the opportunity to critically appraise potential methods, software, and hardware in the field of educational communications and technology.

Prerequisite: 12 hours of education, graduate standing, and consent of instructor.

ITEC5090 - Masters Capstone

Credits: 3
Provides exposure to situations students will likely encounter professionally. It establishes a forum where students apply and refine theories, principles, and skills learned during their programs. Students examine and critique current scholarship and document general degree specific competencies.

Cross Listed ADED 5090.

Prerequisite: Check with advisor and complete required sequence of courses for Educational Administration (Adult and Postsecondary Education) or Instructional Technology masters degree programs prior to enrollment.

ITEC5120 - Media Workshop

Credits: 1-6
Max Credit (Max. 6)

Specialized experience in selected areas such as computer technology, multi-image, slide/tape, audio and instructional design. Emphasizes experimental use of materials and development of learning software. The workshop is provided on demand and is flexibly organized and scheduled to meet prevailing needs.

Prerequisite: ITEC 4220.

ITEC5160 - Introduction to Instructional Design

Credits: 3
An introduction to theory and practice of instructional design. Intensive study of the instructional design process and application of the process to solve an instructional problem.

Prerequisite: graduate standing.

ITEC5320 - Message Design

Credits: 3
Introduces theoretical framework and skills necessary to evaluate and create visual representations of information. Topics of application include visual literacy, learning theories, instructional design, instructional technology, and information presentation.

Prerequisite: graduate standing.

ITEC5350 - Multimedia Development

Credits: 3

An introduction to techniques, software, and applications used in the design, manipulation, and development of multimedia artifacts for instructional purposes. This course includes accelerated, hands-on activities to practice and apply message design principles in multimedia settings.

Prerequisite: graduate standing.

ITEC5470 - Instructional Video

Credits: 3

An introductory course for teachers, media specialists, administrators, and others interested in planning, producing, and using instructional video.

Prerequisite: graduate standing and consent of instructor.

ITEC5480 - Short Course

Credits: 3

Used to provide offerings in special topics in instructional technology on the basis of need.

Prerequisite: graduate standing and consent of instructor.

ITEC5510 - Communication in Distance Education

Credits: 3

An introduction to the theory and practice of using communication tools for distance education purposes. Instructional issues related to the design, development, use, and evaluation of communication tools in public school, business, and other distance delivery settings are emphasized.

Prerequisite: graduate standing.

ITEC5550 - Theory of Change

Credits: 3

Explores the literature and research base within the theories, models, and processes of change, the diffusion of innovations, and the human side of educational reform. Learners explore practical applications of theoretical and research findings to behavioral change, diffusion of innovations, and principles and practices of planned change.

Prerequisite: graduate standing.

ITEC5560 - Design and Development of Instructional Systems

Credits: 3

Advanced study in instructional systems theory and design. Study and application of instructional design models used in education and training.

Prerequisite: ITEC 5160, graduate standing, and consent of instructor. Previous course work in educational psychology/learning theory is desirable.

ITEC5660 - Interactive Learning Systems

Credits: 1-3

Max Credit (Max. 6)

Covers all of the necessary elements to design and evaluate effective and efficient interactive learning systems.

Prerequisite: ITEC 5160 or equivalent, graduate standing, and consent of instructor. Previous course work in educational psychology/learning theory is desirable.

ITEC5760 - Instructional Design Applications

Credits: 3

Students engage in the application of principles of instructional design in a real-world setting. Students will be involved in classroom and field experience.

Prerequisite: ITEC 5160 or ITEC 5560.

ITEC5870 - Seminar

Credits: 1-3

Max Credit (Max. 6)

Advanced students in education work together, intensively, on current issues and problems relevant to instructional technology, and participate in systematic, critical interpersonal evaluations.

Prerequisite: graduate standing and consent of instructor.

ITEC5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

ITEC5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ITEC5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ITEC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

ITEC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ITEC5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for student whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate degree program.

ITEC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

LDTE5000 - Theoretical Foundations in LDT

Credits: 3

Students investigate how human learning and cognitive organization and process relate to digital learning contexts. The content covers major learning theories and their implications for the instructional process through the educators' and learners' perspective

Restricted Graduate Student Status

LDTE5010 - Elements of Design

This course aims to help students build a knowledge base in elements of Design and Design Thinking as applied to learning, instruction, and technology. The curriculum is designed to cover major theories and concepts of Design, as well as provide practical

Restricted Graduate Student Status

LDTE5020 - Technology & The Mind

Credits: 3

This course is an exploration of technology and its relationship with cognition, learning, collaboration, productivity, and development. The curriculum is designed to help students examine technology as phenomena that facilitate and transform contexts.

Restricted Graduate Student Status

LDTE5100 - Physical Computing

Credits: 3

Students analyze paradigms establishing educational innovations that challenge traditional norms in pedagogy and assessment practices. Content integrates theories and practices of creativity, divergent thinking, disruptive technology and change in the area

Restricted Graduate Student Status

LDTE5110 - Visual Design and Media

Credits: 3

Students build theoretical frameworks and skills necessary to evaluate and create visual representations of information. Curriculum explores applications of visual literacy in various educational contexts. Students apply theoretical knowledge to plan and use visual pedagogy.

Restricted Graduate Student Status

LDTE5120 - Managing Design & Technology

Credits: 3

This course aims to help students develop their applied knowledge and skills in relation to managing existing and emerging technologies for learning, instruction, and design. The curriculum is designed to give students a practical foundation in finding, researching, assessing and selecting educational technologies for use in contexts relevant to their own professional practice.

Restricted Graduate Student Status

Prerequisite: Graduate Student Status

LDTE5200 - Play, Make, Learn

Credits: 3

Students explore how creativity, playing, and making intersect with learning goals. Content includes foundational theory and challenges students to engage in and create learning activities and physical and virtual learning environments. Students apply theory to practice in digital learning and design relevant to their educational contexts.

Restricted Graduate Student Status

LDTE5210 - Learning Experience Design

Credits: 3

This course aims to help students acquire basic and advanced knowledge and skills related to learning experience design. The curriculum is meant to ground students in the theories and practices of designing learning experiences for different types of students and educational contexts.

Restricted Graduate Student Status

Prerequisite: Graduate Student Status

LDTE5220 - Critical Digital Praxis in Ed

Credits: 3

Students explore how creativity, playing, and making intersect with learning goals. Content includes foundational theory and challenges students to engage in and create learning activities and physical and virtual learning environments. Students apply theory to practice in digital learning and design relevant to their educational contexts.

Restricted Graduate Student Status

LDTE5730 - Game Design & Development

Credits: 3

Max Credit 3

Develop a practical foundation in game design with a focus on concept development, design deconstruction, and prototyping. Using game design theory, analysis, physical prototyping, playtesting, and iteration students translate

game ideas into gameplay. Gamification and using game design as pedagogy are explored as intersections of learning and gaming.

LDTE5760 - Instructional Design Applications

Credits: 3

Max Credit 3

Students will engage in the application of instructional design to real-world, team-based projects. Students will be assigned a series of projects, which they will work on in teams to analyze, develop, implement, and evaluate instructional materials.

Restricted Graduate student status

LTED5480 - Iss in ESL and BE

Credits: 3

A doctoral course aimed at providing in-depth theoretical knowledge and analysis of major topics in English as a second language and bilingual education.

Restricted Graduate student status

Japanese

JAPN1010 - First Year Japanese I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered fall semester)

USP 2015 Code U5H

JAPN1020 - First Year Japanese II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: JAPN 1010 or equivalent.

JAPN2030 - Second Year Japanese I

Credits: 4

Encompasses reading, speaking and writing in original Japanese syllabaries, including elementary kanji characters for daily practical application.

When Offered (Offered fall semester)

Prerequisite: JAPN 1020 or equivalent.

JAPN2040 - Second Year Japanese II

Credits: 4

Encompasses reading, speaking and writing in original Japanese syllabaries, including elementary kanji characters for daily practical application.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 1020 and JAPN 2030 or equivalent.

JAPN2070 - Conversational Japanese Abroad

Credits: 4

Japanese language and cultural study in Japan led by UW faculty.

Prerequisite: JAPN 1020.

JAPN3050 - Third Year Japanese I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 2040 or equivalent.

JAPN3060 - Third Year Japanese II

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 2040 and JAPN 3050 or equivalent.

JAPN3990 - Independent Study

Credits: 1-4

Projects in language or literature designed to meet specific student needs or interests, selected in consultation with faculty; independent reading and reports.

Prerequisite: JAPN 2030.

JAPN4070 - Fourth Year Japanese I

Credits: 3

Incorporates intensive grammar review and combination skill development. Also emphasizes specialized lexicons, written and oral translations, conversational fluency and additional kanji characters.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 3060.

JAPN4990 - Advanced Independent Study

Credits: 1-3

Encompasses special projects pertaining to Japanese language or literature to meet needs of individual students designed in consultation with instructor.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 3050 and consent of instructor.

Kinesiology

KIN1006 - Introduction to Kinesiology and Health

Credits: 1

A survey of the disciplines of kinesiology and health and exposure to foundational literature in the field.

Prerequisite: Declared Kinesiology & Health Promotion major or permission of instructor.

KIN1040 - Contemporary Topics in North American Sport

Credits: 3

An introductory course that focuses on sport as an institution in North American society. A range of topics is explored from diverse perspectives (historical, sociological, psychological, political, and gender theories), so learners can critically examine what it means to be a part of "sport" in contemporary North American society.

USP 2003-2014 Code U3CH, U3D

KIN1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

KIN2000 - Movement Core I: Striking/Fielding and Invasion Games

Credits: 2

Exposes students to skill and tactical themes comprising striking/fielding and invasion games. Course aims for students' ability to understand, demonstrate and analyze the different offensive and defensive tactics that facilitate game play success in invasion (soccer, tag rugby, basketball) and striking/fielding (softball, cricket) games.

Former Course Number [PEPR 2000]

Prerequisite: sophomore standing.

KIN2001 - Movement Core II: Net and Target Games

Credits: 2

Exposes students to skill and tactical themes comprising net and target games. Course aims for students' ability to understand, demonstrate and analyze different offensive and defensive tactics facilitating game play success in net (volleyball, tennis, badminton) and target (archery) games.

Former Course Number [KIN 1025, PEPR 1025]

Prerequisite: sophomore standing.

KIN2003 - Move Core IV: Adv. & Otdr. Ed.

Credits: 2

Max Credit 2

Movement Core IV: Adventure and Outdoor Education - To provide prospective pre-service physical education teachers (PTs) with the skills and knowledge necessary to teach adventure and outdoor education curricula to K-12 learners.

Former Course Number [KIN 1000, PEPR 1000]**Restricted** Sophomore standing

Prerequisite: sophomore standing.

KIN2004 - Move Core V: FMS & Ind. Act.

Credits: 3

Max Credit 3

Movement Core V: Fundamental Movement Skills, Gymnastics, Dance, and Swimming - To provide prospective pre-service physical education teachers (PTs) with the skills and knowledge necessary to teach fundamental motor skills, gymnastics, dance, and swimming to K-12 learners.

USP 2003-2014 Code U3CA

Former Course Number [KIN 3025, PEPR 3025]**Restricted** Sophomore standing

KIN2005 - Movement Core VI: Physical Fitness and Physical Activity

Credits: 2

Designed for prospective school-based physical and health education teachers K-12. Focuses on five primary content areas: what is fitness education and why do we need it; development of content-based fitness curriculum; teaching cognitive aspects of fitness education; teaching physical aspects of fitness education; and promoting fitness education.

Former Course Number [KIN 2025, PEPR 2025]

Prerequisite: sophomore standing.

KIN2010 - Field Experience for Prospective Elementary and Secondary Teachers

Credits: 1-4

Provides initial experience in the public school setting. Full-time assignment of one to four weeks in a public school under supervision of a certified teacher. Students serve as teacher aides.

Former Course Number [PEPR 2010]

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

KIN2050 - Socio-Cultural Aspects of Physical Activity, Exercise and Sport

Credits: 3

This course examines the role of physical activity, exercise and sport in the promotion of individual and collective physical health and wellness. Students will understand the historical, individual, socio-cultural, environmental and political factors that have shaped the role of these behaviors in contemporary U. S. society.

USP 2015 Code U5H

Prerequisite: Completion of an FYS course, COM1.

KIN2900 - Topics In:

Credits: 1-3

Max Credit (Max. 3)

Course Topics could include Peer Health Education, Current Issues in Health, etc.

Prerequisite: sophomore standing.

KIN3011 - Teaching Methods in Physical Education K-12

Credits: 3

Develops knowledge, skills and understandings appropriate to successful participation in a class setting when functioning in the teaching role.

Former Course Number [PEPR 3011]

Prerequisite: grade of C or better in KIN 3012; concurrent enrollment in KIN 3015 and KIN 4080.

KIN3012 - Teaching Laboratory I

Credits: 3

Provides the opportunity to develop skills and acquire knowledge needed to teach physical education. Allows the opportunity for students to evaluate the motor status and progress of a preschool aged child, as well as plan and implement a developmentally appropriate motor program.

When Offered (Offered fall semester)

USP 2015 Code U5C2

Former Course Number [PEPR 3012]

Prerequisite: Admitted to PHET program.

KIN3015 - Teaching Laboratory II

Credits: 3

Provides pre-service physical education teacher with skills, knowledge and principles of teaching through application of peer teaching and small group elementary school teaching. Emphasizes and practices program development, lesson planning and development of a physical education teaching unit.

When Offered (Offered spring semester)
USP 2003-2014 Code U3WC
Former Course Number [PEPR 3015]

Prerequisite: grade of C or better in KIN 3012; concurrent enrollment in KIN 3011, KIN 4080.

KIN3020 - Observational Experience in Movement Science

Credits: 1-2
Max Credit (Max. 6)

Provides students with off-campus opportunity to observe professionals in the work place. Emphasis is placed on physical or occupational therapy. Conducted under supervision and arranged by coordinator of undergraduate programs.

Former Course Number [PEPR 3020]

Prerequisite: sophomore standing, declared KIN or PHET major, consent of coordinator of undergraduate programs.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3022 - Lab Exp in Exercise Physiology

Credits: 1

An in-depth examination of the measurement of physiological principles and mechanisms related to human movement. Lab exercises emphasize skills necessary for basic morphological through advanced exercise performance testing variables. Laboratory writing exercises focus on improving students' ability to read and comprehend scientific articles and produce scientific writing based on their own experiments and data.

Prerequisite: KIN 3021 or concurrent enrollment.

KIN3024 - Fundamentals of Health and Fitness Assessment

Credits: 3

Fundamental concepts of health appraisal, assessment of health-related fitness levels, individual and group exercise programming and leadership, and methods of behavioral change. Theory and practical application of fitness presented with an emphasis on adults. Has lecture and lab components. Completion of KIN 3021 highly recommended.

Former Course Number [PEPR 3010]

Prerequisite: completed or concurrent enrollment in KIN 3021; 2.750 GPA.

KIN3034 - Lifespan Motor Development

Credits: 3

Studies lifespan motor development. Emphasizes developmental periods of infancy through adolescence. Gives attention to observation and analysis of motor behavior and movement performance of individuals across lifespan.

Former Course Number [PEPR 3034]

Prerequisite: grade of C or better in PSYC 1000; junior standing; 2.750 GPA.

KIN3037 - Sport Psychology

Credits: 3

Studies psychological theories and techniques applied to sport to enhance the performance and personal growth of athletes and coaches. Emphasizes the influence of personality, anxiety, motivation, social factors, and psychological skills training.

Former Course Number [PEPR 3037]

Prerequisite: Admitted to the last two years of one of the programs in DK&H.

KIN3038 - Exercise Psychology

Credits: 3

Studies psychological theories for understanding and predicting health-oriented exercise behavior, including psychological intentions for increasing exercise participation and adherence. Emphasizes psychological and psychobiological responses to exercise.

Prerequisite: grade of C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; 2.750 GPA.

KIN3040 - Teaching Human Anatomy

Credits: 3

Students develop communication and teaching skills while expanding their knowledge in anatomy. Under faculty instruction, each student develops lecture and laboratory lessons for all human anatomy systems. Under direct faculty supervision, each student demonstrates their teaching skills through preparation of videotape segments and actual

laboratory teaching experience in the lower-division human anatomy course.

Former Course Number [PEPR 3040]

Prerequisite: 2.750 GPA and grade of B or better in KIN 2040 and consent of instructor.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

KIN3044 - Concepts in Physical Therapy

Credits: 2

Introduce and expand student knowledge of physical therapy. Designed for students interested in applying to Physical Therapy (PT) school. Content includes history of PT, therapist role in healthcare, trends in PT education, and effective communication (written and verbal) to support and prepare for the PT application process.

Prerequisite: concurrent enrollment in or completion of KIN 3021 or permission of instructor.

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

KIN3052 - Rehabilitation of Athletic Injuries

Credits: 3

Provides a foundation of appropriate rehabilitation principles and techniques based on current research/rationale. The scope is inclusive of approaches applicable to common sports medicine problems.

Former Course Number [PEPR 3052]

Prerequisite: junior standing; C or better in KIN 2040; and minimum 2.750 GPA.

KIN3058 - Therapeutic Modalities for the Athletic Trainer

Credits: 3

Provides the prospective athletic trainer with the knowledge and skill necessary to use therapeutic modalities for the health care of the physically active.

Former Course Number [PEPR 3058]

Prerequisite: junior standing; C or better in KIN 2040; and minimum 2.750 GPA.

KIN3060 - Understanding Skill Acquisition for Teaching

Credits: 3

Addresses practical questions specific to teaching physical activity

Prerequisite: C or better in PSYC 1000; junior standing; declared major in KHP or PHET; 2.750 GPA; or permission of instructor.

KIN3068 - Athletic Training Clinical III

Credits: 2

Provides clinical and field experience for the athletic training student. Skill and knowledge learned in KIN 2057 and 2058 are applied in the clinical and field settings.

Prerequisite: KIN 2058 and 2078; concurrent enrollment in KIN 3052; minimum GPA of 2.500.

KIN4001 - Short Course in Physical Education for Undergraduates

Credits: 1-6

Former Course Number [PEPR 4001]

Prerequisite: junior status; declared major in KHP or PHET; consent of undergraduate program coordinator.

KIN4010 - Pediatric Exercise Physiology

Credits: 3

This course will examine the physiological effects of acute and chronic exercise on the pregnant woman, fetus, child, and adolescent. This course is also suitable as a supplemental course for master's students in physical education teaching.

Prerequisite: KIN 3021.

KIN4012 - Curriculum Development in Physical Education

Credits: 3

Focuses on the design of K-12 school physical education programs. It provides opportunities to study alternative curriculum models, engage in the process of curriculum design, and examine policy and theoretical issues of concern to curriculum designers.

When Offered (Offered fall semester)

Former Course Number [PEPR 4012]

Prerequisite: grade of C or better in KIN 3011, KIN 3015 and KIN 4080.

KIN4013 - School Administration for the Health Sciences

Credits: 2

Provides teaching majors with information about staff-administrator relationships in school settings. Topics include principles of leadership, school organization and culture, legal issues, financial issues, building and facilities management.

Prerequisite: grade of C or better in KIN 3011, KIN 3015, KIN 4080.

KIN4015 - Internship Experience in Kinesiology

Credits: 1-12

Variable-credit (1-12) and S/U course required of Kinesiology and Health undergraduate majors to provide experiential learning in kinesiology and health in a real world setting. Intended to integrate theory and technique with practical application to expose students to areas of professional/career interest and assist with building professional careers. Must have CPR/ AED/1st Aid Certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed HLED 4015.

Former Course Number [PEPR 4015]

Prerequisite: Grade of C or better in KIN 3024;

KIN4016 - Research Experience in Kinesiology and Health

Credits: 1-6

Max Credit (Max. 6)

Offered to students who wish to gain a research experience in Kinesiology and Health. Meant for students who are interested in pursuing an advanced degree. Students may choose to complete KIN/ HLED 4016 instead of KIN/HLED 4015. Must have CPR/AED/1st Aid certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed HLED 4016.

Prerequisite: minimum sophomore standing; declared KHP major; permission of instructor; 2.750 GPA.

KIN4017 - Teaching Laboratory III

Credits: 3

Focuses on the application of teaching skills and the effective utilization of sport-based curricular and instructional models in the secondary public school setting.

When Offered (Offered fall semester)

Former Course Number [PEPR 4017]

Prerequisite: grade of C or better in KIN 3011, KIN 3015, and KIN 4080; 2.750 minimum cumulative GPA; concurrent enrollment in KIN 4012.

KIN4020 - Motor Behavior

Credits: 3

Provides undergraduate majors in kinesiology and health the foundation of motor learning and control theories to be applied to decisions related to the enhancement of human performance.

Prerequisite: C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; and 2.750 GPA.

KIN4024 - Physical Activity Epidemiology

Credits: 3

This course will examine physical activity from a public health perspective. Topics include study design, critical appraisal of research, assessment of physical activity, relationships between physical activity and health outcomes, and current issues in physical activity epidemiology.

Dual Listed KIN 5024.

Prerequisite: completion of KIN 3021 and minimum 2.750 GPA.

KIN4025 - Functional Movement Analysis

Credits: 3

Synthesize foundational kinesiology knowledge to analyze functional movement patterns and increase theoretical and practical knowledge necessary to obtain Functional Movement Screen certification. Integration of core kinesiology and biomechanics concepts to a human movement model. Opportunities and emphasis on basic fundamental movements and applying acquired skills in practical experiences.

Prerequisite: Completion of KIN 3021 and minimum 2.750 GPA.

KIN4029 - Methods of Training and Conditioning

Credits: 3

Gives students knowledge and experience needed to develop and lead exercise training programs. Of interest to teachers, coaches and fitness leaders.

Former Course Number [PEPR 4029]

Prerequisite: Completion of KIN 3021 and minimum 2.750 GPA.

KIN4042 - Advanced Biomechanics

Credits: 3

Provides understanding of biomechanical theories and the application of biomechanical measurements to human movement in sports, training, and rehabilitation. Emphasis on using equipment to collect biomechanical data to answer research and clinical questions. Lecture and data collection topics include electromyography, force, balance, kinematics, and kinetics.

Prerequisite: C or better in KIN 3042, minimum 2.750 GPA.

KIN4043 - Drugs & Exercise Performance

Credits: 3

Max Credit 3

This class is a comprehensive overview of the drug use and abuse in sports, including physiological action, performance effects, as well as the ethical, political and administrative context. It provides deeper physiological knowledge through the description and understanding of performance enhancing drug mechanism.

Prerequisite: KIN 3021 or instructors Permission

KIN4055 - Adapted Physical Education

Credits: 2

Presents skills necessary to plan, implement and evaluate individualized physical education programs in the least restrictive environment. Acquaints students with current laws, characteristics, assessment instruments and nationally validated programs in physical education for the disabled child.

When Offered (Offered spring semester)

Former Course Number [PEPR 4055]

Prerequisite: KIN 3012.

KIN4056 - Advanced Exercise Testing and Prescription

Credits: 4

Teaches foundational electrocardiography to perform graded exercise stress tests (GXT), performance of GXT's to healthy and diseased populations based on a health appraisal assessment. Knowledge used to develop comprehensive

exercise prescriptions, make metabolic calculations. Emphasis on how physical activity, nutrition/ weight management, and behavioral factors interact with exercise programming. Student must have CPR certification prior to first day of class.

Dual Listed KIN 5056.

Former Course Number [PEPR 4056]

Prerequisite: C or better in KIN 3021 and KIN 3024; and minimum 2.750 GPA.

KIN4062 - Applied Concepts in Human Aging

Credits: 3

Designed to integrate and apply concepts acquired in core KIN and HLED courses (e. g. human physiology, exercise physiology, health promotion, etc.) to older/aging adults. Age-related pathologies will be presented and discussed.

Prerequisite: Completion of KIN 3024 and minimum 2.750 GPA.

KIN4065 - Resources in Adapted Physical Education

Credits: 2-3

Max Credit (Max. 3)

Offers flexible credit for students interested in pursuing intensive study of resources for adapted physical education. Required for state endorsement in Adapted Physical Education.

Former Course Number [PEPR 4065]

Prerequisite: grade of C or better in KIN 4055.

KIN4068 - Athletic Training Clinical V

Credits: 3

Provides clinical and field experience for the athletic training student. Skill and knowledge learned in KIN 3052 and KIN 3058 are applied in the clinical and field settings.

Prerequisite: KIN 3058 and 3078; concurrent enrollment in KIN 4052; minimum GPA of 2.500.

KIN4074 - Field Studies in (TOPIC)

Credits: 1-6

Offered only through distance education. Flexible course to accommodate students completing discipline specific and/or interdisciplinary program field studies experiences, e. g. , athletic performance, health/fitness application, minor in Outdoor Leadership, National Outdoor Leadership School programs.

Cross Listed HLED 4074.

Former Course Number [PEPR 4074]

KIN4075 - Assessment in Adapted Physical Education

Credits: 3

Designed to provide an overview of the assessment process in adapted physical education. Developmentally and disability appropriate psychomotor assessments and procedures for administering them are examined.

Prerequisite: grade of C or better in KIN 4055 and KIN 4080.

KIN4080 - Assessment in Physical Education

Credits: 3

Provides prospective teachers with a thorough knowledge of learner assessment as applied to physical education K-12.

When Offered (Offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Former Course Number [PEPR 4080]

Prerequisite: grade of C or better in KIN 3012.

KIN4086 - Honors Seminar

Credits: 2

Independent study. Consists of in-depth application of experimental techniques and materials to appropriate academic areas which directly support students' majors.

Former Course Number [PEPR 4086]

Prerequisite: Junior standing; ; 3.000 cumulative GPA; declared KHP or PHET major; and participation in UW Honors Program.

KIN4090 - Foundations of Coaching

Credits: 3

Coaches must be effective teachers, trainers, fund-raisers, recruiters, motivators, administrators, and counselors. The major purpose of this course is to provide future coaches with current information about the eight domains of essential coaching skills identified in the NSSC. These domains include philosophy and ethics, safety and injury prevention, physical conditioning, growth and development, teaching and communication, sport skills and tactics, organization and administration, and evaluation.

Dual Listed KIN 5090.

Former Course Number [PEPR 4090]

Prerequisite: sophomore status and 2.500 cumulative GPA.

KIN4097 - Individual Problems

Credits: 1-3

Provides flexible credit for juniors and seniors who wish to undertake intensive study of a special problem in physical education or kinesiology & health.

Former Course Number [PEPR 4097]

Prerequisite: Declared KHP or PHET major; junior standing; and 2.750 GPA.

KIN4099 - Student Teaching in Physical Education

Credits: 1-16

Student teaching is the culminating experience required of all students in teacher education for graduation and recommendation for certification. Consists of full-time assignment of 16 weeks in an approved school station in Wyoming under supervision of an experienced, approved supervising teacher.

Former Course Number [PEPR 4099]

Prerequisite: grade of C or better in KIN 4017.

KIN4900 - Topics in:

Credits: 1-3

Max Credit (Max. 9)

The study of current topics not included in more formal course offerings in kinesiology and health.

Prerequisite: KIN 3021.

KIN5011 - Teacher Socialization in PE

Credits: 3

Max Credit 3

This course provides students with understanding of how physical educators are recruited into, professionally trained, and function in the workplace. Students will have the opportunity to analyze, critique, and evaluate empirical evidence related to socialization in physical education, as well as conduct research on given topics from the socialization literature.

Prerequisite: Graduate standing or permission from instructor

KIN5013 - Spectrum of Teaching Styles

Credits: 3

Explores the range of teaching styles and the appropriateness of their uses.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5014 - Teaching Tactics in Sport-Based Physical Education

Credits: 3

Introduces students to the instructional strategy of the Tactical Games Approach (Mitchell, Oslin, & Griffin, 2006) of teaching sport-based activities in physical education. Emphasis is on planning, implementing, assessing and evaluating the tactical approach within the K-12 physical education context.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5015 - Instructional Models for Physical Education

Credits: 3

This course will introduce students to model-based instruction for physical education (Metzler, 2011). Emphasis will be placed on analyzing, planning, and implementing various instructional models within a K-12 physical education context.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5016 - Analysis and Supervision of Teaching in Physical and Health Education

Credits: 3

Introduces various evaluative and supervisory techniques which are designed to improve teaching effectiveness and student learning. Emphasis will be placed on utilizing various strategies of evaluation in instructional settings.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5018 - Psychology of Teaching Physical Education

Credits: 3

Weaves together theory, research, and practical information related to the psychological aspects of teaching physical education. It shows how you can use psychological principles and strategies to manage behavior, motivate students, achieve program goals, and establish a positive learning environment.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5024 - Physical Activity Epidemiology

Credits: 3

This course will examine physical activity from a public health perspective. Topics include study design, critical

appraisal of research, assessment of physical activity, relationships between physical activity and health outcomes, and current issues in physical activity epidemiology.

Dual Listed KIN 4024.

Prerequisite: KIN 3021, graduate standing in KIN or permission of instructor.

KIN5033 - Understanding of Variability in Humans

Credits: 3

This course is designed to re-conceptualize the variability of human movement. Using dynamical system theory, a new theoretical interpretation to the role of variability in motor behavior will be discussed to offer insights into the nature and role of variability observed at different levels of movement analysis.

Prerequisite: graduate standing with experience of taking undergraduate courses in Motor Behavior, Cognitive Psychology, Sport Psychology, or Coaching.

KIN5034 - Lifespan Growth and Psychomotor Development

Credits: 3

Takes a scholarly approach to the subject of psychomotor development, with particular emphasis on the theoretical and scientific examination of motor behavior as it changes over time. Emphasis is placed on observing movement and analyzing changes in it.

Prerequisite: graduate standing in KIN and C or better in KIN 3034 or permission of instructor.

KIN5035 - Sociology of Sport

Credits: 3

Study of the social aspects of sport and play. Includes concepts, research studies, and theories related to such topics as politics, economics, crowd behavior, religion, sexual identity and gender, and ethical and moral values related to sport.

Prerequisite: graduate standing in KIN and a general sociology course.

KIN5038 - Advances in Research on Sport Expertise

Credits: 3

Examines the science behind the skill acquisition in sport and explores the application of science to optimal training for achieving and retaining elite performance. Different theories will be compared to reveal how "perfection" is made by "practice."

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5039 - Perception and Action in Motor Skills

Credits: 3

For graduate students who have general interest in understanding how the human perceptual system is coping with the

human action system in performing skilled motor tasks. An overview of the existing theories and studies in the field will be provided with sufficient breadth and depth.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5041 - Environmental Physiology

Credits: 3
Max Credit 3

This class is an in-depth study of environmental exercise physiology with special emphasis on how it is displayed in current research. It provides deeper physiological knowledge through the lens of how our physiology changes when confronted with environmental stressors. Students apply course content towards their own line of research.

Prerequisite: Graduate standing or undergraduate with instructor permission

KIN5042 - Professional Skills for Scient

Credits: 3
Max Credit 3

This course is designed to guide graduate students on topics related to collection, presentation, and review of scientific data. Specific focus is placed on proper data collection, the use of computer software to aid in data manipulation, and the creation of well formatted data tables, figures, and presentation slides. Further focus is on professional communication as well as personal marketing for assistance with moving forward in their career track.

Prerequisite: Graduate standing (or undergraduate with instructor permission)

KIN5046 - Applied Biomechanics and Programming

Credits: 3
Understand advanced biomechanical theories and utilize MATLAB programming to perform signal process and calculate 3-dimensional ground reaction force, center of pressure, electromyography, and 2-dimensional and 3-dimensional kinematics and kinetics. Emphasize on computational biomechanics and code writing in MATLAB.

Prerequisite: C or better in KIN 3042; graduate standing in KIN or permission of instructor.

KIN5047 - Biomechanics in Sports

Credits: 3
Understand the biomechanics of selected sports and the procedures to perform biomechanical analysis of sports techniques. Understand the characteristics of different loadings and their effects on human bodies and the biomechanical mechanisms of sports injuries.

Prerequisite: C or better in KIN 3042; graduate standing in KIN or permission of instructor.

KIN5056 - Advanced Exercise Testing and Prescription

Credits: 4

Teaches foundational electrocardiography to perform graded exercise stress tests (GXT), performance of GXT's to healthy and diseased populations based on a health appraisal assessment. Knowledge used to develop comprehensive exercise prescriptions, make metabolic calculations. Emphasis on how physical activity, nutrition/weight management, and behavioral factors interact with exercise programming. Student must have CPR/AED/1st Aid certification prior to first day of class.

Dual Listed KIN 5056.

Prerequisite: C or better in KIN 3021 and KIN 3024; graduate standing in KIN; or permission of instructor.

KIN5062 - Applied Concepts in Human Aging

Credits: 3

Designed to integrate and apply concepts acquired in core KIN and HLED courses (e. g. human physiology, health promotion, etc.) to older/aging adults. Age-related pathologies are presented and discussed.

Dual Listed KIN 4062.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5080 - Investigations in Kinesiology and Health

Credits: 1-3

Max Credit (Max. 3)

Designed to develop Master of Science level graduate students into critical consumers of research. An additional purpose is to develop research skills to the level necessary to complete a master of science Plan B paper.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5086 - Qualitative Research Methods

Credits: 3

This course presents students with an introduction to qualitative research methods, designs, and analysis. This involves: creation of purpose statement and research questions, development of designs, hands-on data collection, data analysis, and writing up qualitative studies. Issues related to trustworthiness, ethics, credibility, and transferability of qualitative research will be addressed.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5090 - Foundations of Coaching

Credits: 3

Coaches must be effective teachers, trainers, fund-raisers, recruiters, motivators, administrators, and counselors. The major purpose of this course is to provide future coaches with current information about the eight domains of essential coaching skills identified in the NSSC. These domains include philosophy and ethics, safety and injury prevention, physical conditioning, growth and development, teaching and communication, sport skills and tactics, organization and administration, and evaluation.

Dual Listed KIN 4090.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5097 - Individual Problems

Credits: 1-3

Max Credit (Max. 6)

Provides flexible credit for students who wish to undertake intensive study of a special problem identified in a regular class.

Cross Listed HLED 5097.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5536 - Sport Psychology

Credits: 3

Examines theoretical, research, and professional issues in contemporary sports psychology. Basic research design, including quasi-experimental design are covered, particularly to discuss the outcome studies or proposed applications such as imagery and hypnosis. Development of applied sport psychology and proposed interventions with sport behavior are viewed in relation to the development of these approaches, related training issues and outcome research. Identical to PSYC 5536.

Prerequisite: B or better in KIN 3037; graduate standing in KIN, or permission of instructor.

KIN5537 - Exercise Psychology

Credits: 3

Focuses on key conceptual issues and research in exercise psychology and the application of research findings in a variety of physical activity settings. Specific content areas include psychological benefits of physical activity, exercise adherence, public health and exercise issues, theory, and determinants of physical activity, interventions for adoption and maintenance, and professional ethics.

Prerequisite: graduate standing in KIN and B or better in KIN 3038 or permission of instructor.

KIN5586 - Seminar

Credits: 1-6
Max Credit (Max. 8)

Graduate students in kinesiology and health work intensively on current issues and problems, and may pursue specific areas of emphasis. Although a total of 8 hours is permitted under this number, only 6 hours are allowed by the Division of Kinesiology and Health toward a student's graduate program.

Cross Listed HLED 5586.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5587 - Special Problems

Credits: 1-6
Max Credit (Max. 9)

Provides a broad perspective through selected reading material and wherever possible the student collects and uses original information in practical school situations. All work is done independently under the direction of a faculty member. As many conferences are held as necessary to assure successful completion of the project.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5588 - K&H Intellectual Seminar

Credits: 0
Max Credit 0

The Division of Kinesiology and Health Intellectual Community Seminar highly values interdisciplinary knowledge and professional development. The seminar is primarily designed to promote these values among graduate students and faculty members.

Prerequisite: Graduate Standing in the Division of Kinesiology & Health

KIN5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy in KIN.

KIN5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy in KIN.

KIN5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

KIN5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing in KIN or permission of instructor.

Land Surveying

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2015 - Engineering Surveying Laboratory

Credits: 1

Field surveying activities consisting of traversing, differential leveling, construction staking and gathering topographic data.

Former Course Number [CE 2073]

Prerequisite: LS 2010 or concurrent.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2110 - Real Property Law

Credits: 3

Covers all major areas of real property law, including the nature of real property, types of ownership, real estate contracts, title and insurance, financing, landlord and tenant, land use, environmental law and regulation. An understanding of real property law is fundamental to understanding boundary law.

Former Course Number [CE 2050]

LS2400 - Basic Geodesy for Today's Land Surveyor

Credits: 2

The history of geodesy including measurement techniques, coordinate systems, ellipsoids, and datums is reviewed. The modern geodetic and Cartesian coordinates systems, as well as the differences between grid and ground coordinates systems, and the current geodetic and Cartesian coordinate systems available today are discussed.

Former Course Number [CE 2089]

Prerequisite: CE 2070 or LS 2010.

LS2410 - GIS in Surveying

Credits: 3

Covers the basic concepts of geographic information systems, the methods and software used to implement them, and their applications to surveying and analysis of other surveying problems.

Former Course Number [CE 2083]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS2499 - Sophomore Land Surveying Topics

Credits: 1-6

Max Credit (Max. 6)

A study of current sophomore land surveying problems that are applicable to land surveying for small group classes.

Prerequisite: Approval of the Land Surveying Program director.

LS3100 - Real Property Descriptions

Credits: 2

Historical and current issues for land description writing and usage for the practicing surveyor. Relationship between written descriptions and field survey data, interpreting old descriptions and the structure principles of description.

Former Course Number [CE 2088]

Prerequisite: CE 2070 or LS 2010, and LS 2100 and LS 2110.

LS3110 - Boundary Evidence

Credits: 2

A practical and working guide to understanding survey evidence and the laws of boundary location for efficient, accurate boundary determination. This material aids in the elimination of errors in location of land boundaries. The surveyor's liability and statutes of limitations are explored in depth. Also included are discussions of the surveyor's role in court. Normally offered only through the Outreach School.

Former Course Number [CE 3750]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3120 - Boundary Principles

Credits: 2

This course in boundary law addresses the fundamental principles of real property as applied to land surveying and related professions. Discussion and applications center on practical situations and concepts commonly encountered while conducting boundary surveys and the determination of the extent of ownership rights. Students explore the scope of the surveyors' judiciary role in real property ownership. Primarily offered through the Outreach School.

Former Course Number [CE 3740]

Prerequisite: CE 2070 or LS 2010, and LS 3100 and LS 2110.

LS3130 - Public Land Surveys

Credits: 3

Basic fundamentals of the Public Land Survey System (PLSS), dependent and independent resurveys, survey plats, "bona fide rights", riparian boundaries, non-rectangular entities, corner evidence and the role of the modern day surveyor.

Former Course Number [CE 2085]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3200 - Route Surveying

Credits: 3

Laying out of super elevation and circular, parabolic, and spiral curves; the difference between highway and railway horizontal curve geometry; offsets to spiral curves as boundaries; area and volumes of earthwork.

Former Course Number [CE 3710, CE 4710]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

LS3230 - Applied Least Squares Adjustments

Credits: 4

The use of applied statistics in land surveying, error propagation in polygon and link traverses, discussion of positional tolerances and an introduction to least squares adjustments using StarNet and VectorNT software.

Former Course Number [CE 3760]

Prerequisite: CE 3720 or LS 3210.

LS3300 - Ethics for the Professional Surveyor

Credits: 1

Introduction to the common ethical and moral issues facing professional surveyors in modern practice.

Former Course Number [CE 2074]

Prerequisite: One of LS 3110 or LS 3120 or LS 3130.

LS3400 - Remote Sensing/Photogrammetry for Surveyors

Credits: 3

Procedures and methods used for deriving metric information from photographs, analog processes for using aerial photographs in production of topographic maps, flight planning, and cost estimation in aerial mapping work.

Introduction to photocoordinate measurement devices and their calibration. Mathematics of modern photogrammetry.

Former Course Number [CE 4750]

Prerequisite: CE 2070 or LS 2010.

LS3500 - Junior Surveying Topics

Credits: 1-6
Max Credit (Max. 6)

A study of current junior landsurveying problems that are applicable to land surveying for small group classes.

Prerequisite: Approval of the Land Surveying Program director.

LS4110 - Coastal Water Boundaries

Credits: 3
The physical and legal issues involved with property rights of lands abutting tidal waters, a review of the Public Land Survey System, the Submerged Lands Act and the Swamp and Overflowed Lands Act. Includes case law research.

Former Course Number [CE 4700]

Prerequisite: LS 3110, LS 3120.

LS4120 - Inland Water Boundaries

Credits: 3
Introduces the physical and legal issues involved in locating property rights associated with lands that abut non-tidal, navigable and non-navigable rivers and lakes. The property rights which attach to, as well as the limitations placed on these riparian parcels will be examined and discussed with respect to statutory, administrative and case law.

Prerequisite: LS 4110.

LS4130 - Advanced Public Land Surveys

Credits: 4
Advanced topics in situations and problems in the Public Land Survey system, with discussion of major court cases involving everyday applications to surveyors. 1975 BLM casebook and other sources of survey reference.

Former Course Number [CE 2086, CE 4740]

Prerequisite: LS 3120 and LS 3130.

LS4500 - Senior Land Surveying Topics

Credits: 1-6
Max Credit (Max. 6)

A study of current senior land surveying problems that are applicable to land surveying for small group classes.

Prerequisite: Approval of the Land Surveying Program director.

Language

LANG1010 - First Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010.

LANG1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

LANG2030 - Third Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010, LANG 1020.

LANG2040 - Fourth Semester in: (TOPIC)

Credits: 3
Max Credit (Max. 12)

Encompasses formal grammar introduction and review; periodic composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5C2

Prerequisite: Satisfactory completion of corresponding study in LANG 2030.

LANG2150 - Manga: History and Culture

Credits: 3
Manga is one of the most important art forms to emerge from Japan. Its importance as a medium of visual culture and storytelling cannot be denied. Through reading and examination of texts, students will understand the relevance of comics in Japanese society.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: COM1.

LANG3105 - Major Themes in Chinese and Japanese Literature

Credits: 3

Explores mindsets of two rich and ancient civilizations, China and Japan. Considers distinctive characters of each civilization, while illuminating basic elements that we share with these peoples.

Prerequisite: ENGL 1010.

LANG3140 - Anime: History and Culture

Credits: 3

An introduction to the history, development, and cultural significance of Japanese animation. Through the examination of a variety of anime genres, students will gain insight into contemporary Japan as well as important historical periods. We will read analyses of particular anime, emphasizing the unique characteristics of the art and the mystery of its popularity in the US.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Prerequisite: completion of WA.

LANG4485 - Latin Diaspora: Comparative History of US

Credits: 3

History of U. S. Latino peoples including Mexican Americans, Puerto Ricans, Cubans, Dominicans, Central Americans, South Americans and Spaniards. Historical context, origins, development of Latin American national, cultural identities, regional characteristics, immigration; nativist responses; assimilation, cultural continuity and change. Similarities, general patterns and differences, Hispanic and Pan Latino identities and probable future trends.

Prerequisite: HIST 2370 or HIST 2380 or LTST 1100.

LANG4785 - Linguistics, Language Teaching and Social Context

Credits: 3

Introduces prospective teachers of English as second language to the basic components of language and to the social aspects of human language use. Explores a variety of concepts about language: how it is used and perceived, how languages change, how diverse cultures respond to such changes.

Cross Listed ENGL 4785.

Prerequisite: WB.

LANG4800 - Advanced Instruction In: (TOPIC)

Credits: 1-3

Max Credit (Max. 12)

Advanced study and projects designed to meet special needs and interests of students, to be selected in consultation with a suitable member of the faculty.

Prerequisite: consent of instructor.

LANG4975 - Independent Study In: (TOPIC)

Credits: 1-3
Max Credit (Max. 12)

Further work in a less commonly taught language, for students who have at least four semesters of study or comparable proficiency.

Prerequisite: LANG 2040 or equivalent.

LANG5300 - Advanced Linguistics

Credits: 3
Data is offered to provide the opportunity to analyze phonological, morphological, and syntactic materials from languages throughout the world. Attention is given to the limits within which these aspects of human language appear to vary.

Prerequisite: ANTH/ENGL/ LANG 4750.

LANG5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Students are expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

LANG5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Latin

LATN1010 - First Year Latin I

Credits: 4

Studies fundamentals of grammar, composition and reading.

When Offered (Offered fall semester)

USP 2015 Code U5H

LATN1020 - First Year Latin II

Credits: 4

Studies fundamentals of grammar, composition and reading.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: LATN 1010 or equivalent.

LATN2030 - Second Year Latin

Credits: 4

Reading simple texts, short stories and dramas, as well as grammar review and conversation.

When Offered (Offered fall semester)

Prerequisite: LATN 1020 or equivalent.

LATN3110 - Vergil, The Aeneid I

Credits: 3

Reading portions of the Aeneid and consideration of its literary interpretation.

Former Course Number [2110]

Prerequisite: LATN 2030 or equivalent.

LATN3120 - Vergil, The Aeneid II

Credits: 3

Reading further portions of the Aeneid and consideration of its literary interpretation.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [2120]

Prerequisite: LATN 3110.

LATN3140 - Caesar

Credits: 2

Acquaints students with war-memoir genre of Latin literature.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3150 - Livy

Credits: 3

Reading portions of Livy's historical works, and consideration of the history he covers and how the Romans viewed their past.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3160 - Ovid

Credits: 2

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3990 - Independent Study

Credits: 1-4

Books or texts of special interest to the student, selected in conjunction with the instructor; independent reading and reports.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4110 - Horace

Credits: 3

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4115 - Latin Philosophers

Credits: 3

An introduction to Latin philosophical traditions. Readings will be selected either from one author, such as Lucretius (ca. 99-55 BCE) or Seneca the Younger (ca. 4 BCE-65 CE), or from different authors about a given theme.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4120 - Catullus and the Elegiac Poets

Credits: 3

Discusses Latin lyric poetry of late Republic and early Empire, excluding works of Horace and Ovid, and elegiac tradition in Latin.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4130 - Cicero

Credits: 3

Introduction to the prose of the statesman Marcus Tullius Cicero (106-43 BCE). Readings will be selected from his political speeches, correspondences, or treatises on philosophical, rhetorical, and religious topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

Latina/o Studies

LTST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed GWST 1030/NAIS 1030/AAST 1030/AMST 1030.

USP 2003-2014 Code U3D, U3I

A&S College Core 2015 ASD

Former Course Number [CHST 1030]

LTST1100 - Introduction to Chicano Studies

Credits: 3

Provides a basic understanding of the historical, social, and cultural context of the Mexican American Chicano people. Examines the major theoretical and conceptual frameworks which explain the Mexican American Chicano experience. Examines the comparative relations with other groups and major social and policy issues. Provides an introduction to the conduct of research in field.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Former Course Number [CHST 1100]

LTST1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY
Former Course Number [CHST 1101]

LTST1300 - Introduction to Latina/o Studies

Credits: 3
The U. S. Latina/o immigrant experience is a particular focus of this course, including its role in the incorporation of Latinos into U. S. society. Through readings, presentations, class discussion, videos, and other activities, students examine historical and contemporary issues affecting Latinos including but not limited to immigration, language, identity, national origin, education, politics, employment, and economic mobility.

USP 2015 Code U5H
A&S College Core 2015 ASD
Former Course Number [CHST 1300]

LTST2060 - Special Topics in:

Credits: 3
Former Course Number [CHST 2060]

LTST2360 - Mexican American Literature

Credits: 3
Discusses literary reflections of Chicanismo. Studies literature of the Hispanic Southwest, Mexican American folklore and the Chicano and post-Chicano movement.

Cross Listed ENGL 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD
Former Course Number [CHST 2360]

Prerequisite: WA.

LTST2370 - Chicano History : Origins to 1900

Credits: 3
General survey that traces the geographic distribution and historical processes that have shaped the life experiences, socio-economic development and cultural contributions of peoples of Mexican descent in the United States from their indigenous and Hispanic origins to the end of the 19th century. Cross list with GEOG 2370/HIST 2370.

USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD
Former Course Number [CHST 2370]

LTST2385 - Chicano History: 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed HIST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 2385]

LTST3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed SPAN 3080.

USP 2015 Code U5H

Former Course Number [CHST 3080]

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

LTST3200 - Perspectives in Chicana Studies

Credits: 3

An interdisciplinary introduction to the study of the history, culture, gender relations, and contemporary political, economic status of Chicanas/Mexican American women. Examines the origins, development of Chicana studies as a major emphasis in Chicano/Chicana studies.

Cross Listed GWST 3200.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 3200]

Prerequisite: LTST 1100 or junior standing.

LTST3560 - Chicano Community Organizations

Credits: 3

Introduction to the origins, development and contemporary status of community organizations and service agencies in the Mexican American community in general and in the Wyoming and Rocky Mountain regions.

Former Course Number [CHST 3560]

Prerequisite: LTST 1100.

LTST3800 - Chicanas/os in Contemporary Society

Credits: 3

Focuses on three major movements within the Chicana/o community; labor, nationalism, and feminism. Students will assess these three movements to determine what role they have played in transforming the social conditions and political identity of the Chicana/o and Latina/o population in the US.

Cross Listed AMST 3800/GWST 3800.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Former Course Number [CHST 3800]

Prerequisite: LTST 1100 or GWST 1080 or AMST 2010.

LTST4100 - U.S. Latina/o Theater

Credits: 3

Designed to provide an overview of United States Latina/o Theater. Through a variety of delivery methods, students are instructed on the various categories that directly impact U. S. Latina/o Theater such as political theatre, gay/lesbian theatre, border issues, race, class, gender, and sexuality.

Cross Listed WMST 4100.

Dual Listed LTST 5100.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [CHST 4100]

Prerequisite: 6 hours of LTST or WMST.

LTST4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed ENGL 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 4470]

Prerequisite: LTST 1100 and WA.

LTST4485 - USLatino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U. S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives responses are stressed.

Cross Listed HIST 4485/INST 4485.

Former Course Number [CHST 4485]

Prerequisite: 9 hours of LTST, HIST, and/ or INST related coursework.

LTST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century, especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U. S. , incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed HIST 4496.

When Offered (Normally offered fall semester)

Former Course Number [CHST 4496]

Prerequisite: 9 hours of HIST or INST.

LTST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 4650/INST 4650/GWST 4650.

Dual Listed LTST 5650.

Former Course Number [CHST 4650]

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

LTST4675 - U.S. Women of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed AAST 4675/GWST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Former Course Number [CHST 4675]

Prerequisite: junior standing and/ or a combination of 3-6 hours of any level of LTST, WMST, or AAST coursework.

LTST4975 - Independent Studies

Credits: 1-3

Max Credit (Max 6)

Independent study in Chicano studies research.

Former Course Number [CHST 4975]

Prerequisite: junior standing.

LTST4990 - Topics in Chicano Studies

Credits: 1-3

Max Credit (Max 6)

A special topics course through which regular and visiting faculty can explore regarding specialized or new research topics regarding Chicano studies.

Former Course Number [CHST 4990]

Prerequisite: junior standing.

LTST5100 - U.S. Latina/o Theater

Credits: 3

Designed to provide an overview of United States Latina/o Theater. Through a variety of delivery methods, students are instructed on the various categories that directly impact U. S. Latina/o Theater such as political theatre, gay/lesbian theatre, border issues, race, class, gender, and sexuality.

Cross Listed WMST 5100.

Dual Listed LTST 4100.

USP 2003-2014 Code [CA,D<>(none)]

Former Course Number [CHST 5100]

Prerequisite: 6 hours of LTST or WMST.

LTST5650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 5650/INST 5650/GWST 5650.

Dual Listed LTST 4650.

Former Course Number [CHST 5650]

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

Law

LAW6110 - Contract I

Credits: 3

Max Credit (Max. 3)

A study of the elements of simple contracts, including offer and acceptance, consideration, conditions, defenses, and damages. The impact of the Uniform Commercial Code on contracts is considered.

LAW6120 - Property I

Credits: 3

Max Credit (Max. 4)

Covers two general areas. The first area is the rights that define property ownership, in relation to neighbors, the world, and others with interests in the property. Subjects include rights to use the land and its products, estates, concurrent ownership, and landlord-tenant law. The second area is private limitations on those rights, in the form of covenants and easements.

LAW6130 - Torts I

Credits: 4

Max Credit (Max. 4)

Study of the methods and policies for allocating risks of harm; intentionally inflicted harms; negligence in its general aspects and its application to products liability, landowners, and automobile traffic; emotional harms; defamation; and fraud. Principal areas of coverage typically include wrongful death, defenses, vicarious liability, strict liability, nuisance, products liability and defamation. If time permits we will also cover privacy, misrepresentation and other topics.

LAW6140 - Criminal Law

Credits: 3

Max Credit (Max. 3)

The sources of criminal law and the purposes of criminal punishment, the constituent parts of criminal conduct, including act (or omission), culpable mental state, result, and causation. These general principles are brought to bear on homicide and sexual assault. Also considers common defenses to criminal charges, including self-defense, necessity, duress, insanity, and intoxication. Students are required to consider the constitutional limits of the criminal law and the relationship of substantive principles to practice.

LAW6150 - Judicial Remedies

Credits: 3

Max Credit (Max. 3)

LAW6160 - Legal Writing I

Credits: 3

Max Credit (Max. 3)

In this course students are introduced to the fundamentals of legal reasoning and analysis and the basics of legal writing.

LAW6165 - Legal Research

Credits: 1

Max Credit (Max. 1)

Introduction to paper and electronic resources that cover primary & secondary legal materials, including case law, statutes, agency regulations for federal and state jurisdictions, & treatises, journals, restatements, and other secondary sources. Discusses research plans and develops brief research strategies for hypothetical situations.

LAW6166 - Interview, Counseling and Negotiation

Credits: 3

Introduction to the basic lawyering skills of interviewing, fact investigation, counseling, and negotiation. Employs simulation exercises, self-critiques, and feedback from the faculty member as well as other students. In addition to the exercises, exposure to the theoretical underpinnings of the skills and examine some of the ethical issues involved in creating and maintaining professional relationships with clients and opposing parties and counsel.

LAW6210 - Contracts II

Credits: 2

Max Credit (Max. 2)

A study of the elements of simple contracts, including offer and acceptance, consideration, conditions, defenses, and damages. The impact of the Uniform Commercial Code on contracts is considered.

LAW6220 - Property II

Credits: 2
Max Credit (Max. 2)

First covers some private and public limitations on owners' property rights, primarily easements and zoning. The rest of the semester deals with acquiring ownership rights, possession and transfers, including the law relating to deeds and titles.

LAW6240 - Civil Procedure I

Credits: 3
Max Credit (Max. 3)

A study of modern practice in civil cases under Rules of Civil Procedure and other sources of procedural law. Civil Procedure I and its continuation, Civil Procedure II, cover all aspects of jurisdiction and other issues bearing on what court(s) may hear a case; choice of state or federal law; pleading; joinder of claims and parties; class actions; discovery and other pre-trial procedures; summary judgment; non-jury and jury trials; appeals; and claim and issue preclusion.

LAW6250 - Constitutional Law I

Credits: 3
Max Credit (Max. 3)

Constitutional Law I is divided into two parts. Part I focuses on governmental structures. Part II begins our coverage of individual rights and liberties. Part I's coverage includes the power of judicial review, separation of powers, federalism, and congressional powers. Part II focuses on equal protection.

LAW6260 - Legal Writing II

Credits: 2
Max Credit (Max. 2)

This course builds on the first semester Legal Writing course by introducing students to: (1) more sophisticated aspects of legal reasoning, analysis and legal research; (2) the basics of persuasive legal writing; (3) the basics of appellate procedure and an appellate brief; and (4) the basics of oral advocacy.

LAW6310 - Business Organizations

Credits: 3
Max Credit (Max. 3)

Studies the law of agency relationships and business associations including partnerships, limited liability companies and corporations. Also considers the protection afforded investors by federal securities law. Listing of the above items is not intended to be all inclusive. Students are invited to consult with the instructor regarding specific information.

LAW6320 - Income Taxation

Credits: 3
Max Credit (Max. 3)

Focuses on the federal taxation of individuals. It includes taxation of compensation, installment sales as well as taxation of gains on property transfers.

LAW6330 - Trusts and Estates

Credits: 3

Max Credit (Max. 3)

A survey course that also serves as an introduction to Estate Planning. Covers the law of wills, trusts, and intestate succession. It also includes execution and revocation of wills; creation, modification, and termination of trusts; problems of construction; restrictions on testate transfers, transfers in trust and future interests. Covers some aspects of fiduciary administration, but not taxation. A prerequisite for Estate Planning.

LAW6340 - Civil Procedure II

Credits: 2

Max Credit (Max. 2)

A study of modern practice in civil cases under Rules of Civil Procedure and other sources of procedural law. Civil Procedure I and its continuation, Civil Procedure II, cover all aspects of jurisdiction and other issues bearing on what court(s) may hear a case; choice of state or federal law; pleading; joinder of claims and parties; class actions; discovery and other pre-trial procedures; summary judgment; non-jury and jury trials; appeals; and claim and issue preclusion.

LAW6350 - Constitutional Law II

Credits: 2

Max Credit (Max. 2)

Focus on constitutionally protected individual rights and liberties. Specifically, the following topics will be covered: substantive due process, including the right of privacy; procedural due process; freedom of expression; and religious freedom.

LAW6410 - Evidence

Credits: 3

Max Credit (Max. 3)

A study of the means by which any alleged fact is established or disproved, including competency of witnesses; direct examination; cross-examination and impeachment; privileges; basic and special issues of relevancy; the hearsay rule and its exceptions; real, demonstrative, and documentary evidence; opinion and scientific evidence; judicial notice; and the responsibility of proof.

LAW6420 - Professional Responsibility

Credits: 3

Max Credit (Max. 3)

A study of the duties of attorneys to their clients and the public under the Model Rules of Professional Conduct and case law.

LAW6510 - Administrative Law

Credits: 3

Max Credit (Max. 3)

A review of administrative law practice and procedure, primarily at the federal level. The course begins with materials on the nature and function of administrative agencies. Agency rulemaking power, emphasizing federal and state Administrative Procedure Act (APA) requirements. Considers the adjudicative powers of administrative agencies, including an agency's obligation to afford persons due process of law. Finally, the course examines judicial review of administrative agency decisions.

LAW6530 - American Legal History

Credits: 3
Max Credit (Max. 3)

A study of the life of John Marshall, Chief Justice of the United States from 1801 until 1835.

LAW6540 - Antitrust

Credits: 3
Max Credit (Max. 3)

The study of the federal laws regulating monopolies and restraints of trade. The substantive provisions of the antitrust laws are relatively brief

LAW6550 - Bankruptcy

Credits: 2
Max Credit (Max. 2)

A survey of the Federal Bankruptcy Act. Includes consideration of liquidation, reorganization, family farmers, debts of individuals, and the relationship of bankruptcy law and proceedings to Article 9 of the Uniform Commercial Code and the law of mortgages.

LAW6555 - Bioethics

Credits: 3
Analyzes the relationship between law and ethics in healthcare. Covers a wide range of contemporary issues such as euthanasia, assisted reproductions, and employee wellness programs. In addition to teaching substantive law, emphasizes critical thinking and provides students an opportunity to practice researching, writing, presenting, and delivering persuasive oral arguments.

LAW6560 - Business Planning

Credits: 3
Max Credit (Max. 3)

Focus is primarily on a problem involving several persons who are organizing a business entity. Consideration will be given to the characteristics of several kinds of business organizations and to making a judgment as to which organization should be used to house the business being set up. Considers tax and non-tax aspects with respect to business organizations.

LAW6565 - Civil Pretrial Practice

Credits: 3
Max Credit (Max. 3)

Includes the civil litigation process from the filing of a complaint and decisions related to the complaint, to discovery including written discovery and depositions, to pre-trial motions such as motions to change venue, to exclude evidence, and for summary judgment, to preparation for pre-trial conferences and trial. Sample cases provide the basis for the drafting of various discovery documents and motions. There will be no exam.

LAW6570 - Payment Systems

Credits: 3
Max Credit (Max. 3)

Focus on the use of negotiable instruments (such as checks, drafts, promissory notes, and certificates of deposit) to document debts and to make payments. Provides an overview of the banking system, the check collection process, and the use of various commercial instruments. Topics include liability for stolen checks, forged signatures, alterations, payment to impostors, insufficient funds, stop payment orders, post-dated checks, and restrictive endorsements. In addition, the rights of good faith purchasers are examined and the use of third parties (such as guarantors, sureties, and accommodation parties) to secure obligations are discussed.

LAW6600 - Consumer Protection

Credits: 3
Max Credit (Max. 3)

Covers three main topics: (1) the law of advertising and marketing; (2) consumer credit regulation; and (3) consumer warranty law.

LAW6615 - Taxation of Business Entities

Credits: 3
Max Credit (Max. 3)

Surveys the federal income tax consequences of major events in the existence of business entities and their owners including formations, contributions, operations, distributions, redemptions, and liquidations. Compares taxation of Subchapter C corporations, Subchapter S corporations, and partnerships. Students spend significant time on statutory interpretation and along the way consider policy issues that affect how the taxation of businesses is structured and enforced under the Internal Revenue Code.

LAW6620 - Bankruptcy Law

Credits: 3
Max Credit (Max. 3)

After briefly surveying state collection laws, considers the impact of federal bankruptcy law on secured and unsecured creditors. The primary focus of the course is on consumer bankruptcy under Chapter 7 (liquidations) and Chapter 13 (reorganizations). Concludes with an introduction to Chapter 11 (business reorganizations).

LAW6630 - Criminal Procedure

Credits: 3
Max Credit (Max. 3)

Examines the constitutional rights of criminal suspects and defendants under the 4th, 5th and 6th Amendments of the United States Constitution. Much of the focus is on law enforcement practices and the constitutional principles that constrain the police.

LAW6635 - Domestic Violence Law

Credits: 3
Max Credit (Max. 3)

Helps prepare students to take part in the Legal Services Program, which has been expanded to include a Domestic Violence Legal Assistance Project.

LAW6640 - Family Law

Credits: 3
Max Credit (Max. 3)

From marriage to divorce, property distribution, child custody and the termination of parental rights, explores the many areas and facets of family law with an eye toward providing students with a firm doctrinal grounding, while preparing them for what they will face as they enter into practice. In the context of this exploration we look closely at many of the cultural issues noted above, and the effects those issues are having not just on the family and the law related to the family, but on society as a whole.

LAW6645 - Children and the Law

Credits: 3
Max Credit (Max. 3)

Covers a range of children's issues, including: dependency; termination of parental rights; adoption, child custody and support; parental rights; and the juvenile justice system. It is suitable for students considering a career in child advocacy, or who have any interest in the subject of juvenile law.

Prerequisite: completion of first year of law school.

LAW6660 - Environmental Law

Credits: 3
Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6665 - Education Law

Credits: 2

Study of law as it applies to public and private education in America, including federal and state regulation of education, constitutional rights of students and teachers, school financing, desegregation and affirmative action, and equal opportunity in education. Introduction to the most important legal issues relating to primary and secondary (K-12) education, and to a lesser extent issues concerning higher education.

LAW6670 - Estate Planning

Credits: 2

Max Credit (Max. 2)

Applies estate and gift tax principles in a survey of estate planning principles and techniques. Traditional estate planning tools including wills, trusts, and durable powers of attorney are discussed as well as post-mortem planning, administration issues, and planning for special situations, such as owners of closely held businesses, entrepreneurs, and the disabled.

LAW6675 - Gift and Estate Taxation

Credits: 2

Max Credit (Max. 2)

Focuses on the federal estate and gift tax consequences of wealth transfers. Students learn to analyze the federal estate and gift tax section of the Internal Revenue Code.

Prerequisite: income taxations, trusts and estates.

LAW6680 - Federal Courts

Credits: 3

Max Credit (Max. 3)

Examines the themes of separation of powers and federalism by scrutinizing the jurisdiction of the federal courts. Covers justiciability doctrines (standing, ripeness, and mootness), congressional power to control federal court jurisdiction, constitutional and statutory parameters of federal question jurisdiction, federal common law, basic contours of litigation under 42 U. S. C. 1983, state sovereign immunity and the Eleventh Amendment, and the various abstention doctrines.

LAW6685 - Health Law

Credits: 3

Introduces students to a wide variety of law governing health care. Study professional licensing and liability, institutional regulation and liability, EMTALA, ERISA, the Affordable Care Act, Medicare, Medicaid, and fraud and abuse laws. Provides a critical first step for students interested in specializing in health law and an overview for any general practitioner.

LAW6700 - Indian Law

Credits: 3
Max Credit (Max. 3)

Surveys the law that applies to Native Americans and tribal governments. Deals primarily with federal law because of the unique relationship between the federal government and tribes, which are sovereign entities, and because federal law controls most Native American activities. The main issues are jurisdictional; that is, they concern the allocation of legislative (or regulatory) and judicial (both civil and criminal) jurisdiction among federal, tribal, and state governments.

LAW6710 - Insurance Law

Credits: 2
Discussion of all types of insurance from the point of view of an attorney advising clients and of a consumer. It is relevant and important for those going into any aspect of the law as insurance is involved in most law from business to litigation to domestic to estate planning. Covers standard insurance policy language, as well as case law and practical ideas for dealing with insurance.

LAW6715 - Immigration Law

Credits: 3
Max Credit (Max. 3)

Practical approach to topics such as the standards for admission of immigrants; nonimmigrant visas for students, workers and tourists; regulation and exclusion of undocumented aliens; legal procedures for admission, exclusion and deportation; refugee law; and citizenship law. Additionally, legislative history and policy behind applicable legislation and case law is discussed.

Prerequisite: completion of the first year of law school.

LAW6720 - International Law

Credits: 3
Max Credit (Max. 3)

Covers international law in its classic sense--public international law, or "the law of nations" as it's referred to in the Constitution. Looks at topics such as the sources and evidence of international law, sovereignty, the relationship of international law to national law, the bases of national jurisdiction, the international use of force, human rights, etc. However, modern public international law also includes areas of more immediate interest to practicing lawyers, such as conflicts between nations over which one has the right to assert jurisdiction over certain activities, international extradition, and immunities from jurisdiction.

LAW6725 - Intellectual Property

Credits: 3
Max Credit (Max. 3)

Introductory overview of principles of intellectual property protection particularly trademark, copyright and patent law. USA law will be integrated into a comparative analysis of International intellectual property law.

LAW6730 - Jurisprudence

Credits: 3
Max Credit (Max. 3)

Examines American legal thought from the nation's inception through today. Discusses issues related to the nature of law, the nature of judicial decision making, the relationship between law and society, and the like.

LAW6735 - Native American Natural Resources Law

Credits: 3
Max Credit (Max. 3)

Examines federal and tribal law, (chiefly statutes, regulations, cases and treaties), governing environmental regulation and management of tribal land water minerals, fish and wildlife, and cultural resources. Explores the federal trust doctrine, aboriginal title, reserved rights, allotment, and the tribes-as-states-doctrine.

LAW6740 - Labor Law

Credits: 3
Max Credit (Max. 3)

Deals with labor law in the private sector. Surveys the establishment of a collective bargaining relationship between employers and unions, the subsequent negotiation of a collective bargaining agreement resulting from that relationship, the administration of that agreement through its grievance-arbitration provisions, and the economic weapons used by parties to various kinds of labor conflicts.

LAW6745 - Employment Law

Credits: 3
Max Credit (Max. 3)

Examines a variety of laws, regulations and legal theories governing the workplace and the employment relationship. In particular we look at the at-will doctrine and its exceptions, rules affecting the establishment of the employment relationship and rules affecting the termination of the employment relationship.

LAW6750 - Law and Economics2

Credits: 2
Max Credit (Max. 2)

The use of microeconomic theory to assess the economic efficiency and equity consequences of alternate legal structures.

LAW6755 - Legislation

Credits: 3
Max Credit (Max. 3)

Examines how statutes are made and applied. Priorities are 1) legislative process in Congress and the state legislatures (especially Wyoming), and; 2) statutory interpretation tools and techniques.

LAW6760 - Local Government Law

Credits: 3
Max Credit (Max. 3)

Examines the organization, powers, responsibilities, liabilities and financing of units of local government, including counties, cities, school districts and other special districts. Interrelationships among local governments, the states and the federal government are studied. Leading judicial decisions as well as state and federal constitutional and statutory provisions will be assigned. Particular emphasis is placed on the law of Wyoming and other western states.

LAW6765 - International Business Transactions

Credits: 3
Max Credit (Max. 3)

Overview of international business transactions involving private entities engaged in global commerce. Examines legal framework associated with planning, implementation, and enforcement of international agreements concerning sale of goods, trade of services, and transfer of technology. Impact of relevant international organizations and emerging substantive international commercial law with social obligations of multinational enterprises.

Prerequisite: completion of first year of law school.

LAW6775 - International Human Rights

Credits: 3
Max Credit (Max. 3)

An examination of norms, institutions and problems relating to international human rights law. Addresses civil and political rights questions (including the expanded use of international criminal law as a means of enforcing universal values), social and economic rights (including access to medicines) and select group rights issues.

Prerequisite: completion of the first year law school curriculum.

LAW6790 - Oil and Gas

Credits: 3
Max Credit (Max. 3)

A study of the law regarding private property interests in oil and gas. Subjects include the acquisition, transfer, lease, and assignment of oil and gas interests; rules and contracts governing the relationships among surface owners, oil and gas lessors, oil and gas lessees, and neighboring owners; and government regulation.

LAW6800 - Public Lands

Credits: 3
Max Credit (Max. 3)

Examines the law governing management of the federal public lands/national parks, national forests, wildlife refuges, BLM lands, etc. Among other laws, we study NEPA, General Mining Law of 1872, Mineral Leasing Act of 1920, National Forest Management Act of 1976, Taylor Grazing Act, Federal Land Policy and Management Act, Endangered Species Act, and Wilderness Act In addition to examining Congress' prescriptions for public land management and the

constraints it has imposed on land managers, the course also explores how the public and politics influence public land policy and decision making.

LAW6810 - Real Estate Finance

Credits: 3
Max Credit (Max. 3)

Begins with some study of the law and practice relating to real estate transactions, deeds, and titles. The rest of the semester covers the law and practice relating to mortgages, foreclosure, and other financing issues in residential and commercial real estate transactions.

LAW6830 - Secured Transactions

Credits: 3
Max Credit (Max. 3)

Financial institutions and other businesses often take an interest in a debtor's personal property (such as goods, equipment, inventory and accounts) to secure payment of a debt or performance of an obligation. Deals with the law governing security interests in personal property which is embodied primarily in Article 9 of the Uniform Commercial Code.

LAW6840 - Securities Regulation

Credits: 3
Max Credit (Max. 3)

Considers the responsibilities and liabilities of a company and various persons involved in the public offering of securities, including the filing of a registration statement, and other disclosure matters. Deals with the definition of the term "security" and possible exemptions for securities offerings. Covers securities fraud under SEC Rule 10b-5 including, inter alia, insider trading. Corporate disclosure requirements in connection with matters such as proxy rules and in other contexts are also considered. Some attention is given to disclosure requirements in connection with mergers and acquisitions, takeovers, and tender offers.

LAW6850 - Trial Practice

Credits: 3
Max Credit (Max. 3)

Trial Practice is a rigorous learn-by-doing course designed to build courtroom skills. Through a combination of exercises, lectures, demonstrations, drills and complete trials, students are prepared to advocate before judges and juries. The first half of the course focuses on basic examination and exhibit skills, including direct, cross, redirect, making and responding to objections, and the introduction and use of real and demonstrative evidence. In the sixth week, students conduct bench trials. The second half of the course builds on the basic skills and covers advanced ones, including examination of expert witnesses, opening statement, closing argument and voir dire. Jury trials are conducted in the final two weeks.

LAW6860 - Water Law and Policy

Credits: 3
Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

LAW6865 - Natural Resources Law

Credits: 3

Max Credit (Max. 3)

Comprehensive view of the general law governing natural and environmental resources. Students will learn to understand how our legal system has organized the various problems of allocation, use rights, duties and limitations, and governance, in the context of establishing rules governing human use of the earth's natural endowment.

Prerequisite: completion of first year of law school.

LAW6875 - Hazardous Waste and Water Pollution Law

Credits: 3

Max Credit (Max. 3)

Examines the Clean Water Act, Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability Act. These highly complex federal statutes, applicable nationwide either directly or via state-implemented programs, regulate pollution of water; govern industrial generation, handling, and cleanup of hazardous substances; and establish liability and enforcement standards.

LAW6880 - Criminal Adjudication

Credits: 3

Max Credit (Max. 3)

A study of the post-investigative phase of the criminal process: from charging decisions through sentencing and appeals. Topics covered include: the decision to prosecute; bail and pretrial release; grand jury and preliminary hearing practice; jury-related issues, such as pretrial publicity, Batson, and deliberative secrecy; criminal discovery; the role and responsibilities of defense counsel and of the prosecutor; defendants' rights to presence, confrontation, and to present a defense case; verdicts; sentencing and appeals.

LAW6885 - Law Office Management

Credits: 1

Max Credit (Max. 1)

This is a "how-to" course which introduces students to the law office as an operating business. This course covers various aspects of establishing and operating a law office, including: attorney timekeeping and client billing; establishing fees rates and fee agreements; revenue projections, record and file management and conflict management systems.

Prerequisite: completion of the first year law school curriculum.

LAW6890 - Land Use Law

Credits: 3
Max Credit (Max. 3)

Deals primarily with public methods of making decisions concerning the use and development of land. Land use decisions range from the issuance of building permits or variances to zoning to long-range planning. Examines tensions between private and public interests (private landowners, community residents, developers, business persons, and city/county officials) over the use of private property, the legal principles that inform the possible resolutions of these tensions and define governmental authority, and the implications of land use regulation for the exercise of other rights, such as free speech.

LAW6910 - Seminar

Credits: 1-2

LAW6915 - Topics in Law

Credits: 1-3
Specific subject matter varies each year and between each section because the course is normally taught by a visiting faculty or by a law faculty member or interdisciplinary team who wish to present a special topic not able to be offered on a regular basis. Students should check class schedules for current offerings each semester.

Prerequisite: completion of first year of law school; consent of instructor required for non-law students.

LAW6920 - Legal Skills and Problems

Credits: 1-2

LAW6925 - Advanced Persuasive Writing

Credits: 3
Max Credit (Max. 3)

Art and science of written legal persuasion. Specifically, course explores the nature of legal persuasion from the standpoints of numerous disciplines, including classical rhetoric, psychology, literary theory, and morality theory, and based on these principles, covers specific strategies lawyers can use to make their writing more persuasive.

Prerequisite: LAW 6160 and LAW 6260, and completion of first year of law school.

LAW6930 - Legal Clinic

Credits: 2-3
Max Credit (Max. 6)

Supervised clinical training in law office and court procedures. Clinical programs available are the Defender Aid Program, Legal Services Program, and the Prosecution Assistance Program.

Prerequisite: Students must have completed first year of law school.

LAW6931 - Clinic: Civil Legal Services

Credits: 3

Max Credit (Max. 12)

The Civil Legal Services Clinic has provided legal assistance to Wyoming citizens for over 20 years. Students represent low-income and marginalized individuals across the state who could not otherwise afford legal representation. The CLSC's mission is to provide legal services in a broad range of general civil legal matters.

LAW6932 - Clinic: Defender Aid

Credits: 3

Max Credit (Max. 12)

Provides representation to indigent persons in Wyoming state and federal courts. We represent clients pending trial, on direct appeal from their convictions, and handle post-conviction matters in state and federal court.

LAW6933 - Clinic: Energy, Environment and Natural Resources

Credits: 3

Max Credit (Max. 12)

Fall: Classroom component of the Clinic will provide a practitioner's view of key aspects of federal court litigation practice in cases involving natural resources issues. Spring: Clinic will provide an overview of the Wyoming Administrative Procedure Act and the Wyoming statutes that govern the regulation of energy production, environmental protection, and natural resources management in Wyoming.

LAW6934 - Clinic: Family and Child Advocacy

Credits: 3

Max Credit (Max. 12)

Handle a wide array of cases including divorce, child custody, domestic violence protection orders, stalking orders, guardian ad litem appointments in juvenile and domestic relations cases, and other family law matters. In addition, law students represent children or their parents in child abuse and neglect cases, termination of parental rights, children in need of supervision and delinquency actions.

LAW6935 - Contract Drafting

Credits: 3

Max Credit (Max. 3)

Covers fact investigation and the role of the lawyer in a transaction proposed by the client, including possible negotiations with other parties; drafting a contract in Plain English; and the ethical obligations of a transactional lawyer, through simulations and problem-solving exercises.

Prerequisite: LAW 6110.

LAW6936 - Clinic: Prosecution Assistance

Credits: 3
Max Credit (Max. 12)

The program is heavily involved with the Wyoming Attorney General's office, usually in representing the state in criminal appeals before the Wyoming Supreme Court. In handling these appeals, students are responsible for the entire preparation of appellate briefs and the presentation of oral argument to the Supreme Court.

LAW6937 - Estate Planning Practicum

Credits: 3
Max Credit (Max. 12)

Provides students the opportunity to work with low-income clients around the State of Wyoming in a transactional law setting. Prepare wills, powers of attorney, advance health care directives, deeds, affidavits of distribution and other probate documents for small estates and will learn how to plan an estate for beneficiaries who are minors or who have special needs.

LAW6940 - Independent Study

Credits: 1-2
Max Credit (Max. 4)

Research and writing in specialized or advanced areas of the law. Students are to contact a professor that has a background or interest in the students' topic area to determine if the professor will supervise the Independent Study. Students receive one credit hour for 50 hours of work or 2 credit hours for 100 hours of work.

LAW6941 - Independent Study: Clinic

Credits: 1-4
Max Credit (Max. 4)

Course is meant to allow students to receive credit for continuing work completed in conjunction with a clinic or live practicum. To qualify for credits a student must have completed at least one semester in a clinic or live practicum.

LAW6945 - Workers Compensation Law

Credits: 3
Max Credit (Max. 3)

Addresses essential aspects of workers' compensation laws including extent of coverage, the various levels and varieties of benefits provided, and how claims are established and enforced. The course will also consider the interaction of state workers' compensation laws with other laws.

LAW6950 - Law Review

Credits: 1-3
Max Credit (Max. 6)

Intensive research, writing, and editing of case note or comment and cite-checking of articles for the Wyoming Law

Review. Law Review membership is required. Credit may be received in the third year only. Maximum six hours in academic career.

LAW6960 - Legal Externships

Credits: 1-3
Max Credit (Max. 6)

The externship program provides second and third year students with an opportunity to learn through practice by working directly with attorneys or judges for academic credit. Externship placements are limited to judges, government agencies and nonprofit organizations, and must be pre-approved by the College of Law faculty.

LAW6970 - Legal Competitions

Credits: 1-3
Max Credit (Max. 3)

LAW6990 - Advanced Topics

Credits: 3
Max Credit (Max. 9)

LAW6991 - Advanced Water Law and Policy

Credits: 3
Research projects within the fields of domestic, international, or comparative water law and policy. Focuses on the elaborate body of laws governing allocation and management of water in and around the Colorado River Basin - i. e. , the "Law of the River. " Explore the Law of the River's historical evolution and current composition as well as cutting-edge policy issues currently facing it. Writing-intensive format satisfies the College of Law's Advanced Writing Requirement.

Prerequisite: C or better in LAW 6860.

LAW6992 - Advanced Oil and Gas Law

Credits: 3
Simulate the work of an oil and gas attorney. Explore oil and gas financing arrangements including the farmout, JOA, and productions sharing agreements, drilling and service agreements, downstream marketing and purchase agreements, conveyances of oil and gas real property interests, the purchase and sale of petroleum properties, oil and gas development on federal lands, and title examination.

Prerequisite: C or better in LAW 6790.

LAW6993 - Advanced Trust and Estates

Credits: 3
Focuses on topics related to the law of trusts, including fiduciary administration, modification, termination, and alienation of trusts; charitable trusts; and issues of trust interpretation and construction. Other topics may be covered as time permits.

Prerequisite: C or better in LAW 6330.

Library Sciences

LIBS2000 - Libraries and Librarianship

Credits: 2

A study of the historical development of the library and its role as a social institution. Types of libraries and services, standards, current trends, professional training, and status and responsibility of the librarian are covered. It is beneficial to all who plan to do library work or who are working toward certification in library-media.

When Offered (Offered based on sufficient demand and resources)

LIBS4360 - Reference and Bibliography

Credits: 3

An introduction to the basic materials used in reference and information services. The philosophy of reference services is presented with particular attention to the needs of schools, community colleges and public libraries.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 20 hours of general education (liberal arts).

LIBS4380 - Cataloging and Classification

Credits: 3

Introduction to the theories and practices of cataloging and classification. Emphasis is on the Dewey Decimal system; subject cataloging from the Sears headings; descriptive cataloging of monographs, serials, and non-print materials; filing rules. Practice in cataloging and classification of materials.

Dual Listed LIBS 5380.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 20 hours of general education (liberal arts).

LIBS4520 - Library Practice

Credits: 2-8

Max Credit (Max. 8)

Provides an overview of library organization, administration and service by capitalizing upon the utilization of practical experiences in dealing with everyday problems of the library. Application of principles learned in the various library courses will be stressed. Students must contact department the semester prior to enrollment for authorization to enroll in the course. This course serves as student teaching experience for students wishing to be endorsed in library science.

Prerequisite: LIBS 4340.

LIBS5320 - Selection of Instructional Materials

Credits: 3

A study of basic principles and practices in the selection of print and non-print materials for utilization in school and public libraries. Emphasis is given to the evaluation of materials in light of community needs and principles of intellectual freedom.

Dual Listed LIBS 4320.

Prerequisite: 20 hours of general education (liberal arts).

LIBS5380 - Cataloging and Classification

Credits: 3

Introduction to the theories and practices of cataloging and classification. Emphasis is on the Dewey Decimal system; subject cataloging from the Sears headings; descriptive cataloging of monographs, serials, and nonprint materials; filing rules. Practice in cataloging and classification of materials.

Dual Listed LIBS 4380.

Prerequisite: 20 hours of general education (liberal arts).

LIBS5440 - Information Technology

Credits: 3

Provides information to help learners efficiently access information electronically. Philosophical, ethical, and management issues as well as technical information on the various mechanisms for electronic access now and in the near future are presented. The analysis of needs combined with knowledge of electronic tools for the purpose of efficiently meeting the information needs of clientele is stressed, as well as knowledge of the appropriate use of electronic products for more specific problems/projects.

Cross Listed ADED 5440.

Prerequisite: graduate standing and/or consent of instructor.

LIBS5520 - Teaching the Use of the Library

Credits: 2

Methods for teaching students basic techniques for effective use of library media center resources. Integration of library media center instruction with the total instructional program is emphasized. Relationship between stages of cognitive and other development and appropriate learning activities.

Prerequisite: LIBS 4320/LIBS 5320 and LIBS 4380/LIBS 5380.

LIBS5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

LIBS5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

LIBS5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: Advanced degree candidacy.

LIBS5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: graduate standing.

LIBS5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

LIBS5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: Graduate standing.

Life Sciences

LIFE1002 - Discovering Science

Credits: 3

Integrates Biology, Chemistry, Physics, and Earth Science and is intended for non-science majors. Fundamental concepts from each discipline are discussed through lectures and in-class activities, and students learn how to understand science and its importance in larger societal issues. There is no laboratory component of this course. Meets the S requirement in USP 2003 and the PN requirement in USP 2015.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Former Course Number [BIOL 1002]

LIFE1003 - Current Issues in Biology

Credits: 4

Emphasizes central themes of biology - cell biology, genetics, evolution, ecology - and scientific methodology by focusing on current issues in biology. Fundamental concepts are addressed through classroom and laboratory activities and discussions. This course is intended for non-science majors. Students cannot receive duplicate credit for LIFE 1010 or LIFE 1020.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1003]

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE1020 - Life Science

Credits: 4

An integrated lab and lecture emphasizing fundamental principles of biology including cell structure and function, genetics, ecology, evolution and organismal biology. Considers applications of these principles to societal issues such as the conservation of biodiversity, overpopulation and global environmental changes, biotechnology, and human wellness and disease. If you take LIFE 1020, you cannot get duplicate credit for LIFE 1000, 1003, or 1010.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Former Course Number [BIOL 1020]

Prerequisite: elementary education majors only; concurrent enrollment in EDEL 1430.

LIFE1101 - Introduction to Ecological Research

Credits: 3

Learn science by doing science! This course-based undergraduate research experience (CURE) will focus on beaver pond ecosystems in Medicine Bow National Forest. Students will engage in outdoor fieldwork in addition to classroom learning. They will carry out hands-on projects and gain experience in ecological sampling, lab work, data analysis, and scientific writing. Students who complete the course are encouraged to continue research and are eligible for summer internships.

USP 2015 Code U5FY

LIFE2021 - General Microbiology

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and MOLB 2021

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).
Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2200 - Research in Action

Credits: 3

In this course, students will collect data while learning/practicing how to write and communicate in the sciences. Upon completion of the class, students will have experienced the process of scientific inquiry, learned key concepts of experimental design, and how to write in the sciences.

LIFE2300 - Scientific Communication

Credits: 3

The course is primarily designed for undergraduate students in STEM (science, technology, engineering, and math) disciplines who are conducting, or intend to conduct, independent research projects. Sharing research findings with the public is an essential, though often overlooked, part of the job of those in STEM fields. We will hone these techniques through a variety of written assignments, practice talks, group discussions and feedback, visits from guest speakers, and a semester-long research project. The overarching goal is for you to be able to deliver an engaging research talk.

USP 2015 Code U5C2

Former Course Number [AS 2100]

Prerequisite: C or better in COM1.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE4975 - Practicum in Laboratory Teaching

Credits: 1-3
Max Credit (Max. 3)

Intended to give undergraduate students experience teaching in a laboratory setting. Working closely with an instructor and a graduate teaching assistant, students will assist in the teaching of biology laboratories during the semester and participate in weekly sessions centered on teaching, learning and assessment.

Former Course Number [BIOL 4975]

Prerequisite: completion of a 1000-level LIFE course and consent of instructor.

LIFE4976 - Practicum in Laboratory Teaching II

Credits: 1-3
Max Credit (Max 3)

Intended to build on the foundations of LIFE 4975. Students work under the dual supervision of the course instructor and the graduate teaching assistant to gain further first hand experience with teaching in life sciences laboratories during this semester.

Former Course Number [BIOL 4976]

Literacy Education

LTED5000 - Theoretical Foundations in LDTE

Credits: 3
Students investigate how human learning and cognitive organization and process relate to digital learning contexts. The content covers major learning theories and their implications for the instructional process through the educators' and learners' perspectives.

Prerequisite: graduate student status

LTED5800 - Theoretical Perspectives on Literary Processes and Practices

Credits: 3
A doctoral seminar aimed at providing students with a broad introduction to theoretical perspectives on literacy processes and practices as well as the functions of theory in literacy research. Features reading and discussion of key works from cognitive, sociocultural, and critical research in literacy.

Prerequisite: graduate student status.

LTED5810 - Theoretical Perspectives on Writing

Credits: 3

A doctoral seminar aimed at providing students with a broad introduction to theoretical perspectives on writing processes and practices as well as the contributions of theory to research on writing processes and practices.

Prerequisite: graduate student status

LTED5830 - Review, Critique, and Synthesis of Literacy Research

Credits: 3

A doctoral seminar focused on a survey and analysis of historical and contemporary research in literacy.

Prerequisite: Graduate standing.

LTED5850 - Foundational Scholars in Social Science Research

Credits: 3

This doctoral course will focus specifically on important works of scholars in disciplines such as sociology, psychology, and other social science disciplines as their work pertains to language, literacy, and learning.

Prerequisite: graduate student status

LTED5860 - History of Literacies

Credits: 3

Explores the nature of history and historical inquiry, the history of literacies from several perspectives, the history of global literacies across time, and the literacy histories of a diverse range of cultural groups. Also examines the history of literacy instruction in the United States.

Prerequisite: Graduate standing.

LTED5870 - Special Topics in Literacy Education

Credits: 1-3

Max Credit (Max 12)

Advance students in literacy education work intensively on current issues and problems and participate in systematic, critical exploration of an identified issue or problem. Topics may include the following: New Literacy Studies, Adolescent, Adult, and Workplace Literacies; Disciplinary Literacy Research. May be repeated with different topics, up to 12 credit hours.

Prerequisite: Permission of instructor and graduate standing.

LTED5880 - Public Digital Scholarship

Credits: 3

A doctoral seminar designed to support students in understanding what it means to be a public digital scholar including the challenges and benefits. Students will be expected to establish and develop an online presence as a public digital scholar.

Prerequisite: graduate student status

Management

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MGT4220 - Talent Acquisition

Credits: 3

In Human Resource Management one core function is recruiting and selecting the best talent to drive organizational success. Students will learn how to analyze jobs and develop recruitment plans to find qualified individuals, how to conduct professional and valid interviews, and how to successfully onboard employees into the organization.

Prerequisite: MGT 3410

MGT4240 - Performance and Compensation

Credits: 3

In Human Resource Management the management of employee performance and compensation are key functions that drive organizational success. This course helps students become familiar with total compensation systems, including intrinsic and extrinsic rewards, base and variable pay, and benefits, and their relationship with employee performance and satisfaction.

Prerequisite: MGT 3410

MGT4260 - Training and Development

Credits: 3

In Human Resource Management training employees in the latest technical and managerial skills and helping them gain developmental experiences helps drive organizational success. Students will learn how to recognize training and developmental needs, how to develop employee training systems, and how to implement these training systems. Additionally, students will learn about career and leader development.

Prerequisite: MGT 3410

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability

regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

MGT4370 - Employment Law

Credits: 3

Provides a comprehensive foundation for understanding the law as it relates to the employer-employee relationship. This course will provide students the legal background necessary to make better decisions both as a worker as well as a manager of other.

Prerequisite: MGT 2010 or equivalent, junior class standing.

MGT4430 - Organization Design and Change

Credits: 3

Examines organizations, what they are, how they operate and are structured and how they can be changed. Focus is on macro managerial issues in the design and change of work organizations.

Prerequisite: MGT 2100, MGT 3410, MGT 3420; advanced business standing, junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective.

Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

MGT4900 - Independent Study in Management

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT5504 - Energy Industry Value Chain

Credits: 3

Examines the overall energy industry with detailed exploration of the major energy subsectors and supply chains.

Students will develop knowledge of the energy industry value chain including coverage of market dynamics, prevalent strategies, finance, operations, externalities and network effects, environmental and ethical considerations, and associated policy issues.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director

MGT5600 - Graduate Internship in Business

Credits: 1-4
Max Credit (Max. 6)

Provides student with practical business knowledge, policy, procedure and decision making. Student works as intern in operating organization.

Prerequisite: 12 hours of graduate preparatory courses; accepted in a graduate program and consent of instructor.

MGT5890 - Advanced Problems in Management

Credits: 1-8
Max Credit (Max. 8)

An arrangement whereby a student is permitted to develop some advanced phase of management not offered in the formally structured courses, or to investigate a management problem. A written report is required.

Prerequisite: 9 hours in management including one 5000-level course, accepted in a graduate program and consent of instructor.

Marketing

MKT1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

MKT2100 - Introduction to Marketing

Credits: 3
An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MKT4230 - Integrated Marketing Communication

Credits: 3
Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship

marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4250 - Digital Marketing

Credits: 3

This is an investigation of the digital marketing discipline with an emphasis on e-commerce models, online advertising, digital consumer behavior, privacy considerations, website structure, search engine optimization and social media marketing.

Prerequisite: MKT 2100

MKT4430 - Marketing Management

Credits: 3

Analysis of policy-making and operating decisions of the marketing manager and the tools available to aid in solving marketing problems.

Prerequisite: MKT 2100, MGT 2100, STAT 2050 or equivalent.

MKT4440 - Services Marketing

Credits: 3

This course is designed for students who may be interested in working in service industries and will address the distinct needs and problems of service firms in the area of marketing.

Prerequisite: HOSP 2000 or MKT 2100 .

MKT4450 - Advanced Marketing Management

Credits: 3

This course is designed to integrate prior marketing classes. Primary focus is on utilizing marketing concepts and tools in a strategic marketing decision-making context.

USP 2015 Code U5C3

Prerequisite: MKT 2100 , MKT 4520, junior class standing.

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

MKT4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed INST 4540.

Prerequisite: MKT 2100 and junior class standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

MKT4900 - Independent Study in Marketing

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Marketing not included in other structured marketing courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT4910 - Topics in Marketing

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT5250 - Behavioral Theory I

Credits: 3

Expose doctoral students to prospective outcomes on consumer behavior that draw from a variety of disciplines, including marketing, psychology, decision theory, sociology, and cultural anthropology. Students also learn about the different methods researchers employ to study consumers.

MKT5280 - Behavioral Theory II

Credits: 3

This seminar provides a sampling of consumer research rooted in psychological theories and frameworks. The historical development of consumer behavior in marketing cognitive and related contributions to marketing though development will be explored.

MKT5350 - Marketing Models

Credits: 3

Familiarizes students with quantitative modeling approaches to address a variety of marketing problems. The focus is on the nature, relevance, and properties of mathematical models and analytical methods that are employed to address various types of marketing decisions. Students must be accepted into the graduate program.

MKT5450 - Marketing Theory I

Credits: 3

The purpose of this class is to provide students with an in-depth understanding of the role and development of theory in marketing and related disciplines. Students must be accepted into the graduate program.

MKT5590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 5590.

Dual Listed MKT 4590.

Prerequisite: advanced business standing.

MKT5890 - Advanced Problems in Marketing

Credits: 1-8

Max Credit (Max. 8)

An arrangement whereby a student is permitted to develop some advanced phase of marketing not offered in formally structured courses, or to investigate a marketing problem. A written report is required.

Prerequisite: 9 hours in marketing including one 5000-level course, written consent of instructor, accepted in a graduate program.

MKT5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 12)

MKT5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 42)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate degree program.

Master of Business Administration

MBAM5101 - MBA Foundations

Credits: 1
The purpose of this course is to prepare students for the academic rigors of the MBA program.

Restricted Enrollment in MBAM or MBAF degree program.

Prerequisite: Admission to full-time MBA program.

MBAM5102 - Operations Management

Credits: 3
Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5103 - Business Research Methods

Credits: 3
An overview of the scientific research process applied in the context of business. Topics include problem definition,

selection of a methodological approach, design and implementation of field work (qualitative and survey methods), analysis techniques (thematic analysis for qualitative research and statistical analysis for survey research, and communicating results.

Prerequisite: Admission to the MBAM program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5106 - Professional Development I

Credits: 0

First course is a sequence of courses focused on professional development. This course will provide "a real world" format where students must express their ideas in every class through verbal presentations, as well as developing written products such as handouts, PowerPoint presentations, white papers and email correspondence.

Prerequisite: Admission to the MBAM program.

MBAM5107 - Decision Making I

Credits: 1

This course develops a systematic process for making decisions in complex business situations, by integrating six dimensions of business risk: competitive, financial, organizational, legal, social, and ethical. The process combines analytical and ethical reasoning methods that compensate for the flawed decision making common in business organizations.

Prerequisite: Admission to the MBAM program.

MBAM5108 - Financial Accounting

Credits: 3

This course provides students with tools to use financial information from the accounting system. The course addresses how financial statement information is used to make business decisions and allows students to learn about how generally accepted accounting principles are applied to and account for and report on business transaction results.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5203 - Entrepreneurial Management

Credits: 3

This course explores and evaluates various intrapreneurial and entrepreneurial opportunities and focuses on lean startup methodologies, use of open innovation techniques, and team productivity. Dynamic business environments characterized by technological diversity and global enterprise will also be considered as students strategically analyze a business opportunity using practical theory application.

Restricted Admission to the MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5206 - Professional Development II

Credits: 0

Second part of a sequence of courses designed to help students advance their professional skills (written, oral, and interpersonal) and achieve success in career planning, career preparation, and career development.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5209 - Decision Making II

Credits: 1

An experiential learning course that builds on MBAM 5107. Students apply systematic business decision making process to real-world business situations. Student teams work directly with owners and managers of Wyoming companies to address their strategic, competitive, operational, financial, and/or administrative challenges in real time.

Prerequisite: MBAM 5107.

MBAM5301 - MBA Summer Project

Credits: 3

Serves as an externship for individual MBA students or MBA teams to work with a client on a business issue under the supervision of a qualified faculty member in the College of Business.

Prerequisite: Completion of the first-year (Fall & Spring semester) on campus MBA courses.

MBAM5303 - International Business

Credits: 3

Focus on the topics of culture, effects of the macroenvironment on business, and regional economic integration, with predominant themes of leadership and sustainability in business.

Prerequisite: Admission to the MBAM program.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MBAM5309 - Managerial Economics

Credits: 3

Discuss a variety of tools and concepts intended to give you the background in economics and decision-making you will need to be an effective manager in a world where economic circumstances are uncertain and changing constantly.

Prerequisite: Admission to the MBAM program.

MBAM5311 - MBA Managerial Economics II

Credits: 1

Continue discussion of a variety of tools and concepts intended to give you the background in economics and decision-making you will need to be an effective manager in a world where economic circumstances are uncertain and changing constantly.

Prerequisite: Admission to the MBAM program, completion of MBAM 5309.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

MBAM5401 - Investment Management and Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Prerequisite: Admission to the MBA Program or permission of the MBA Program Director or the MBA Program Coordinator.

MBAM5402 - Corporate Finance and Governance

Credits: 3

Designed to provide a framework to analyze issues in corporate finance and governance. The firm is viewed as a nexus of contracts designed to reduce the costs of trade - and corporate finance is regarded as an investigation of the incomplete contracts that involve the providers of capital.

Prerequisite: Admission to the MBA Program or permission of the MBA Program Director or the MBA Program Coordinator.

MBAM5403 - Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 5400.

Prerequisite: Admission to the MBA Program or permission of the MBA Program Director or the MBA Program Coordinator.

MBAM5404 - Seminar on Management Fraud

Credits: 3

An in-depth study and analysis of the causes, methods, and consequences of financial statements fraud committed by top management in the organization. The course covers psychological and criminological theories of management fraud, as well as detailed analysis of high-profile managements frauds. Seminar format.

Cross Listed ACCT 5066.

Prerequisite: Permission of the MBA Program Director of the MBA Program Coordinator.

MBAM5501 - Energy Economics and Policy

Credits: 3

Applies the tools of economic analysis to attain and understanding of energy markets and energy policy analysis. Sec. 1 Overviews the major energy and environmental policy issues facing the United States and the world. Sec 2 Determinants of energy demand. Sec. 3 Technologies and costs to produce and deliver energy. Sec. 4 Determinants of energy price.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5503 - Fundamentals of Accounting in the Energy Industry

Credits: 3

Introduces students to basic financial accounting and reporting issues related to energy producing activities. Specifically, the course will investigate current accounting practices of energy producing companies related to exploration, acquisition, development, and delivery of energy products. The course will also cover financial requirements of the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and the Securities and Exchange Commission (SEC).

Cross Listed ACCT 5503.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5506 - Energy Finance: Securities, Hedging, and Trading

Credits: 3

Overview of security analysis applied to energy firms, hedging strategies, and trading activities in energy markets. Trading activities covered include the use of forward and futures contracts, swaps, options, and related derivatives.

Prerequisite: Permission of MBA Program Director.

MBAM5507 - Energy Business Strategy (Capstone)

Credits: 3

Improving an organization's competitiveness in changing global energy environments. Includes an overview of the geopolitics of global energy, and the risks involved. Emphasizes skill-development for formulating and implementing business-level, corporate, and global strategies in dynamic environments.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5508 - Marketing and Sustainable Consumption

Credits: 3

Focuses on understanding household and business energy consumption. Emphasizes the environmental, economic, social and psychological influences on consumer decision making and sustainable consumption. Course deals with developing customer value propositions, and for marketing strategy development in branding, product-line offerings, pricing, retailing and distribution, and public policy.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5800 - MBA Topics

Credits: 1-3

A course for MBA students treating contemporary problems in business related areas. Specific area(s) to be considered in a given semester will be printed in class schedule.

Prerequisite: Admission to the MBAM program.

Mathematics

MATH1000 - Problem Solving

Credits: 3

For students not planning to enroll in MATH 1400, MATH 1450 or a calculus course. Examines modern topics chosen for their applicability and accessibility. Provides students with mathematical and logical skills needed to formulate, analyze and interpret quantitative arguments in a variety of settings. Introduces statistics and stresses the use of a calculator.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

A&S College Core 2015 Note: MATH 1000 is neither a prerequisite nor suitable preparation for MATH 1400 (College Algebra).

Prerequisite: grade of C or better in Math 0921 or Level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600 or concurrent enrollment in MATH 1080.

MATH1080 - Bridge Program Math

Credits: 3

This class is to assist students in refreshing their skills in Mathematics, from the fundamentals of arithmetic through college level algebra and trigonometry. If time and preparation allow, basic calculus concepts will be discussed. This class is largely self-paced, but with intrusive faculty support.

MATH1100 - Number and Operations for Elementary School Teachers

Credits: 3

For prospective elementary school teachers; purpose is to prepare students to be competent in teaching the major concepts and skills related to the real number system and four arithmetic operations. Includes asking and answering critical questions about subsets of the real number system, including natural, integer, and rational numbers.

USP 2003-2014 Code U3QA

Prerequisite: grade of C or better in MATH 0921 or Level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600.

MATH1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

MATH1105 - Data, Probability, and Algebra for Elementary School Teachers

Credits: 3

Continuation of MATH 1100 for prospective elementary teachers; emphasis is on asking and answering critical questions about our world through algebra, probability, and data analysis to prepare students to be competent in teaching these major concepts. Explorations focus on representing, analyzing, and generalizing patterns and the chances of future events.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1100.

MATH1123 - Math, Music and Acoustics

Credits: 3

For music majors and minors not planning to enroll in MATH 1400, MATH 1450 or a calculus course. Serves as an introduction to the mathematics and physics underlying music and develops quantitative reasoning in a musical context. Topics include the wave nature of sound, intervals, scales, temperament, acoustics and psychoacoustics.

USP 2015 Code U5Q

Restricted

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Prerequisite: grade of C or better in MATH 0921 or Level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600 and grade of C or better in MUSC 1030.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators

are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2120 - Geometry and Measurement for Elementary School Teachers

Credits: 3

Continuation of MATH 1105 for prospective elementary teachers; emphasis is on asking and answering critical questions about spatial reasoning as evident in the real world. Includes investigations of two- and three-dimensional shapes and their properties, measurements, constructions, and transformations to prepare students to be competent in teaching these concepts.

Prerequisite: grade of C or better in MATH 1105.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

MATH2355 - Mathematical Applications for Business

Credits: 4

Primarily for students in the College of Business. Includes the mathematics of finance; systems of linear equations and matrices; linear programming; sets, counting, and probability. Students will learn to use Excel spreadsheets to solve business application problems in a computer lab that meets one day per week.

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

MATH2850 - Putnam Team Seminar

Credits: 2

Max Credit (Max. 8)

Preparation for the William Lowell Putnam Mathematical Competition. Problem solving strategies and mathematical content appropriate for the Putnam Exam are emphasized with problem sets taken from previous Putnam or other international math contests.

When Offered (Offered fall semester)

Former Course Number [3800]

Prerequisite: MATH 2200, MATH 2205.

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

MATH3310 - Appl Diff Equations II

Credits: 3

Continues MATH 2310. Includes partial differential equations, Fourier series, boundary value problems, series solutions of ordinary differential equations, linear algebra, linear systems of equations and numerical methods.

Prerequisite: Prerequisites: grade of C or better in MATH 2210 and 2310.

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

MATH3341 - Introduction to Scientific Computing Lab

Credits: 1

The objective of this lab is to expose students to the basic syntax and tools in MATLAB so that they succeed in writing correct computer code for the solution of scientific computing problems. Topics include: MATLAB syntax, variable types, code structure, function types, algorithm structure and design.

Prerequisite: Concurrent or previous enrollment in MATH 3340.

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general. Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

MATH3700 - Combinatorics

Credits: 3

Provides an introduction to combinatorics and combinatorial algorithms, with applications to areas such as computer science and probability. Topics include general counting methods, recurrence relations, generating functions, inclusion-exclusion, partial orders, and graph theory.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2250.

MATH4000 - History of Mathematics

Credits: 3

Explores the roots of mathematics and the people who made significant contributions to it. Mathematical subjects typically include algebra, calculus and number theory; both chronological and topical approaches are employed.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2205.

MATH4100 - Mathematics in the Elementary School

Credits: 1-6

Acquaints prospective or experienced teachers of mathematics with newer developments in mathematics curriculum

and materials. Emphasizes mathematical basis for courses in an elementary mathematics curriculum; organization and design of mathematics programs for grades K-7; and design and construction of curriculum and/or materials to meet specific needs of the teacher or school district.

Prerequisite: grade of C or better in MATH 1105 and consent of instructor.

MATH4150 - Secondary School on Campus

Credits: 1-4

Provides prospective teachers opportunity to study mathematics as it relates to the secondary school. Topics may vary from semester to semester. Emphasizes current trends and concerns of secondary school mathematics education.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2205 and concurrent with EDSE 4271.

MATH4200 - Analysis 2: Advanced Analysis

Credits: 3

A second course in analysis. Includes metric space topology, sequences and series of functions, and analysis in \mathbb{R}^n .

When Offered (Offered fall semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 2210, MATH 2250 and MATH 3205.

MATH4205 - Analysis 3: Undergraduate Topics in Analysis

Credits: 3

Special topics in analysis. Content varies. May be repeated for credit.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 4200.

MATH4230 - Introduction to Complex Analysis

Credits: 3

Develops the theory of functions of one complex variable. Topics include the algebra and geometry of complex numbers, functions of one complex variable, elementary functions, limits, continuity and differentiation. Differentiability leads to the Cauchy theorem, integral theorems, power series, residue theory and applications to integration theory and boundary value problems.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2210.

MATH4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed STAT 4255.

Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

MATH4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed STAT 4265.

Former Course Number [4260, 4010]

Prerequisite: MATH 4255.

MATH4300 - Introduction to Mathematical Modeling

Credits: 3

A model of a real world problem captures the essential features of the problem, while scaling it down to a manageable size. In this course, symbolic tools and mathematical techniques are used to construct, analyze and interpret various mathematical models which arise from problems in the physical, biological and social sciences.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250 or MATH 2310.

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

MATH4420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive

contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 4420/PHIL 4420.

Dual Listed MATH 5420.

Prerequisite: PHIL 3420 or equivalent.

MATH4440 - Introduction to Partial Differential Equations I

Credits: 3

Survey of analytic methods for solving partial differential equations. Topics include: method of characteristics for solving first-order linear and quasi-linear equations; classification of second-order equations and canonical forms; background to separation of variables with applications; transform methods and Green functions; elliptic equations; heat and wave equations in one dimension.

Prerequisite: grade of C or better in MATH 2210 and MATH 2310.

MATH4500 - Matrix Theory

Credits: 3

Continuation from MATH 2250 of the study of matrices, an important tool in statistics, physics, engineering and applied mathematics in general. Concentrates on the structure of matrices, including diagonalizability; symmetric, hermitian and unitary matrices; and canonical forms such as Jordan form.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250.

MATH4510 - Algebra II: Introduction to Group Theory

Credits: 3

An introduction to the fundamental properties of groups including: binary operations, groups, permutation groups, subgroups, homomorphisms, and quotient groups.

When Offered (Offered spring semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 3500.

MATH4520 - Algebra III: Topics in Abstract Algebra

Credits: 3

Further examples and structure of rings and fields. Finite fields and number fields. Special topics.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 4510.

MATH4550 - Theory of Numbers

Credits: 3

Studies topics in mathematics which are motivated by questions about integers. Topics include divisibility, congruences, diophantine equations, quadratic residues, primitive roots, primes, and representations of positive integers.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 3500.

MATH4600 - Foundations of Geometry

Credits: 3

Broadens the student's understanding of the many faces of geometry and provides a context for the specific case of Euclidean geometry. Various approaches will be presented, including axiomatic, synthetic, coordinate, and transformational methods.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 3205 or MATH 3500.

MATH4800 - Seminar in Mathematics

Credits: 1-3

Exposes students to problems and thinking in mathematics which would otherwise be unavailable.

Prerequisite: consent of instructor.

MATH4970 - Professional Development in Teaching

Credits: 1-6

Max Credit (Max. 6)

Undergraduate student will assist in classroom and discussion section teaching under the guidance of an instructor in Mathematics. Does not count towards Mathematics degree requirements.

Prerequisite: Consent of instructor.

MATH5090 - Topics in the Foundations of Mathematics

Credits: 1-6

Max Credit (Max. 9)

Prerequisite: MATH 3000 and consent of instructor.

MATH5140 - Numbers, Operations, and Patterns for the Middle-level Learner

Credits: 3

Provides working middle-level mathematics teachers opportunities to understand and discuss numbers, their representations, and operations on them from an abstract perspective that includes elegant proof. Also emphasized is

the role of language and purpose in composing definitions.

Cross Listed NASC 5140.

Prerequisite: admission to a university graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics Program.

MATH5150 - Seminar in Secondary School Mathematics

Credits: 1-4

Max Credit (Max. 18)

Seminar in Secondary School Mathematics.

Prerequisite: 6 hours of MATH 4150.

MATH5160 - Social and Historical Issues in Mathematics and the Middle-Level Learner

Credits: 3

Empowers teachers of middle-level mathematics to design more engaging experiences. Emphasizes the historical context for the development of mathematics, especially its symbols, tools, personalities, and classic problems.

Cross Listed NASC 5160.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics Program.

MATH5170 - Connecting Geometry with Problem- Solving for the Middle-Level Learner

Credits: 3

Showcases two aspects of 2D and 3D geometry: measurement and transformation. Emphasis reflects current state and national standards for middle-level mathematics classroom and teacher preparation, especially appropriate uses of technology, geometric tools, mathematical language, and problem-solving strategies.

Cross Listed NASC 5170.

Prerequisite: admission to a university graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics Program.

MATH5190 - Mathematics of Change and the Middle-Level Learner

Credits: 3

Students gain a solid understanding of data and functions in the service of calculus. Course is hands-on, project-driven and focuses on the essential concepts of functions and calculus and their role in middle-level mathematics. Emphasis is on writing and technology (calculators and probeware).

Cross Listed NASC 5190.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics Program.

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5205 - Real Variables II

Credits: 3

A continuation of MATH 5200.

Prerequisite: MATH 5200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

MATH5235 - Complex Variables II

Credits: 3

A continuation of MATH 5230.

Prerequisite: MATH 5230.

MATH5255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence, and conditional probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed STAT 5255.

Dual Listed MATH 4255,

Prerequisite: grade of C or better in MATH 2210 or MATH 2355.

MATH5265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed STAT 5265.

Dual Listed MATH 4265,

Prerequisite: STAT 4255/5255, MATH 4255.

MATH5270 - Functional Analysis I

Credits: 3

Topics include the geometry of Hilbert spaces, linear functions and operators on Hilbert spaces, spectral theory of compact normal operators, Banach space theory, the open mapping theorem, Hahn-Banach theorem, Banach-Steinhaus theorem, duality and linear operators on Banach spaces, and different topologies on Banach spaces and their duals.

Prerequisite: MATH 5200.

MATH5275 - Functional Analysis II

Credits: 3

Topics may include discussion of topological vector spaces, locally convex spaces, F-spaces, spectral theory of non-compact operators on Hilbert spaces, semigroups or evolution operators, distribution theory, and applications to differential equations and Sobolev spaces.

Prerequisite: MATH 5270.

MATH5290 - Topics in Analysis

Credits: 1-6

Max Credit (Max. 18)

Topics in analysis.

Prerequisite: consent of the instructor.

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5340 - Computational Methods II

Credits: 3

Second semester of a three-semester computational methods series with emphasis on numerical solution of differential equations. Topics include explicit and implicit methods, methods for stiff ODE problems, finite difference, finite volume, and finite element methods for time-independence PDEs semi/fully discrete methods for time-dependent PDEs.

Prerequisite: MATH 5310.

MATH5345 - Computational Methods III

Credits: 3

Third semester of a three-semester computational methods series with emphasis on numerical solution of problems displaying sharp fronts and interfaces (nonlinear conservation laws, Hamilton-Jacobi equations).

Cross Listed COSC 5345.

Prerequisite: MATH 5340.

MATH5390 - Topics in Numerical Analysis

Credits: 1-6

Max Credit (Max 18)

Topics in numerical analysis.

Prerequisite: consent of the instructor.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

MATH5405 - Methods of Applied Mathematics II

Credits: 3

A continuation of MATH 5400.

Prerequisite: MATH 5400.

MATH5420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 5420/PHIL 5420.

Dual Listed MATH 4420.

Prerequisite: PHIL 3420 or equivalent; graduate standing.

MATH5430 - Ordinary Differential Equations II

Credits: 3

Differential equations constitute the mathematical language for problems of continuous change. ODEs deal with evolutionary processes involving one independent variable. This course revisits solution techniques but emphasizes the theoretical framework. Topics include: existence and uniqueness, linear and nonlinear differential systems, asymptotics and perturbations, and stability.

Prerequisite: MATH 4200, 4430.

MATH5440 - Partial Differential Equations II

Credits: 3

The theory of PDEs is important for abstract mathematics, applied science, and mathematical modeling. This course covers solution techniques but emphasizes the theoretical framework. Topics include: first order systems; characteristics; hyperbolic, elliptic and parabolic equations; separations of variables; series and transforms; integral relations; Green's functions, maximum principles; variational methods.

Prerequisite: MATH 4200 and MATH 4440.

MATH5490 - Topics in Applied Mathematics

Credits: 1-6

Max Credit (Max. 18)

Prerequisite: consent of instructor.

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5510 - Combinatorial Theory

Credits: 3

An introduction to combinatorics covering both classical and contemporary topics. Includes some of the following: generating functions, recursion formulas, partially ordered sets, inclusion-exclusion, partitions, graph theory, Ramsey theory, combinatorial optimization, Latin squares, finite geometries, and design theory.

Prerequisite: consent of the instructor.

MATH5530 - The Theory of Groups

Credits: 3

An in-depth study of various aspects of group theory, building on MATH 5550. Topics include some of the following: classical theory of finite groups (both Abelian and non-Abelian), infinite Abelian groups, free groups, permutation groups, group representations, endomorphism, extensions, and cohomology.

Prerequisite: MATH 5550.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

MATH5555 - Abstract Algebra II

Credits: 3

A continuation of MATH 5550, examining in depth selected topics from the theory of rings, fields, and algebras, including Galois theory.

Prerequisite: MATH 5550.

MATH5570 - Matrix Theory and Combinatorics

Credits: 3

An overview of matrix theory and its applications to combinatorics. Topics include Smith normal form, the Perron-Frobenius theory of non-negative matrices, location and perturbation of eigenvalues, and interlacing of eigenvalues. Applications include structure theorems for $(0,1)$ -matrices, network flows, spectra of graphs, and the permanent.

Prerequisite: MATH 5500.

MATH5590 - Topics in Algebra

Credits: 1-6
Max Credit (Max. 18)

Topics in algebra.

Prerequisite: consent of the instructor.

MATH5600 - Point-Set Topology

Credits: 3
Topics considered are metric spaces, open spheres, open sets, closed sets, continuous functions, limit points, topological spaces, homeomorphisms, compactness, connectedness, and separability. The familiar notion of distance on the real number line is generalized to the notion of a metric for an arbitrary set, which is in turn generalized to the concept of a set topology for a set. Certain applications to analysis and geometry are indicated.

Prerequisite: MATH 3205.

MATH5605 - Algebraic Topology

Credits: 3
Topics in algebraic topology, including simplicial homology groups and their topological invariance, the Eilenberg-Steenrod axioms, singular homology theory, and cohomology.

Prerequisite: MATH 3500.

MATH5640 - Differential Geometry

Credits: 3
Curve theory, theory of surfaces, and geometrics on a surface.

Prerequisite: MATH 4200.

MATH5690 - Topics in Topology

Credits: 1-6
Max Credit (Max. 9)

Prerequisite: consent of instructor.

MATH5700 - Topics in Combinatorics

Credits: 1-6
Max Credit (Max. 18)

Selected topics in combinatorial analysis.

MATH5800 - Seminar in Mathematics

Credits: 1-3
Max Credit (Max. 8)

Prerequisite: consent of instructor.

MATH5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

MATH5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

MATH5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

MATH5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate Program of Study for degree purposes.

MATH5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

MATH5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

MATH5990 - Internship

Credits: 1-12

Max Credit (Max. 24)

Prerequisite: graduate standing.

Mathematics Education

EMAT5100 - Theory and Research for Mathematical Learning

Credits: 3

Max Credit (Max. 6)

Advanced study of theory and research related to learning of mathematics, with attention to significant human mental development factors. Critically examines the scholarly basis for mathematical learning, including reviews of epistemological foundations, research-based factors, core issues, and advocacies for educational practices.

Prerequisite: enrollment in Mathematics Education Ph. D. specialization or permission of the instructor.

EMAT5150 - Elem & Midd Sch Math Adv Persp

Credits: 3

In this class, fundamental mathematical ideas typically taught in elementary and middle school levels are examined from an advanced perspective. Students learn about effective mathematical tasks fostering K-8 students' creativity in mathematics. Students also examine number sense, fractions, measurement, geometry, and data analysis in depth through cognitively demanding and creativity-directed tasks. Problem solving and inquiry-based instructional strategies are emphasized throughout.

EMAT5160 - HS Math from Advanced Perspect

Credits: 3

Max Credit 3

In this class, fundamental mathematical ideas typically taught in high school are examined from an advanced

perspective. Students learn about visualization and its importance in geometry and explore proof and its place in the high school curriculum. Students also examine algebra and algebraic reasoning in depth and explore some fundamental topics found in trigonometry and calculus. Problem solving and inquiry-based instructional strategies are emphasized throughout.

Restricted Graduate students or permission of instructor

EMAT5200 - Advanced Study of Mathematics Curriculum, Assessment, and Evaluation

Credits: 3

Max Credit (Max. 6)

Advanced study of theory, research and practices related to curriculum, assessment and evaluation in mathematics education. Critically examines the historical and contemporary influences on these, including mathematical, philosophical, psychological, pedagogical, social and political forces and factors.

Prerequisite: enrollment in Mathematics Education Ph. D. program or permission of the instructor.

EMAT5300 - Theory and Practice for Mathematics Teaching and Teacher Education

Credits: 3

Advanced study of theory and research of mathematics teaching teacher education. Examines the scholarly basis for current rationales and practices, including a critical review of evidential effectiveness, core issues, and advocacies for reform. A major emphasis will include analysis and critique of significant theoretical and research literature.

Prerequisite: enrollment in Mathematics Education Ph. D. program or permission of the instructor.

EMAT5400 - Analysis and Critique of Research in Mathematics Education

Credits: 3

Both theoretical and empirical research and scholarship in the field of mathematics education are critically analyzed. Students develop a deep understanding of pivotal historical and contemporary literature that helped shape the field of mathematics education and begin a formative development of their research interests.

Prerequisite: at least two from EMAT 5100, EMAT 5200, or EMAT 5300.

EMAT5500 - Colloquium in Mathematics Education

Credits: 1-3

Max Credit (Max. 12)

Provides for a broad perspective on mathematics education through selected reading materials. Students present and discuss ideas and summaries of the assigned reading and, wherever possible, the student collects and uses original information from practical situations. Students participate with the selected materials (journal articles, research, manuscripts, conference presentations) for class discussion.

Prerequisite: Graduate student status.

EMAT5600 - Quantitative Reasoning & Modeling in Mathematics and Science Education

Credits: 3

Advanced study of theories, issues, research and practices for teaching and learning mathematics and science focused on quantitative reasoning and mathematical modeling (QRaMM). Analysis of fundamental constructs relevant to QRaMM in education. Activities engage the scholarship of critical analysis, and interdisciplinary applications aimed at student knowledge and expertise in QRaMM.

Prerequisite: Graduate student status.

EMAT5700 - Principles and Methods for Integrated Teaching & Learning Mathematics & Science

Credits: 3

Advanced study of theory, research, and practice for teaching and learning mathematics and science using integrated approaches in curriculum, pedagogy, learning, and assessment. The course will be production oriented, with activities and developments aimed at stimulating and supporting manuscripts to be published in STEM-appropriate venues.

Prerequisite: Graduate student status.

EMAT5980 - Dissertation Research

Credits: 1-12

Max Credit (Max 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

Mechanical Engineering

ME3005 - Engineering Experimentation

Credits: 3

A combined lecture/laboratory course introducing students to experimental methods in the context of dynamics. Written technical communication, intermediate structured programming, experimental design, fundamental statistics, and uncertainty methods (numerical and analytical) are emphasized. Collaborative writing and teamwork is introduced.

Cross Listed ESE 3005

Former Course Number [2010; 2020]

Prerequisite: Completion of the ME Success Curriculum, ES 1060, ES 2120.

ME3010 - Intermediate Mechanics of Materials

Credits: 3

Expansion of the principles of solid mechanics: stress, strain, principal stresses, elastic and plastic behavior, failure theories and the use of energy methods. Analysis and design of thick-walled pressure vessels, noncircular cross sections under torsion, nonsymmetric beams under bending and curved beams.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ESE 3020

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ME3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ESE 3040

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3060 - Numerical Methods for Engineers

Credits: 3

Numerical solutions of problems commonly encountered in mechanical engineering including differentiation, integration, differential equations, system of linear and nonlinear equations, and optimization. The structured programming approach will be emphasized and applications from solid mechanics, thermal fluid sciences, materials science, and dynamic systems will be covered.

Cross Listed ESE 3060

Prerequisite: Completion of the ME Success Curriculum, ES 1060, and MATH 2310 or concurrent enrollment.

ME3160 - Thermal/Fluid Science Lab

Credits: 3

A laboratory course to introduce students to experimental methods for temperature measure and pressure/flow characteristics of fluids. Continuation of experience with communication (written, oral, and digital), intermediate programming, experimental design, data analysis, and teamwork skills is emphasized.

Cross Listed ESE 3160

Former Course Number [2140; 2160]

Prerequisite: Completion of the ME Success Curriculum, ES 2330; ME 3005/ESE 3005.

ME3170 - Machine Design

Credits: 3

Application of engineering mechanics and materials science to the analysis and design of mechanical components such as bolted connections, springs, gears, bearings and shafts. Design for dynamic loading conditions. Principles of hydrodynamic lubrication. Introduction to computer-aided design. Case studies with appropriate topics.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ARE 3360/ESE 3360

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310, and ES 2330.

ME3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/ equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ARE 3400

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ME3450 - Properties of Materials

Credits: 3

Mechanical, electrical, thermal and chemical properties of materials. Theoretical treatment of structure of solids and design for specified properties.

When Offered (Normally offered spring semester)

Former Course Number [ES 3450]

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3975 - Internship

Credits: 3

Students may apply for credit for extended work experience (>10 weeks; full-time) engaging in mechanical engineering work and supervised by an engineer in mechanical engineering (or closely related field). Students should apply through their adviser prior to the work experience.

Restricted Enrollment is by departmental approval only.

Prerequisite: consent of the department head.

ME4010 - Mechanical Vibrations

Credits: 3

The theory of single and multi-degree-of-freedom systems with an introduction to continuous systems. Determination of equations of motion, including natural frequency for free vibration and amplitude of forced vibration. Design of discrete and continuous systems for transient and harmonic excitations.

When Offered (Normally offered fall semester)

Prerequisite: Completion of the ME Success Curriculum, ES 2120, ES 2410, and MATH 2310.

ME4020 - Design of Mechanical/Electronic Systems

Credits: 3

Theoretical and experimental study of sensors and actuators, interfacing sensors and actuators to a microcomputer, discrete and continuous controller design, analog and digital electronics, and real-time programming for control.

Prerequisite: Completion of the ME Success Curriculum, ME 3020.

ME4040 - Introduction to Finite Elements

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. The course includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 5040.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310 and (CE 4200/ARE 4200 or MATH 2250 or ME 3010 or ME 3060).

ME4060 - Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience. Student multidisciplinary teams prepare a project proposal or SOQ, generate a morphological study of their project and prepare project plans and specifications. Project management methods are also presented.

USP 2015 Code U5C3

Former Course Number [3070]

Prerequisite: Completion of the ME Success Curriculum, ME 3010 (or concurrent enrollment), ME 3170, and ME 3360/ESE 3360/ARE 3360.

ME4070 - Systems Design II

Credits: 3

Continuation of a two-course design sequence. The design teams refine their designs, fabricate the project, test the project for compliance with the design specifications, write a comprehensive engineering design report including socioeconomic factors, and prepare and deliver a presentation of the project in a public forum.

USP 2003-2014 Code U3WC

Prerequisite: Completion of the ME Success Curriculum, ME 4060/ESE 4060 and WB.

ME4100 - Manufacturing Processes

Credits: 3

Details of manufacturing processes used in production of metal, plastic and ceramic components with an emphasis on science and mechanics of processes.

Prerequisite: Completion of the ME Success Curriculum, ME 3010 and ME 3450.

ME4150 - Mechanical Behavior of Materials

Credits: 3

Commonly encountered phenomenological and mechanistic behaviors that lead to mechanical failure are examined. Understanding the origin of mechanical failure of components allows for robust design of mechanical systems. Metallic, polymeric, and ceramic materials are covered.

Prerequisite: Completion of the ME Success Curriculum, ME 3450.

ME4200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 5200.

Prerequisite: ME 3450

ME4210 - Introduction to Composite Materials

Credits: 3

Applications, mechanical properties and fabrication of fiber reinforced composite materials; stress analysis of laminated, anisotropic composite structures; study of special problems unique to composites.

Prerequisite: Completion of the ME Success Curriculum, ME 3010.

ME4215 - Composite Materials Design and Manufacturing

Credits: 3

Introduction to composite material manufacturing processes. Aspects of constituent material production, as well as design, fabrication, and testing of composite materials. Laboratory exercises, such as laminating, filament winding, pultrusion and compression molding.

Prerequisite: Completion of the ME Success Curriculum, ME 4210.

ME4240 - Gas Dynamics I

Credits: 3

Thermodynamics of a compressible fluid; one-dimensional isentropic flow, normal and oblique shocks, expansion wave, flows with friction and heat transfer.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ME4330 - Internal Combustion Engines

Credits: 3

Thermodynamic analysis and design of Otto and Diesel cycles for vehicle applications and stationary power generation. A substantial laboratory component will examine design and manufacturing issues, as well as engine performance in a variety of scenarios.

Cross Listed ESE 4330

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME4340 - Gas Turbine Engines

Credits: 3

Thermodynamic analysis and design of ground-based and aero-propulsion gas turbine engines.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ME4350 - Airplane Aerodynamics and Flight

Credits: 3

Introduces students to the fundamentals of airfoil and wing design, airplane aerodynamics, and airplane stability. Links these fundamental ideas to the design and performance of real aircraft.

Prerequisite: Completion of the ME Success Curriculum, ES 2330.

ME4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ARE 4430

Prerequisite: ARE 3400/ME 3400 and ARE 3360/ME 3360 or concurrent.

ME4450 - Principles of Materials Selection

Credits: 3

A review of the economic and engineering aspects of materials selection. A detailed study of the properties, applications and limitations of engineering materials systems. Emphasis is on metal alloy systems, but non-metallics are included. Forming and joining processes are outlined.

Former Course Number [3110]

Prerequisite: Completion of the ME Success Curriculum, ME 3450

ME4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ESE 4455

Prerequisite/Corequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4461 - Computational Fluid Dynamics I

Credits: 3
Max Credit 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Cross-list with ME 4461

Dual Listed dual list with ME 5461

Prerequisite: ME Success Curriculum; ME/ESE 3060 - Numerical Methods; ME/ESE 3360 - Transport Phenomena

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ME4474 - Topics in Mechanical Engineering I

Credits: 1-3

Max Credit (Max. 6)

Directed research in mechanical engineering.

Prerequisite: Completion of the ME Success Curriculum, junior standing in engineering.

ME4480 - Building Air and Hydronic Systems

Credits: 3

Design and analysis of building air and hydronic systems with focus on the application, design and analysis of thermal energy distribution systems (air and hydronic systems) for building space air conditioning. Requires enrollment in associated laboratory session.

Prerequisite: Completion of the ME Success Curriculum, ARE 4430/ME 4430 with a grade of C or above.

ME4490 - Modeling and Optimization of Energy Systems

Credits: 3

Application of principles of thermodynamics, fluids, and heat and mass transfer in the component and system-level design of energy/thermal systems, including modeling, simulation and optimization techniques. Examples are drawn from building environmental control, energy conversion and thermal industrial processes. Students work on projects for integration of these components in the design of energy/thermal systems. Requires enrollment in associated laboratory session.

Cross Listed ARE 4490

Prerequisite: Completion of the ME Success Curriculum, ARE 3360/ME 3360 and ARE 3400/ME 3400.

ME4740 - Mechanical System Design

Credits: 3

Max Credit 3

Final course in the building mechanical systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's mechanical systems.

Prerequisite: ARE/ME 3400 HVAC of Buildings

Prerequisite/Corequisite: ARE/ME 4740

ME5040 - Introduction to Finite Element Analysis

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. Includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 4040

Prerequisite: MATH 2310 and (CE 4200 or ARE 4200 or ME 3010)

ME5045 - Advanced Finite Element Analysis

Credits: 3

Advanced topics in finite element analysis with emphasis on mathematical foundations of the method, numerical algorithms for software implementation, and analysis of problems with material and geometric nonlinear behavior.

Cross Listed CE 5045

Prerequisite: ME 4040 or ME 5040 or CE 5040.

ME5200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 4200

Prerequisite: ME 3450

ME5422 - Advanced Vibrations

Credits: 3

Advanced principles of dynamics: Hamilton's principle, Lagrange's equations, modal analysis of discrete systems. Analysis of continuous systems; natural modes, approximate methods, forced vibration. Introduction to random vibration.

Prerequisite: ME 4010

ME5431 - Analysis of Composite Materials

Credits: 3

An introduction to the methods of analysis applied to heterogeneous material systems. Emphasis of this course is on stress based formulations and failure analysis of fiber reinforced materials including laminates.

Prerequisite: graduate standing.

ME5432 - Advanced Materials Science

Credits: 3

An analysis of the relationships between the structures of materials and their mechanical and physical properties, leading to the application of these relationships to the design of materials for advanced engineering systems. Topics include crystallography, lattice defects, transport phenomena, phase transformations, fracture, environmental effects, and control of microstructure by processing.

Prerequisite: ME 3450

ME5434 - Computational Materials Science

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: graduate standing.

ME5435 - Failure of Engineering Materials

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: ME 3450 or equivalent.

ME5438 - Plasticity and Viscoelasticity

Credits: 3

Analysis of stress and deformation of idealized plastic and viscoelastic solids. Limit theorems in plasticity. Time-dependent behavior of viscoelastic materials.

Prerequisite: ME 5472 or equivalent.

ME5440 - Fluid Mechanics

Credits: 3

Lagrangian and Eulerian descriptions, conservation laws, stress and rate-of-stress tensors, Navier-Stokes equations, energy equations, vorticity and circulation inviscid and potential flows, laminar flows, turbulent flows, boundary-layer theory.

Cross Listed CHE 5440.

ME5442 - Advanced Fluid Mechanics

Credits: 3

Introduction to inviscid and viscous hydrodynamic stability; closure in turbulent flows; vorticity and vortex dynamics, theoretical aerodynamics, numerical simulations of viscous flows, experimental methods in fluid flows.

Prerequisite: ME 5440.

ME5444 - Optical Diagnostics in the Thermal and Fluid Sciences

Credits: 3

An introduction to optical measurement schemes used in gas and liquid flows. Topics include a review of relevant optical principles and lasers, and in-depth coverage of laser velocimetry, droplet and particle sizing, and temperature measurement.

Prerequisite: graduate standing.

ME5446 - Turbulence

Credits: 3

Basic notions, properties and scales in turbulent flows. Transport equations; Reynold's stresses, mixing and phenomenological theories. Turbulence dynamics; mean and fluctuating kinetic energy balances, vorticity and temperature fluctuations. Statistical description of turbulence; correlations and spectra, transport, isotropy and homogeneity. Shear flows; plane jets, wakes and boundary layers (including planetary). Turbulent diffusion.

Cross Listed CHE 5446.

Prerequisite: ME 5440.

ME5448 - Experimental Fluid Dynamics.

Credits: 3

Provides an introduction to the design of fluid dynamics experiments. Specific instrumentation will be discussed and methods of analyzing and assessing data will be presented.

Prerequisite: graduate standing.

ME5452 - Convection Heat Transfer

Credits: 3

Convection, including heat and momentum transfer. Boundary layer theory. Laminar and turbulent flows, steady and unsteady formulations including differential and integral descriptions. High velocity, compressible systems.

Cross Listed CHE 5452.

Prerequisite: ES 3360 or consent of instructor.

ME5455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ME 4455 ESE 4455

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME5461 - Computational Fluid Dynamics I

Credits: 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Dual list with ME 4461 and ESE 4461

Prerequisite: graduate standing

ME5462 - Computational Fluid Dynamics II

Credits: 3

A study of advanced techniques in modern-day scientific computing as applied to Computational Fluid Dynamics. These include unstructured mesh generation using Delaunay triangulation, searching and sorting techniques, and efficient data structures. Other topics cover efficient hardware implementation including cache-effects and parallel computing and sensitivity analysis for design optimization.

Prerequisite: ME 5461

ME5472 - Continuum Mechanics

Credits: 3

The basic laws of the physical behavior of continuous media. Stress and deformation at a point; fundamental equations

of balance of mass, momentum, and energy; second law of thermodynamics; curvilinear coordinate analysis. Applications to linear elasticity and fluid mechanics.

Prerequisite: graduate standing.

ME5474 - Energy Methods

Credits: 3

Introduction to variational calculus with applications in solid mechanics. The basic theorems of virtual work, minimum potential energy, and complementary energy are developed. Direct methods such as Castigliano's theorem as well as the approximate methods of Ritz and Galerkin are developed and used to obtain solutions for a variety of problems in solid mechanics.

Prerequisite: ME 3010

ME5475 - Topics in Mechanical Engineering II

Credits: 1-6

Max Credit (Max. 6)

Directed research in mechanical engineering.

Prerequisite: senior or graduate standing in engineering.

ME5478 - Seminar in Mechanical Engineer

Credits: 2

Prerequisite: graduate standing in engineering.

ME5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

ME5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

advanced degree candidacy.

ME5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

ME5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ME5961 - Graduate Projects

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project. Prerequisites: enrollment in Plan B program and have departmental approval.

ME5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Medical Laboratory Science

MLSK4840 - Laboratory Education Methodology

Credits: 1
This course provides an overview of education methodology and issues related to roles as educators in the clinical laboratory profession. Course topics and assignments include pedagogy, curriculum design, assessment and accreditation. Major educational responsibilities for clinical laboratory professionals relating to continuing education, competency assurance, certification and licensure will be addressed.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4850 - Clinical Research Design

Credits: 2

A course in research design methods commonly used in clinical research. Emphasis is on research design, process, measurement, regulatory issues, and ethics, as used by investigators. The focus is to equip students with knowledge and skills necessary to critically examine professional literature, methodology and ethical considerations that influence research design.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4860 - Laboratory Management

Credits: 3

This course introduces students to laboratory management systems, testing, reimbursement, accrediting/regulatory issues, finances, information systems, QA/QC improvement and supervisory roles in the clinical laboratory. Emphasis is on management and communication skills needed to work successfully as entry-level professionals in a health care setting.

USP 2015 Code U5C3

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4870 - Advanced Clinical Chemistry

Credits: 4

This course is designed to introduce students to advanced topics in clinical chemistry in relation to instrumentation, diagnostic testing and its correlation to disease states, and method correlation and validation. Students will demonstrate the ability to describe principles and applications required for the entry level laboratory scientist.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

MLSK4880 - Advanced Hematology: Erythrocytes

Credits: 2

Advanced hematology principles and techniques prepare students for practice in the clinical laboratory. This course will focus on advanced topics of hematology, focusing on normal and abnormal erythrocytes in relation to assessment, and disease correlation.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

MLSK4890 - Professional Career Paths and Review

Credits: 2

This Medical Laboratory Sciences program prepares students for a variety of graduate degrees and careers in laboratory medicine. This course is designed to help students investigate career and education opportunities after becoming a certified Medical Laboratory Scientist and also provides students with a cumulative review to ensure mastery of content.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

MLSK4981 - Advanced Clinical Practicum-Hematology

Credits: 3

Advanced hematology principles and techniques prepare students for practice in the clinical laboratory. Topics include leukopoiesis, leukemias, lymphomas, hemostasis, coagulopathies, urinalysis and body fluids. Laboratory will focus on abnormal smears, normal and leukemic bone marrow evaluations, and coagulation mixing studies, factor assays and body fluids related to clinical disease states.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4982 - Advanced Clinical Practicum-Molecular

Credits: 3

Principles of molecular technology used in clinical laboratories. Laboratory experiences include cytogenetics, nucleic acid extraction, hybridization, detection, amplification, sequencing, microarrays, and in-situ hybridization. Emphasis is on the areas of the clinical laboratory that use molecular techniques related to genetics, oncology, infectious disease, and identity testing for forensic and transplant purposes.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4983 - Advanced Clinical Practicum-Immunohematology

Credits: 3

Principles of immunology theory, blood group systems, genetics, and immunohematology techniques. Procedures including evaluation of blood samples, pretransfusion compatibility testing, and transfusion reactions are studied. Serologic testing and problem-solving in antibody identification and complex procedures are stressed. Laboratory emphasizes modern practices, resolution of compatibility problems and advanced antibody identification methods.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4984 - Advanced Clinical Practicum- Microbiology

Credits: 3

Focus is on underlying mechanisms of microbial pathogenesis, host responses to infectious disease and clinical diagnosis procedures. Emphasis is on detailed mechanisms of infection, pathogenesis, and major discoveries and technologies in medical microbiology. Current issues in public and global health, epidemiology, bioterrorism, biotechnology and vaccination programs will be studied.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

Microbiology

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

MICR2220 - Pathogenic Microbiology

Credits: 3

This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed PATB 2220.

Prerequisite: MOLB 2021 or MICR 2021.

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

MICR3021 - Eukaryotic Microbes

Credits: 3

Max Credit 3

This course will address the biology and ecology of lower eukaryotic life-forms. Topics include: marine phyto- and zooplankton, terrestrial and fresh water aquatic micro-algae, protists, the evolution of multicellularity, and a phylogenetic survey of microscopic multi-cellular life.

Cross Listed PATB 3021

Prerequisite: MOLB/MICR-2021, General Microbiology

MICR4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed PATB 4001.

Dual Listed MICR 5001.

Prerequisite: STAT 2050.

MICR4090 - Food Microbiology

Credits: 3

Discusses micro-organisms and theory of their growth and survival in relation to spoilage and preservation of foods and health hazards in foods.

Cross Listed FDSC 4090.

Prerequisite: MOLB 2021 or MICR 2021.

MICR4100 - Food Microbiology Lab

Credits: 1

Lab techniques used in food microbiology.

Cross Listed FDSC 4100.

Prerequisite: FDSC 4090 or FDSC 5090, taken concurrently.

MICR4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed PATB 4130.

Dual Listed MICR 5130.

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

MICR4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed SOIL 4140.
Dual Listed MICR 5140.
Prerequisite: SOIL 2010.

MICR4200 - Diagnostic Bacteriology

Credits: 1

Practical training with emphasis on diagnostic procedures used in a clinical microbiology laboratory. Students identify bacterial pathogens of animals and humans. Taught in a clinical setting utilizing selected clinical material. Techniques employed in the processing and identification of clinically significant bacteria are used and discussed. Safe laboratory practices for working with biohazards are presented.

Cross Listed PATB 4200.

Prerequisite: junior standing and a MICR course which included a laboratory.

MICR4220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scoped objective is to assist students in gaining an understanding of principles and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principles and concepts through knowledge of experimental approaches.

Cross Listed PATB 4220

Dual Listed MICR 5220.

Prerequisite: PATB 2220 or MICR 2220, and statistics (or epidemiology).

MICR4321 - Microbiology Capstone

Credits: 4

Using a problem-based student learning model, students conceptualize, propose, perform and present a microbiology research study to address a real community problem. Students maintain a lab notebook, write an NSF-style research proposal, formulate hypotheses, engage in hands-on laboratory hypothesis testing and design and present a scientific poster.

USP 2015 Code U5C3

Prerequisite: MICR majors with junior or senior standing.

MICR4360 - Medical Entomology and Parasitology

Credits: 4

Emphasis on medically important arthropods, protozoa, and worms; clinical effects of infection epidemiology avoidance/control and identification/diagnosis.

Prerequisite: 8 hours of biological science

MICR4440 - Microbial Genetics

Credits: 3

Discusses microbial genetic approaches to study cell function and provides a molecular foundation for understanding how genes work to elicit phenotypes.

Cross Listed MOLB 4440.

Dual Listed MOLB 5440

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021 or MICR 2240, and LIFE 3050

MICR4460 - Microbial Physiology

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MOLB 4460.

Dual Listed MOLB 5460

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

MICR4500 - Veterinary Entomology and Parasitology

Credits: 3

Biology, importance and control of arthropod, helminth and protozoan parasites of food and companion animals. Diagnosis and identification of live and preserved specimens.

Cross Listed PATB 4500.

Prerequisite: 8 hours of biological science.

MICR4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540 and SOIL 4540.

Dual Listed MOLB 5540 and SOIL 5540 and ECOL 5540.

Prerequisite: MOLB 2021 or MICR 2021.

MICR4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed PATB 4710.

Prerequisite: MICR 2220 or PATB 2220 or MOLB 2240 or MICR 2240.

MICR5001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed PATB 5001.

Dual Listed MICR 4001.

Prerequisite: STAT 2050.

MICR5130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed PATB 5130.

Dual Listed MICR 4130.

Prerequisite: C or better in LIFE 2022.

MICR5140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed SOIL 5140.

Dual Listed MICR 4140.

Prerequisite: SOIL 2010.

MICR5220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scoped objective is to assist students in gaining an understanding of principles and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principles and concepts through knowledge of experimental approaches.

Cross Listed PATB 5220.

Dual Listed MICR 4220 and PATB 4220

Prerequisite: PATB 2220 or MICR 2220 and statistics (or epidemiology).

Molecular Biology

MOLB1101 - First-Year Seminar: Genetic Engineering and Synthetic Biology

Credits: 3

Fundamental concepts in molecular biology are applied towards critical evaluation of scientific evidence, claims, and varying viewpoints on current issues in genetic engineering and synthetic biology. Exciting but controversial recent advancements include reconstructing ancient genomes, redesigning genetic circuits, engineering novel genetic codes, and creating synthetic life.

When Offered Fall

USP 2015 Code U5FY

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure

of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

MOLB3320 - Molecular Biological Methods

Credits: 4

Integrated discussion and hands-on experience with modern bioinformatic and wet lab-based molecular, genetic and biochemical methods. Completion of the course should provide students with enhanced theoretical understanding and practical knowledge of many crucial modern computational and molecular biological techniques.

When Offered Spring

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4050 - Student Seminar: Topics in ____

Credits: 1

Max Credit 4

Exposes students to current topics in molecular biosciences and examines primary journal literature with oral presentations and class discussions.

Prerequisite: MOLB 3000 or MOLB 3610 or CHEM 4400

MOLB4051 - Departmental Seminar

Credits: 1
Max Credit 15

Attend a series of weekly seminars on a diverse set of research topics presented by visiting faculty or research scientists and will participate in a discussion following the seminar.

Dual Listed MOLB 5051.
Former Course Number [4050]

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600.

MOLB4052 - Summer Seminar

Credits: 1
Max Credit 5

Consists of one week of lectures, presented by a renowned scientist from either academics or industry. The material presented is taken from the research program of the speaker.

Dual Listed MOLB 5052.
Former Course Number [4050]

MOLB4053 - Communications in Molecular Biology

Credits: 3
Students will explore current topics in molecular biosciences and their applications in biotechnology and medicine. The course will develop student's abilities to read and discuss scientific literatures and present the topics in different oral/written for public, research proposals and research-based business plans.

When Offered Spring
USP 2015 Code U5C3
Prerequisite: MOLB 4600 and LIFE 3050 or MOLB 3000

MOLB4100 - Clinical Biochemistry

Credits: 4
Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring
Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4460 - Microbial Physiology and Metabolism

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MICR 4460.

Dual Listed MOLB 5460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design.

Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

MOLB4610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 5610

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021, and MOLB 3610 or MOLB 3000

MOLB4850 - Undergraduate Teaching Internship

Credits: 1

Max Credit 4

Undergraduate student will assist in classroom or laboratory teaching under the guidance of an instructor in Molecular Biology.

Lab/Lecture Hours Offered Satisfactory/Unsatisfactory only.

Prerequisite: Junior standing and consent of instructor.

MOLB4990 - Topics In: ____

Credits: 1-3

Max Credit 6

Lectures, literature reviews and discussion of selected current topics in different areas of molecular biology. Please check class schedule for current offerings each semester.

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600.

MOLB5010 - Advanced Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 18

Students in PhD, MS and MA programs in Molecular Biology, and doctoral students in the Molecular and Cellular Life Sciences (MCLS) graduate program, work in laboratory or computational research projects under the guidance of a

Molecular Biology faculty member.

Prerequisite: graduate standing and consent of instructor.

MOLB5050 - Advanced Student Seminar

Credits: 2
Max Credit 8

Introduction of reading, analyzing, and discussing primary sources in scientific literature. Read primary research papers, give presentations with full participation in critical discussions of data and interpretations of all journal articles analyzed. Papers chosen for review are typically related to research of Molecular Biology Departmental Seminar Series speakers.

Prerequisite: MOLB 4600 or concurrent enrollment

MOLB5051 - Department Seminar

Credits: 1
Max Credit 15

Required attendance at a series of weekly seminars presented by visiting faculty on a diverse set of research topics. Undergraduates are able to use one credit hour to partially fulfill the seminar requirement.

Dual Listed MOLB 4051

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600.

MOLB5052 - Summer Seminar

Credits: 1
Max Credit (Max. 5)

Consists of one week of lectures, presented by a renowned scientist from either academics or industry. The material presented is taken from the research program of the speaker.

Dual Listed MOLB 4052

MOLB5055 - Molecular Monday

Credits: 1
Max Credit 12

Students will present and hear formal presentations of research being conducted at the University of Wyoming in the molecular biosciences. Participation in question and answer periods following presentations is required, as is the completion of an evaluation form for each presentation.

Prerequisite: Graduate standing

MOLB5056 - Current Topics in Cell Biology

Credits: 2
Max Credit 18

Students present their ongoing laboratory research and receive feedback from lab group members. Principles of research design will be explored by critical reading and discussion of current topical literature.

Prerequisite: Graduate standing

MOLB5057 - Microbial and Synthetic Biology

Credits: 2
Max Credit 18

Students will present current research in the fields of Molecular Microbiology and Synthetic Biology, which will be followed by a critical discussion moderated by the course instructors. Students will explore the principles of research design by critical reading and discussion of scientific literature.

Prerequisite: Graduate standing

MOLB5058 - Experimental Molecular Genetics

Credits: 2
Max Credit 18

Students will formally present their research on molecular biology projects and will actively participate in discussion of other student's presentations. Students will also select current topical research articles and present critical evaluations of those articles to the class.

Prerequisite: Graduate standing

MOLB5260 - Quantitative Microscopy

Credits: 1
Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 4260

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120

MOLB5400 - Immunology

Credits: 4
Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400

Dual Listed MOLB 4400

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610

MOLB5440 - Microbial Genetics

Credits: 3

Discusses microbial genetic approaches to study cell function and provides a molecular foundation for understanding how genes work to elicit phenotypes.

Dual Listed MOLB 4440

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021 or MICR 2240, and LIFE 3050

MOLB5450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 4450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050.

MOLB5460 - Microbial Physiology and Metabolism I

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Dual Listed MOLB 4460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021/MICR 2021 or MOLB 2240, and MOLB 3610 or MOLB 4600 or CHEM 4400.

MOLB5520 - Molecular and Cellular Life Sciences Laboratory Rotations

Credits: 3

Max Credit 6

Laboratory research rotations for first year Molecular and Cellular Life Sciences (MCLS) students in the doctoral program.

Prerequisite: Enrollment in the Molecular and Cellular Life Sciences (MCLS) program.

MOLB5521 - Molecular and Cellular Life Sciences Cornerstone

Credits: 1

Introduction for students in the Molecular and Cellular Life Sciences program to graduate school and research. Exposes students to diverse faculty research programs and elements fundamental to successful graduate and scientific careers, including scientific publishing, grants, careers, intellectual property, and ethical expectations.

When Offered Fall

Prerequisite: Enrollment in the Molecular and Cellular Life Sciences doctoral program.

MOLB5540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540 or MICR 4540 or SOIL 4540

Dual Listed SOIL 5540 or ECOL 5540

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MOLB5600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 4600

When Offered Fall

Prerequisite: Consent of instructor.

MOLB5610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 4610

Prerequisite: Consent of instructor.

MOLB5630 - Advanced Topics in Molecular Biology

Credits: 1-3
Max Credit 6

Lectures, literature reviews and discussion of selected current topics in molecular biology. Check class schedule for current offerings each semester.

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600

MOLB5670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 4670

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB5680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanism affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 4680

When Offered Spring

Prerequisite: MOLB 2021 and MOLB 3000 or MOLB 4600

MOLB5700 - Principles of Biomedical Research

Credits: 3

This series of complementary workshops will provide opportunities to develop knowledge and skills in scientific methodology, data analysis, statistical interpretation and representation, scientific communication, research codes and ethics, entrepreneurship, and interpersonal conduct. Students will also learn about career options and develop individual goals and trajectories based on strengths and interests.

When Offered Spring

Prerequisite: Graduate student status (biomedical fields preferred).

MOLB5900 - Practicum in College Teaching

Credits: 1-3
Max Credit 3

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: Graduate standing and consent of instructor.

MOLB5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit 16

Prerequisite: Advanced degree candidacy.

MOLB5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit 16

Prerequisite: Advanced degree candidacy.

MOLB5959 - Enrichment Studies

Credits: 1-3
Max Credit 99

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

MOLB5960 - Thesis Research

Credits: 1-12
Max Credit 24

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: Enrollment in a graduate degree program.

MOLB5980 - Dissertation Research

Credits: 1-12
Max Credit 48

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: Enrollment in a graduate degree program.

MOLB5990 - Internship

Credits: 1-12
Max Credit 24

Prerequisite: Graduate standing.

Music

MUSCA4370 - Live Sound Reinforcement

Credits: 1-3

Topics include history of live sound reinforcement, analog audio, digital consoles, system checks, troubleshooting, and client relations. Students will build upon MUSC 4360 with focus on live sound reinforcement.

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

MUSC1000 - Introduction to Music

Credits: 3

Introduces music appreciation to students who have little or no musical training. Requires attendance at a specified number of public concerts.

USP 2003-2014 Code U3CA
USP 2015 Code U5H

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC1007 - Hip-Hop/Pop Music Appreciation

Credits: 3

From Kool Herc, Notorious B. I. G, Van Halen, and Queen, all the way up to today's artists, students will learn to understand, discern, and truly appreciate hip-hop and popular music.

MUSC1009 - The Roots of Country Music

Credits: 3

This online class examines the diverse musical practices that contributed to Country Music in the United States. Early styles and genres from the Anglo American and African American music traditions will be studied. Students will develop their musical vocabulary and hone basic listening and analytical skills.

MUSC1010 - Music Fundamentals

Credits: 3

To establish/ review the foundation of the materials and structures of music theory fundamentals.

MUSC1025 - Introduction to Music Education

Credits: 2

Introduces music teacher education. Includes overview of vocal and instrumental music education and teaching processes in grade levels K-12. Requires on-site visits and observations of music programs.

When Offered (Offered spring semester)

Former Course Number [1020]

Prerequisite: music majors only.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC1080 - Baritone Horn I

Credits: 1-2
Max Credit (Max. 8)

Applied Lessons

MUSC1090 - Bassoon I

Credits: 1-2
Max Credit (Max. 8)

MUSC1100 - Cello I

Credits: 1-2
Max Credit (Max. 8)

MUSC1110 - Clarinet I

Credits: 1-2
Max Credit (Max. 8)

MUSC1120 - Double Bass I

Credits: 1-2
Max Credit (Max. 8)

MUSC1130 - Flute I

Credits: 1-2
Max Credit (Max. 8)

MUSC1140 - French Horn I

Credits: 1-2
Max Credit (Max. 8)

MUSC1150 - Guitar I

Credits: 1-2
Max Credit (Max. 8)

MUSC1160 - Harp I

Credits: 1-2
Max Credit (Max. 8)

MUSC1170 - Oboe I

Credits: 1-2
Max Credit (Max. 8)

MUSC1180 - Organ I

Credits: 1-2
Max Credit (Max. 8)

MUSC1190 - Percussion I

Credits: 1-2
Max Credit (Max. 8)

MUSC1200 - Piano I

Credits: 1-2
Max Credit (Max. 8)

MUSC1210 - Saxophone I

Credits: 1-2
Max Credit (Max. 8)

MUSC1220 - Trombone I

Credits: 1-2
Max Credit (Max. 8)

MUSC1230 - Trumpet I

Credits: 1-2
Max Credit (Max. 8)

MUSC1240 - Tuba I

Credits: 1-2
Max Credit (Max. 8)

MUSC1250 - Violin I

Credits: 1-2
Max Credit (Max. 8)

MUSC1260 - Viola I

Credits: 1-2
Max Credit (Max. 8)

MUSC1270 - Voice I

Credits: 1-2
Max Credit (Max. 8)

MUSC1280 - Collaborative Piano I

Credits: 1-2
Max Credit (Max. 8)

Encompasses supervised practice in the art of collaborative piano playing. Discusses traditional usages as applicable to various schools and periods of vocal and instrumental duo literature.

Prerequisite: audition required.

MUSC1290 - Class Piano I

Credits: 1
Encompasses group instruction for the beginner at the keyboard. First semester of four-semester sequence. Enrollment limited to music or music education majors whose principal performance area is not piano.

When Offered (Offered fall semester)

MUSC1295 - Class Piano II

Credits: 1
Continues skills begun in MUSC 1290 including all major scales, beginning minor scales, prescribed chord progressions, harmonization, transposition, sight reading and repertoire.

When Offered (Offered spring semester)

Prerequisite: MUSC 1290 or successful completion of final exam requirements for MUSC 1290.

MUSC1312 - Public School Tech: Brass

Credits: 2
This course is designed to teach the fundamentals of brass pedagogy and performance for music education majors. The course consists of two components applied study on brass instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1322 - Public School Tech: Percussion

Credits: 2
This course is designed to teach the fundamentals of percussion pedagogy and performance for music education majors. The course consists of two components applied study on percussion instruments and study/discussion of current

pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1332 - Public School Tech: Strings

Credits: 2

This course is designed to teach the fundamentals of string pedagogy and performance for music education majors. The course consists of two components applied study on string instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1340 - Public School Methods: Voice I

Credits: 1

Max Credit (Max. 2)

Encompasses group instruction in vocal methods for music education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1352 - Public School Tech: Woodwinds

Credits: 2

This course is designed to teach the fundamentals of woodwind pedagogy and performance for music education majors. The course consists of two components applied study on woodwind instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1360 - Public School Methods: Guitar

Credits: 1

Max Credit (Max. 2)

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1370 - Marching Band

Credits: 1

Max Credit (Max. 8)

Fall semester: marching band. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

MUSC1375 - Symphonic Band

Credits: 1

Max Credit (Max. 8)

Ensembles. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

Prerequisite: players are selected by audition. Auditions will take place the first week of classes.

MUSC1380 - Wind Ensemble

Credits: 1

Max Credit (Max. 8)

(MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

USP 2003-2014 Code U3CA

Prerequisite: players are selected by audition from the university band.

MUSC1390 - Jazz Ensemble

Credits: 1

Max Credit (Max. 8)

Preparation and performance in a select jazz ensemble of the finest in standard jazz ensemble repertory and contemporary compositions by living jazz artists.

USP 2015 Code U5H

Restricted Restricted to freshmen and sophomores.

Prerequisite: audition required. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420,

MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

MUSC1400 - Collegiate Chorale I

Credits: 1
Max Credit (Max. 12)

Will provide the committed singer with outstanding performing experiences ranging from major choral masterworks to masterpieces of the a cappella tradition, both sacred and secular. The choir is a professional training ensemble, and each student will explore a variety of vocal techniques for development. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

USP 2003-2014 Code U3CA
USP 2015 Code U5H
Prerequisite: Audition required.

MUSC1405 - The UW Singing Statesmen I

Credits: 1
Max Credit (Max. 12)

Will provide all levels of singer with the rich tradition of male ensemble singing. Students will solidify basic musicianship skills and vocal technique while experiencing camaraderie and service to the region. This ensemble is open to both music majors and non-music majors without audition.

USP 2015 Code U5H

MUSC1407 - Happy Jacks I

Credits: 1
Max Credit (Max. 12)

Student-led male a cappella ensemble that sings contemporary, jazz, and traditional repertoire. The ensemble travels regularly to promote male singing through concerts and school workshops.

Prerequisite: Audition required.
Corequisite: enrollment in The UW Singing Statesmen.

MUSC1411 - Vocal Jazz I

Credits: 1
Max Credit (Max. 12)

Sings standard repertory from various jazz traditions, often with rhythm section. Focus on building musical skill and literacy in the jazz idiom.

Prerequisite: Audition required.

MUSC1415 - Bel Canto Women's Chorus

Credits: 1
Max Credit (Max. 12)

Builds community through score study and the development of fundamental musicianship skills, including sight singing, ear training, and vocal technique. This ensemble is open to both music majors and non-music majors without audition.

USP 2015 Code U5H

MUSC1417 - Laramie Civic Chorus I

Credits: 1
Max Credit (Max. 12)

Welcomes students, faculty, and community members. Repertoire includes musical works from a multiplicity of style periods and genres in both Western and non-Western traditions and includes regular collaboration with the UW Symphony Orchestra for major choral works.

USP 2015 Code U5H

Prerequisite: Audition required.

MUSC1420 - Opera Theatre

Credits: 1
Max Credit (Max. 8)

(MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

MUSC1430 - Symphony Orchestra I

Credits: 1
Max Credit (Max. 8)

The premier orchestral ensemble in the Department of Music. Participation in this ensemble prepares students to perform some of the great symphonic literature from a wide variety of musical periods. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Prerequisite: audition only, freshmen and sophomores.

MUSC1440 - Chamber Orchestra I

Credits: 1

Max Credit (Max. 8)

Devoted to the rehearsal and performance of masterpieces from the chamber orchestra repertoire. Students in the 1440 level of Chamber Orchestra will be expected to have a competent level of proficiency on their parts. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

MUSC1450 - Percussion Ensemble

Credits: 1

Max Credit (Max. 8)

Present concerts that represent the literature and techniques of this growing genre in music. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

MUSC1460 - Brass Ensemble

Credits: 1

Max Credit (Max. 8)

The University of Wyoming Brass Ensemble is a course devoted to the rehearsal and performance of masterpieces from the brass chamber repertoire. Students in the 1460 level of Brass Ensemble will be expected to have a competent level of proficiency on their parts. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

MUSC1470 - Woodwind Ensemble

Credits: 1

Max Credit (Max. 8)

Preparation and performance in a select woodwind chamber ensemble of the finest standard and contemporary wind ensemble literature. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in

residence.)

Restricted Enrollment is restricted freshmen and sophomores.

Prerequisite: audition required.

MUSC1480 - Chamber Music I

Credits: 1

Max Credit (Max. 8)

Designed to provide students with training in the ideal medium of chamber music (small ensembles, such as trio, string quartet, etc.), where they can apply and integrate all elements of their musical knowledge. These include but are not limited to rhythm, intonation, tone-production, blend, musical interpretation, concept of style, etc. (MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

Prerequisite: audition required.

MUSC1490 - Ensemble

Credits: 1

(MUSC 1370, MUSC 1375, MUSC 1380, MUSC 1390, MUSC 1400, MUSC 1420, MUSC 1430, MUSC 1440, MUSC 1450, MUSC 1460, MUSC 1470, MUSC 1480, MUSC 1490. Ensembles. Maximum of 14 semester hours may be used toward the bachelor's degree from any combination of these courses. Music majors must play in one ensemble each semester in residence. Scholarship recipients must play in two ensembles each semester in residence.)

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2080 - Baritone Horn II

Credits: 1-2

Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2090 - Bassoon II

Credits: 1-2

Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2100 - Cello II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2110 - Clarinet II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2120 - Double Bass II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2130 - Flute II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2140 - French Horn II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2150 - Guitar II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2160 - Harp II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2170 - Oboe II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2180 - Organ II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2190 - Percussion II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2200 - Piano II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2210 - Saxophone II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2220 - Trombone II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2230 - Trumpet II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2240 - Tuba II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2250 - Violin II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2260 - Viola II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2270 - Voice II

Credits: 1-2
Applied Lessons

Prerequisite: previous training proven with an audition or 2-4 semester hours of MUSC 1080 through MUSC 1270 on the same instrument.

MUSC2290 - Class Piano III

Credits: 1
Third semester of four-semester sequence developing further piano skills for non-pianists. Involves prescribed scales, arpeggios, harmonizations, chord progressions, transpositions, sight-reading and repertoire.

When Offered (Normally offered fall semester)

Prerequisite: MUSC 1295 or successful completion of final exam for MUSC 1295.

MUSC2295 - Class Piano IV

Credits: 1
Final semester of four-semester sequence of piano skills for non-pianists in which the final exam is the departmental piano proficiency exam.

When Offered (Normally offered spring semester)

Prerequisite: MUSC 2290 or successful completion of the final exams for preceding courses.

MUSC2320 - Diction for Singers I

Credits: 2
Studies phonetic sounds of English and Italian.

When Offered (Offered fall semester)

MUSC2325 - Diction for Singers II

Credits: 2
Studies phonetic sounds of French and German. (Usually offered spring semester)

MUSC2390 - Piano Literacy Exam

Credits: 0
The Piano Literacy test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2390 a maximum of two times. Consult the Music Department Handbook for specific requirements.

Restricted MUSIC, BA and BM Instrumental Performance only

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC3080 - Baritone Horn III

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3090 - Bassoon III

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3100 - Cello III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3110 - Clarinet III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3120 - Double Bass III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3130 - Flute III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3140 - French Horn III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3150 - Guitar III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3160 - Harp III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3170 - Oboe III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3180 - Organ III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3190 - Percussion III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3200 - Piano III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3210 - Saxophone III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3220 - Trombone III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3230 - Trumpet III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3240 - Tuba III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3250 - Violin III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC3260 - Viola III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3265 - Music Education Proficiency Review

Credits: 0

This course is required for entrance into upper-division Music Education coursework. The review will assess competency in oral and written communication skills, preliminary teacher performance, sight singing, and error

detection. Completion is in the sophomore year or in the first semester for transfer students.

Prerequisite: sophomore standing.

MUSC3270 - Voice III

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC3280 - Collaborative Piano II

Credits: 1-2
Max Credit (Max. 8)

Encompasses supervised practice in the art of collaborative piano playing. Discusses traditional usages as applicable to various schools and periods of vocal and instrumental duo literature.

Prerequisite: audition required.

MUSC3380 - Wind Ensemble II

Credits: 1
Max Credit (Max. 8)

Preparation and performance in a select concert band of the finest in contemporary and classic wind and percussion repertory.

Prerequisite: audition required, MUSC 1380 or equivalent and junior standing.

MUSC3385 - World Music Ensemble

Credits: 1
Max Credit (Max. 6)

Participate fully in music making in Sikuris de Wyoming, the Wyoming Gamelan Candra Wyoga, or the Laramie Irish tune session. These group music-making opportunities are distinctly different from other leader-focused ensembles offered in the Department of Music.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC3390 - Jazz Ensemble II

Credits: 1
Max Credit (Max. 8)

Preparation and performance in a select jazz ensemble of the finest in jazz repertory.

USP 2015 Code U5H

Prerequisite: audition required, MUSC 1390 or equivalent and junior standing.

MUSC3400 - Collegiate Chorale II

Credits: 1

Max Credit (Max. 12)

Provide the advanced and committed singer with outstanding performing experiences ranging from major choral masterworks to masterpieces of the a cappella tradition, both sacred and secular. The choir is a professional training ensemble and students may be asked to take on leadership roles. Commitment of time to advance the excellence and public awareness of the ensemble will be required.

USP 2015 Code U5H

Prerequisite: audition required, and junior standing or above.

MUSC3405 - UW Singing Statesmen II

Credits: 1

Max Credit (Max. 12)

Provides all levels of singer with the rich tradition of male ensemble singing. Solidify basic musicianship skills and vocal technique while experiencing camaraderie and service to the region. May be asked to take on leadership roles to advance public awareness. Open to music majors and non-music majors without audition.

USP 2015 Code U5H

Prerequisite: Junior standing or above.

MUSC3407 - Happy Jacks II

Credits: 1

Max Credit (Max. 12)

Student-led male a cappella ensemble that sings contemporary, jazz, and traditional repertoire. Upperclass students may be asked to take on leadership roles. Ensemble travels regularly to promote male singing through concerts and school workshops.

Prerequisite: Audition only.

Corequisite: enrollment in The UW Singing Statesmen.

MUSC3411 - Vocal Jazz II

Credits: 1

Max Credit (Max. 12)

Sings standard repertory from various jazz traditions, often with rhythm section. Focus on building musical skill and literacy in the jazz idiom. Students may be asked to take on leadership roles.

Prerequisite: Audition required. Junior standing or above.

MUSC3415 - Bel Canto Women's Chorus II

Credits: 1

Max Credit (Max. 12)

Builds community through score study and the development of fundamental musicianship skills, including sight singing, ear training, and vocal technique. May be asked to take on leadership roles. This ensemble is open to music majors and non-music majors without audition.

USP 2015 Code U5H

Prerequisite: Junior standing or above.

MUSC3417 - Laramie Civic Chorus II

Credits: 1

Max Credit (Max. 12)

Welcomes students, faculty, and community members. Repertoire includes musical works from a multiplicity of style periods and genres in both Western and non-Western traditions and includes regular collaboration with the UW Symphony Orchestra for major choral works. Students may be asked to take on leadership roles.

USP 2015 Code U5H

Prerequisite: Junior standing or above; audition required.

MUSC3430 - Symphony Orchestra II

Credits: 1

Max Credit (Max. 8)

Preparation and performance in a select symphony orchestra of the finest in orchestral repertory.

USP 2015 Code U5H

Prerequisite: audition required, MUSC 1430 or equivalent and junior standing.

MUSC3440 - Chamber Orchestra II

Credits: 1

Max Credit (Max. 8)

Devoted to the rehearsal and performance of masterpieces from the chamber orchestra repertoire. Students in the 3440 level of Chamber Orchestra will be expected to have a competent level of proficiency on their parts.

MUSC3450 - Percussion Ensemble II

Credits: 1
Max Credit (Max. 8)

A chamber music ensemble, performing repertoire which encompasses classical percussion literature, ethnic drumming styles, and steel drum ensemble. Designed for the advanced undergraduate who has normally attained a higher level of technical ability in percussion by their junior/senior year.

Prerequisite: four semesters of MUSC 1450 or equivalent and junior standing.

MUSC3460 - Brass Ensemble II

Credits: 1
The University of Wyoming Brass Ensemble is a course devoted to the rehearsal and performance of masterpieces from the brass chamber repertoire. Students in the 3460 level of Brass Ensemble will be expected to have a competent level of proficiency on their parts and assume leadership roles in the ensemble.

MUSC3470 - Woodwind Ensemble II

Credits: 1
Max Credit (Max. 8)

Preparation and performance in a select woodwind chamber ensemble of the finest standard and contemporary wind ensemble literature.

Restricted Enrollment is restricted to juniors and seniors.

Prerequisite: audition required; MUSC 1470, and junior standing.

MUSC3480 - Chamber Music II

Credits: 1
Designed to provide students with training in the ideal medium of chamber music (small ensembles, such as trio, string quartet, etc.), where they can apply and integrate all elements of their musical knowledge. These include but not limited to rhythm, intonation, tone-production, blend, musical interpretation, concept of style, etc.

USP 2003-2014 Code U3CA

Prerequisite: consent of instructor; MUSC 1480 and junior standing.

MUSC3490 - Piano Ensemble II

Credits: 1
Max Credit (Max. 8)

Training in the medium of piano duo and piano duet repertoire, apply and integrate all elements of musical knowledge. These include but are not limited to rhythm, tone-production, musical interpretation, concept of style, etc.

Prerequisite: consent of instructor; Audition required. Juniors or Seniors.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4001 - Music Entrepreneurship Seminar

Credits: 2

Further crystalizes successful business enterprise development introduced in ENTR 2700. Student will hone entrepreneurial skills in idea creation, business incubation, development, research, and commercialization.

MUSC4005 - Internship in Music Business

Credits: 1

Offers an evaluated and professional work experience in public or private organizations on assignments relating to student's career goals, allowing students to explore the relationship between theory and practice in their major.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4050 - Advanced Studies in World Music

Credits: 3

Focuses on music-making and cultures of three musical traditions from around the world.

Prerequisite: MUSC 3015.

MUSC4060 - Applied Composition Lessons

Credits: 1-2

Max Credit (Max. 12)

Students meet on a weekly basis with the instructor and work on individual composition projects and exercises. Students will be required to take a juried portfolio examination at the end of the semester to determine, in part, the final grade.

Prerequisite: Previous training proven with a portfolio/ audition or MUSC 4040.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC4080 - Baritone Horn IV

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4090 - Bassoon IV

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4100 - Cello IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4110 - Clarinet IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4120 - Double Bass IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4130 - Flute IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4140 - French Horn IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4150 - Guitar IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4155 - Senior Music Education Recital

Credits: 0

Music Education students perform a recital which may be a part of a Convocation or a separate performance. Consult your studio teacher for individual studio requirements.

Prerequisite: senior standing and studio teacher consent.

MUSC4160 - Harp IV

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4170 - Oboe IV

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4180 - Organ IV

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4190 - Percussion IV

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4200 - Piano IV

Credits: 1-2

Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4210 - Saxophone IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4220 - Trombone IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4230 - Trumpet IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4240 - Tuba IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4250 - Violin IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4255 - Elementary and Secondary Methods: Practicum

Credits: 2

Part of Phase IIIa of the music teacher education program. Practicum experience is integral to MUSC 4265 and must be taken concurrently.

When Offered (Offered fall semester)

Prerequisite: 2.750 cumulative GPA, successful completion of all music and professional education courses and concurrent enrollment in MUSC 4265.

MUSC4260 - Viola IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4265 - Elementary and Secondary Music Teaching Methods

Credits: 8
Comprised of content and pedagogy in Music. Must be taken in the same semester as the 2 semester hour course, MUSC 4255.

When Offered (Offered fall semester).

USP 2003-2014 Code U3D, U3WC

USP 2015 Code U5C3

Prerequisite: 2.750 minimum cumulative GPA, 2.750 GPA in major, successful completion of all music and professional education courses and concurrent enrollment in MUSC 4255.

MUSC4270 - Voice IV

Credits: 1-2
Applied Lessons

Prerequisite: 2-4 semester hours of MUSC 2080 through MUSC 2270 on the same instrument.

MUSC4310 - Choral Arranging

Credits: 2
Teaches working techniques of arranging for the voice in varied combinations of choral ensembles. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030 and MUSC 2035.

MUSC4315 - America's Ethnic Music

Credits: 3
Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4345 - Contemporary Period

Credits: 3

Surveys styles and composers of contemporary period. For graduate credit, students must present extra paper or project determined by instructor.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

MUSC4365 - Recording Art and Technology

Credits: 3

Topics include history of music production, multi-track recording, digital audio workstations, digital editing, session management and production, mixing, mastering, and distribution.

MUSC4370 - Live Sound Reinforcement

Credits: 1

Max Credit 3

Topics include history of live sound reinforcement, analog audio, digital consoles, system checks, troubleshooting, and client relations. Students will build upon MUSC 4360 with focus on live sound reinforcement.

MUSC4380 - Jazz Techniques

Credits: 2
Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)
Prerequisite: MUSC 2035.

MUSC4400 - Vocal Literature

Credits: 0.5-2
Max Credit (Max. 6)

Studies solo materials from Renaissance to present, emphasizing style and interpretation.

Prerequisite: 4 semester hours of voice.

MUSC4455 - Elem General Music Methods

Credits: 3
This course is designed to prepare students for a career in K-6 music teaching while emphasizing the need for music teachers to recognize diverse student needs, including those unique qualities brought into the classroom by marginalized populations.

A&S College Core 2015 ASD
Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent enrollment in MUSC 4705.

MUSC4460 - Choral Music Methods

Credits: 3
This course is designed to help pre-professional music educators gain tools for teaching secondary choral music. Topics to be explored include choral literature, methodology involving strengthening musicianship, rehearsal techniques, and issues pertaining to the development of a choral ensemble program.

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent Enrollment in MUSC 4715 for choral emphasis students.

MUSC4465 - Instrumental Music Methods

Credits: 3
Based on a comprehensive instrumental music education model, this course acquaints students with curriculum

development, instructional planning, and materials and techniques designed for teaching musical concepts and skills in instrumental ensemble and class lesson settings.

USP 2015 Code U5C3

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent enrollment in MUSC 4715 for instrumental emphasis students.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4500 - Directed Independent Study-Undergraduate

Credits: 1-2

Max Credit (Max. 4)

Prerequisite: consent of department head.

MUSC4510 - Applied Music Methods and Materials: Brass Instruments

Credits: 1

Max Credit (Max. 2)

Courses taken in the form of private lessons and subject to similar fees.

A&S College Core 2015 (\$85 Fee)

Prerequisite: at least 16 semester hours in one performance field and/or consent of instructor.

MUSC4520 - Applied Music Methods and Materials: Organ

Credits: 1

Max Credit (Max. 2)

Courses taken in the form of private lessons and subject to similar fees.

A&S College Core 2015 (\$85 Fee)

Prerequisite: at least 16 semester hours in one performance field and/or consent of instructor.

MUSC4530 - Applied Music Methods and Materials: Piano

Credits: 1
Max Credit (Max. 2)

Courses taken in the form of private lessons and subject to similar fees.

A&S College Core 2015 (\$85 Fee)

Prerequisite: at least 16 semester hours in one performance field and/or consent of instructor.

MUSC4560 - Applied Music Methods and Materials: Voice

Credits: 1
Max Credit (Max. 2)

Courses taken in the form of private lessons and subject to similar fees.

A&S College Core 2015 (\$100 Fee)

Prerequisite: at least 16 semester hours in one performance field and/or consent of instructor.

MUSC4590 - Senior Recital

Credits: 2
Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

MUSC4615 - Instrumental Pedagogy

Credits: 2
Surveys teaching materials in solo and chamber literature, techniques, practices, and methods for applicable instrument.

Prerequisite: 8 credit hours of individual study in a specific instrument.

MUSC4620 - Practicum in Music Education

Credits: 1
Provides opportunity to gain experience in music classroom in area public schools. Includes work on meeting educational standards of Wyoming necessary to begin student teaching and continued work on developing a teaching portfolio.

Prerequisite: MUSC 1050 and junior status.

MUSC4625 - Piano Pedagogy

Credits: 2
Max Credit (Max. 2)

This specialized course addresses the teaching of piano to children with special emphasis on the development of correct

technique, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private studio. The last quarter of the class includes an in-class, supervised teaching unit.

Dual Listed MUSC 5625.

Former Course Number [4600]

Prerequisite: 8 credit hours of piano study.

MUSC4635 - Vocal Pedagogy

Credits: 2

This specialized course addresses anatomy and physiology of the vocal instrument and the scientific principles surrounding it, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private voice studio. The last quarter of the class includes an in-class, supervised teaching unit. Students enrolled in the graduate level (5635) will undertake an extensive research paper/project and additional teaching.

Dual Listed MUSC 5635.

When Offered (Offered alternate spring semesters)

Former Course Number [4610]

Prerequisite: 8 credits of voice or permission of instructor.

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050, MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin, viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4700 - Elementary Student Teaching in Music

Credits: 8

The final professional academic semester of the teacher education program. A full-time residency with an elementary

mentor teacher.

Prerequisite: 2.750 cumulative GPA, 3.000 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

MUSC4705 - Elementary Music Ed Practicum

Credits: 1

Practicum experience is integral to development as a music teacher. As part of the Music Teaching Methods Sequence, pre-service music teachers will be immersed into authentic elementary and secondary music settings.

Restricted Restricted to Music Education majors.

Prerequisite: Concurrent enrollment with MUSC 4455 for instrumental emphasis students.

MUSC4710 - Secondary Student Teaching in Music

Credits: 8

The final professional academic semester of the teacher education program. A full-time residency with a secondary mentor teacher.

Prerequisite: 2.750 cumulative GPA, 3.000 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

MUSC4715 - Secondary Music Ed Practicum

Credits: 1

Practicum experience is integral to development as a music teacher. As part of the Music Teaching Methods Sequence, pre-service music teachers will be immersed into authentic elementary and secondary music settings.

Restricted Restricted to Music Education majors.

Prerequisite: Concurrent enrollment with MUSC 4460 or MUSC 4465.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation,

phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4990 - Topics in:

Credits: 1-12

Max Credit (Max. 12)

Encompasses various topics in music. Specific subjects vary from year to year as course is often taught by distinguished visiting artists and lecturers or music faculty. Presents topics of special interest to music majors, graduate students and music educators. Please check class schedule for course titles each semester.

Prerequisite: consent of instructor.

MUSC5010 - Mentoring the Pre-Service Music Educator

Credits: 1

Max Credit (Max. 4)

Designed for K-12 supervisors of pre-service music teachers, the goal of the course is to provide guidance and theoretical grounding through readings, discussion, journaling, and research projects. Participants will participate in two on-site workshops, weekly tele-conferences and complete a written research project.

Prerequisite: consent of instructor.

MUSC5035 - Advanced Theory

Credits: 3

To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combining historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

MUSC5035 - Advanced Theory I

Credits: 3
Max Credit 3

To further understanding in chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combining historical and theoretical elements in viewing the work as a whole.

Prerequisite: Prerequisites: Undergraduates - MUSC 2030 and 2035, music majors only. Graduates: Graduate standing.

MUSC5080 - Baritone Horn V

Credits: 1-2
Max Credit (Max. 8)

Prerequisite: 2-4 semester hours of MUSC 4080 on the same instrument or graduate standing.

MUSC5090 - Bassoon V

Credits: 1-2
Max Credit (Max. 8)

MUSC5100 - Cello V

Credits: 1-2
Max Credit (Max. 8)

MUSC5110 - Clarinet V

Credits: 1-2
Max Credit (Max. 8)

MUSC5120 - Double Bass V

Credits: 1-2
Max Credit (Max. 8)

MUSC5130 - Flute V

Credits: 1-2
Max Credit (Max. 8)

MUSC5140 - French Horn V

Credits: 1-2
Max Credit (Max. 8)

MUSC5150 - Guitar V

Credits: 1-2
Max Credit (Max. 8)

MUSC5160 - Harp V

Credits: 1-2
Max Credit (Max. 8)

MUSC5170 - Oboe V

Credits: 1-2
Max Credit (Max. 8)

MUSC5180 - Organ V

Credits: 1-2
Max Credit (Max. 8)

MUSC5190 - Percussion V

Credits: 1-2
Max Credit (Max. 8)

MUSC5200 - Piano V

Credits: 1-2
Max Credit (Max. 8)

MUSC5210 - Saxophone V

Credits: 1-2
Max Credit (Max. 8)

MUSC5220 - Trombone V

Credits: 1-2
Max Credit (Max. 8)

MUSC5230 - Trumpet V

Credits: 1-2
Max Credit (Max. 8)

MUSC5240 - Tuba V

Credits: 1-2
Max Credit (Max. 8)

MUSC5250 - Violin V

Credits: 1-2
Max Credit (Max. 8)

MUSC5260 - Viola V

Credits: 1-2
Max Credit (Max. 8)

MUSC5270 - Voice V

Credits: 1-2
Max Credit (Max. 8)

MUSC5310 - Music Research Methods

Credits: 2

Prepares students to be knowledgeable consumers of music and interdisciplinary information. Topics include the musicology research process, information ethics, and critical analyses and integration of information sources into writing. Information literacy principles and research techniques equip students for both graduate-level music research and the post-graduate, professional world.

Prerequisite: graduate standing in music.

MUSC5320 - Advanced Seminar

Credits: 2-6
Max Credit (Max. 6)

Such topics as The Music of J. S. Bach, The Chamber Music of Mozart, and Contemporary Music will be pursued and will terminate in oral reports and a research paper.

Prerequisite: MUSC 5310.

MUSC5340 - Advanced Composition

Credits: 1-4
Max Credit (Max. 6)

A project course to be conducted by individual appointment with the instructor. The result should be the production of a major work suitable for performance by one of the campus organizations. Evaluation is made by a faculty committee on completion and performance of the composition.

Prerequisite: 4 hours of MUSC 4040.

MUSC5350 - Advanced Analysis

Credits: 3
Consideration of the analytical techniques of Harder, Piston, and Schillinger for traditional music, of Hanson and

Hindemith for modern tonal music, and of Schoenberg and Reti for serial music.

Prerequisite: graduate standing in music.

MUSC5360 - Pedagogy of Theory

Credits: 2

Consideration of the subject matter of all undergraduate theory courses, procedures for presenting the material, and analysis and evaluation of texts and methods.

Prerequisite: graduate standing in music.

MUSC5370 - Advanced Choral Conducting

Credits: 1-2

Max Credit (Max. 3)

The interpretation of well-known oratorios and cantatas; experience in the direction of campus choral groups.

Prerequisite: MUSC 4070, MUSC 4790.

MUSC5380 - Advanced Instrumental Conducting

Credits: 1-2

Max Credit (Max. 3)

Interpretive analysis of instrumental works in large form; experience in the direction of campus performing groups.

Prerequisite: MUSC 4070, MUSC 4780.

MUSC5390 - Performance Practice and Interpretation

Credits: 2

A study of the inherited traditions of correct interpretation and performance as related to the various style periods in music.

Prerequisite: graduate standing in music.

MUSC5400 - Independent Study and Research

Credits: 1-2

Max Credit (Max. 6)

Prerequisite: graduate standing and consent of instructor.

MUSC5410 - History of Musical Instruments

Credits: 2

An investigation of the mechanical evaluation of musical instruments as related to the music written for these instruments.

Prerequisite: graduate standing in music.

MUSC5480 - Baritone Horn VI

Credits: 1-2

Max Credit (Max. 8)

MUSC5490 - Bassoon VI

Credits: 1-2

Max Credit (Max. 8)

MUSC5500 - Cello VI

Credits: 1-2

Max Credit (Max. 8)

MUSC5510 - Clarinet VI

Credits: 1-2

Max Credit (Max. 8)

MUSC5520 - Double Bass VI

Credits: 1-2

Max Credit (Max. 8)

Covers appropriate technical and repertory materials in graduate-level double bass. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5530 - Flute VI

Credits: 1-2

Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level flute. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5540 - Guitar VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level guitar. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5550 - Harp VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level harp. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5560 - French Horn VI

Credits: 1-2
Max Credit (Max. 8)

Prerequisite: 4 semester hours of MUSC 4560 or graduate standing.

MUSC5570 - Oboe VI

Credits: 1-2
Max Credit (Max. 8)

Prerequisite: 4 semester hours of MUSC 4570 or graduate standing.

MUSC5580 - Organ VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level organ. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5590 - Percussion VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level percussion. A faculty jury will review

each semester's work.

Prerequisite: graduate standing in music.

MUSC5600 - Piano VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level piano. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5610 - Saxophone VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level sax. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5615 - Capstone

Credits: 3

Designed to provide a forum to present research in music that fulfills requirements of the Plan B process. Instruction is individualized, but involves cooperative learning opportunities with other students. The student presents the finished product to the class members.

Restricted Course is restricted to students doing Plan B paper only.

Prerequisite: Plan B proposal approved by the music department graduate committee.

MUSC5620 - Trombone VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level trombone. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5625 - Piano Pedagogy

Credits: 2

Max Credit (Max. 2)

This specialized course addresses the teaching of piano to children with special emphasis on the development of correct technique, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private studio. The last quarter of the class includes an in-class, supervised teaching unit.

Dual Listed MUSC 4625.

Prerequisite: 8 credit hours of piano study.

MUSC5630 - Trumpet VI

Credits: 1-2

Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level trumpet. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5635 - Vocal Pedagogy

Credits: 2

This specialized course addresses anatomy and physiology of the vocal instrument and the scientific principles surrounding it, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private voice studio. The last quarter of the class includes an in-class, supervised teaching unit. Students enrolled in the graduate level (5635) will undertake an extensive research paper/project and additional teaching.

Dual Listed MUSC 4635.

When Offered (Offered alternate spring semesters)

Prerequisite: 8 credits of voice or permission of instructor.

MUSC5640 - Tuba VI

Credits: 1-2

Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level tuba. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5650 - Violin VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level violin. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5660 - Viola VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level viola. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5670 - Voice VI

Credits: 1-2
Max Credit (Max. 8)

Designed to cover appropriate technical and repertory materials in graduate-level voice. A faculty jury will review each semester's work.

Prerequisite: graduate standing in music.

MUSC5680 - Graduate Recital

Credits: 2

A recital, vocal or instrumental and consisting of selections of advanced difficulty in matters of technique and interpretation, is presented under the direction of a staff member. Quality and content of recital must be approved by a faculty committee one month before the recital date, and the faculty committee will determine the final grade.

Prerequisite: graduate standing in music and consent of instructor.

MUSC5690 - Advanced Teaching Methods

Credits: 1

Designed to present new and improved methods of teaching the various band and orchestral instruments in the public schools.

MUSC5700 - Advanced Teaching Methods

Credits: 1

Designed to present new and improved methods of teaching the various band and orchestral instruments in the public schools.

MUSC5710 - Advanced Teaching Methods

Credits: 1

Designed to present new and improved methods of teaching the various band and orchestral instruments in the public schools.

MUSC5720 - Musical Supervision: Choral

Credits: 2

Examination of the administrative responsibilities of the music teacher, the music department chairman, and the district music supervisor in the public schools, as well as the responsibilities of a music festival chairman and officers of the state music educators association.

Prerequisite: graduate standing in music.

MUSC5730 - Musical Supervision: Instruments

Credits: 2

Examination of the administrative responsibilities of the music teacher, the music department chairman, and the district music supervisor in the public schools, as well as the responsibilities of a music festival chairman and officers of the state music educators association.

Prerequisite: graduate standing in music.

MUSC5760 - Music Education Seminar

Credits: 2

A study and discussion of trends, objectives, and curricula of the various phases of music education.

MUSC5770 - Marching Band

Credits: 0.5

Max Credit (Max. 2)

MUSC5780 - Wind Ensemble III

Credits: 0.5

Max Credit (Max. 2)

One of the elite ensembles in the Department of Music, Wind Ensemble offers participants the opportunity to prepare and perform some of the finest, most technically challenging, contemporary and classic wind and percussion repertory.

Prerequisite: graduate or Performer's Certificate students, audition required.

MUSC5790 - Jazz Ensemble III

Credits: 0.5
Max Credit (Max. 2)

Preparation and performance in a select jazz ensemble of the finest in standard jazz ensemble repertory and contemporary compositions by living jazz artists.

Restricted Enrollment is restricted to graduate and Performer's Certificate students only.

Prerequisite: audition required.

MUSC5800 - Collegiate Chorale III

Credits: 0.5
Max Credit (Max. 12)

Provide the advanced and committed singer with outstanding performing experiences ranging from major choral masterworks to masterpieces of the a cappella tradition, both sacred and secular. The choir is a professional training ensemble and students may be asked to take on active musical leadership roles. Commitment of time to advance the excellence and public awareness of the ensemble will be required.

Prerequisite: audition required, and graduate standing.

MUSC5805 - The UW Singing Statesmen III

Credits: 0.5
Max Credit (Max. 12)

The UW Singing Statesmen provides all levels of singers with the rich tradition of male ensemble singing. Students will solidify basic musicianship skills and vocal technique while experiencing camaraderie and service to the region. Students may be asked to take on music leadership roles and advance the excellence and public awareness of the ensemble. Open to music majors and non-music majors without audition.

Prerequisite: Graduate standing.

MUSC5807 - Happy Jacks III

Credits: 0.5
Max Credit (Max. 12)

Student-led male a cappella ensemble that sings contemporary, jazz, and traditional repertoire. The ensemble travels regularly to promote male singing through concerts and school workshops. Students may act as musical director. Audition only.

Prerequisite: Audition required. Graduate standing.

Corequisite: enrollment in The UW Singing Statesmen.

MUSC5811 - Vocal Jazz III

Credits: 0.5
Max Credit (Max. 12)

Sings standard repertory from various jazz traditions, often with rhythm section. Focus on building musical skill and literacy in the jazz idiom. Students may be asked to take on leadership roles. Audition only.

Prerequisite: Audition required. Graduate standing.

MUSC5815 - Bel Canto Women's Chorus III

Credits: 0.5
Max Credit (Max. 12)

Builds community through score study and the development of fundamental musicianship skills, including sight singing, ear training, and vocal technique. Students may be asked to take on leadership roles. This ensemble is open to both music majors and non-music majors without audition.

Prerequisite: Graduate standing.

MUSC5817 - Laramie Civic Chorus III

Credits: 0.5
Max Credit (Max. 12)

Welcomes students, faculty, and community members. Repertoire includes musical works from a multiplicity of style periods and genres in both Western and non-Western traditions and includes regular collaboration with the UW Symphony Orchestra for major choral works. Students may be asked to take on leadership roles.

Prerequisite: Graduate standing; audition required.

MUSC5820 - Opera Theatre

Credits: 0.5
Max Credit (Max. 2)

MUSC5830 - Symphony Orchestra III

Credits: 0.5
Max Credit (Max. 2)

The premier orchestral ensemble in the Department of Music. Participation in this ensemble prepares students to perform some of the great symphonic literature from a wide variety of musical periods.

Prerequisite: graduate or Performer's Certificate students; audition required.

MUSC5840 - Chamber Orchestra

Credits: 0.5-1
Max Credit (Max. 2)

Devoted to the rehearsal and performance of masterpieces from the chamber orchestra repertoire. Students in the 5840 level of Chamber Orchestra will be expected to assume leadership roles within the ensemble, help with bowings, lead sectionals and be highly proficient on their individual parts.

MUSC5850 - Percussion Ensemble

Credits: 0.5
Max Credit (Max. 2)

MUSC5860 - Brass Ensemble III

Credits: 0.5
Max Credit (Max. 2)

The University of Wyoming Brass Ensemble is a course devoted to the rehearsal and performance of masterpieces from the brass chamber repertoire. Students in the 5860 level of Brass Ensemble will be expected to have a high level of proficiency on their parts and assume leadership roles within the ensemble.

MUSC5870 - Woodwind Ensemble III

Credits: 0.5
Max Credit (Max. 2)

Preparation and performance in a select woodwind chamber ensemble of the finest standard and contemporary wind ensemble literature.

Prerequisite: graduate or Performer's Certificate students; audition required.

MUSC5880 - Chamber Music III

Credits: 0.5
Max Credit (Max. 2)

Designed to provide students with training in the ideal medium of chamber music (small ensembles, such as trio, string quartet, etc.), where they can apply and integrate all elements of their musical knowledge. These include but are not limited to rhythm, intonation, tone-production, blend, musical interpretation, concept of style, etc.

Prerequisite: graduate or Performer's Certificate students; audition required.

MUSC5885 - Collaborative Piano III

Credits: 1-2
Max Credit (Max. 8)

Encompasses supervised practice in the art of collaborative piano playing. Discusses traditional usages as applicable to various schools and periods of vocal and instrumental duo literature.

Prerequisite: Audition required; MUSC 3280 or equivalent and graduate standing.

MUSC5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

MUSC5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

MUSC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

MUSC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

MUSC5961 - Plan B Paper/Plan B Lecture- Recital

Credits: 0
Plan B Paper/Plan B Lecture- Recital. Required capstone for the MM degree. Required capstone for the MM degree. Satisfactory/Unsatisfactory only.

MUSC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Native American and Indigenous Studies

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1010 - Beginning Indigenous Language

Credits: 4

Fundamentals of grammar, conversation, composition, and reading.

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.
USP 2003-2014 Code U3I, U3L
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2010 - Intermediate Indigenous Language

Credits: 4

Second level fundamentals of grammar, conversation, composition, and reading.

Prerequisite: NAIS 1010.

NAIS2060 - Topics

Credits: 1-4

Max Credit (Max. 6)

Popular and current topics in American Indian studies.

NAIS2210 - North American Indians

Credits: 3

Comparative consideration of North American Indian culture areas at European contact period.

Cross Listed ANTH 2210.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed ENGL 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA course.

NAIS2345 - American Indians in Hollywood Film

Credits: 3

Examines the ways Hollywood films have constructed various forms of racial identity for American Indians.

Cross Listed ENGL 2345.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD
Prerequisite: WA.

NAIS3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the Plains region of the U. S. from prehistory to the present.

Cross Listed HIST 3000.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 6 hours of HIST or NAIS.

NAIS3010 - Proficient Indigenous Language

Credits: 4

Emphasizes the development of listening, speaking, reading, and writing so as to help students function effectively in the tribal cultural context of which the language is a part.

Prerequisite: NAIS 2010.

NAIS3100 - Tribal Literatures of the Great Plains

Credits: 3

Familiarizes students with American Indian literatures of the Great Plains. The Great Plains region is the locus of much historical and contemporary significance in regard to American Indian cultures. The literature of Great Plains Indians allows students to confront and reexamine the national narratives surrounding American Indians.

Cross Listed ENGL 3100.
USP 2003-2014 Code U3D, U3WC
A&S College Core 2015 ASD
Prerequisite: 6 hours of NAIS or ENGL.

NAIS3200 - Indigenous Peoples and the Environment

Credits: 3

Understand the historical, political, and socio-economic forces that have shaped the relationships of Indigenous peoples to their environments, and be able to discern the similarities and dissimilarities of Indigenous issues across international borders. The course may include a study abroad component.

Prerequisite: 6 hours NAIS credit.

NAIS3300 - Federal Indian Law

Credits: 3

Survey of law that applies to individual Indians and tribal governments. In particular, explores the legal relationships among, and relative jurisdictions of federal, tribal, and state governments. Specific topics include civil and criminal jurisdiction, taxation, family law, hunting and fishing, and gaming regulations.

Prerequisite: NAIS 1001 or NAIS 1350.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

NAIS4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed HIST 4000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

NAIS4010 - Advanced Indigenous Language

Credits: 4

Stresses the usage of language through composition, conversation, oral presentation, and grammar review.

Prerequisite: NAIS 3010.

NAIS4020 - Internship

Credits: 1-12

Max Credit (Max. 12)

Requires active participation and service to an Indigenous community or organization in US or elsewhere. A written agreement among the student, the NAIS director or NAIS faculty mentor, and an on-site supervisor is required. NAIS Majors must take at least four credit hours.

Prerequisite: 9 hours of NAIS courses.

NAIS4100 - Tribal Government

Credits: 3

Examines traditional systems of tribal governance; the establishment of contemporary tribal governments; stakeholders and their goals; factors influencing tribal government operations, including the federal trust relationship, plenary power, tribal federal and tribal-state relations; powers of tribal governments; and the future of tribal governments.

Prerequisite: 6 hours of NAIS courses, including NAIS 1001, and/or NAIS 1350.

NAIS4110 - Educational Foundations in American Indian Education

Credits: 3

Examines cultural, geographical, linguistic, spiritual, political, and societal factors before, during, and after colonization of the Americas. Definitions and day-to-day realities of terms like ethnocentrism, cultural relativism, assimilation, acculturation, and institutional racism. Development of insights into positive teacher-pupil-community relationships that honor culture and language differences and enhance achievement.

Cross Listed EDCI 4110.

Dual Listed NAIS 5110.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: NAIS 1001 and 15 credit hours of NAIS or EDST.

NAIS4200 - Indigenous Communities Abroad: International Travel

Credits: 4

Devoted to study/ travel related to Indigenous peoples abroad. The specific topic will be determined each time the class is offered. Two weeks of international travel will follow sixteen hours of on-campus instruction.

Prerequisite: 6 credits in NAIS.

NAIS4340 - Natural Resource Management on Western Reservations

Credits: 3

Examines natural resource management techniques on western reservations. Focus is on the management and planning of water, grazing, extractive industries, and forestry. Fieldwork on the Wind River Indian Reservation is included.

Cross Listed GEOG 4340.

Prerequisite: 6 hours of 2000-level NAIS courses.

NAIS4360 - American Indian Women

Credits: 3

Explores the lives of American Indian women in a variety of contexts through time. Complexity and diversity of Indian

women's experiences throughout history are emphasized. Concerns Indian women's lives within the reality of European American colonization and its consequences for Indian peoples.

Cross Listed GWST 4360/SOC 4360.

Dual Listed NAIS 5360.

Prerequisite: 6 hours of 2000-level NAIS courses.

NAIS4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed ENGL 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

NAIS4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution.

Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed HIST 4462.

Dual Listed NAIS 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

NAIS4463 - American Indian History 1783- 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied Indians moving west.

Cross Listed HIST 4463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

NAIS4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the 20th century. Examines the development of new cultural, social, and political forms that help create an American Indian identity.

Cross Listed HIST 4464.
Dual Listed NAIS 5464.
USP 2003-2014 Code U3D
Prerequisite: 9 hours of HIST or NAIS.

NAIS4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed HIST 4466.
Dual Listed NAIS 5466.
Prerequisite: 9 hours of HIST, NAIS, or ANTH.

NAIS4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed HIST 4468.
A&S College Core 2015 ASD
Prerequisite: 9 hours of HIST or NAIS.

NAIS4740 - Native American Languages and Cultures

Credits: 3

Demonstrates the interrelationship of language and culture in several Native American communities. Examines anthropological and linguistic theories regarding language spread and the peopling of North America, narrative performance, translation, and the connection between linguistic structures and cultural features.

Cross Listed ANTH 4740.
Prerequisite: ANTH 2000 or consent of instructor.

NAIS4975 - Independent Study

Credits: 1-4
Max Credit (Max. 8)

Directed, independent study in American Indian issues with American Indian Studies affiliated faculty. Students must initiate a project with an appropriate faculty member and have it approved by the program director.

Prerequisite: consent of instructor and 6 hours of NAIS.

NAIS4990 - Special Topics

Credits: 1-4
Max Credit (Max. 9)

Current research topics presented by regular and visiting faculty.

Prerequisite: 3 hours of NAIS courses.

NAIS5000 - Independent Study

Credits: 1-4
Max Credit (Max. 4)

Conference course to permit students opportunity for directed and independent study in American Indian issues.

Prerequisite: graduate standing and consent of instructor.

NAIS5110 - Foundations of American Indian Education

Credits: 3

Examines cultural, geographical, linguistic, spiritual, political, and societal factors before, during, and after colonization of the Americas. Definitions and day-to-day realities of terms like ethnocentrism, cultural relativism, assimilation, acculturation, and institutional racism. Development of insights into positive teacher-pupil-community relationships that honor culture and language differences and enhance achievement.

Cross Listed EDCI 5110.

Dual Listed NAIS 4110.

Prerequisite: NAIS 1001 and 15 credit hours of NAIS or EDST.

NAIS5121 - History and Philosophy of American Indian Education

Credits: 3

Addresses the history of Indian education in the U. S. and Canada and examines missionary initiatives, government programs, and tribal efforts. Review of documentary accounts of Native education, review autobiographical accounts of Native teachers and children. Develop insight necessary for development of appropriate teaching methods and materials.

Cross Listed EDCI 5121.

Prerequisite: post-Baccalaureate status.

NAIS5130 - Cultural Foundations of American Indian Education

Credits: 3

In-depth study and analysis of the educational experiences of American Indians, focusing on contemporary educational issues and experiences, examining the impacts of cultural orientations, stereotypes, bias, and other issues on the educational attainment of American Indian students. Critique instructional practices and programs developed

addressing the needs of American Indian students.

Cross Listed EDCI 5130.

Prerequisite: post-Baccalaureate status.

NAIS5141 - Instructional Methods of American Indian Education

Credits: 3

Addresses culturally responsive methodologies for teaching American Indian students, reviews documentary accounts of Native education and autobiographical accounts of Native teachers and children, develops appreciation of the complexity and difficulties of Native education. Insight necessary for development of appropriate teaching methods and materials.

Cross Listed EDCI 5141.

Prerequisite: post-Baccalaureate status.

NAIS5360 - American Indian Women

Credits: 3

Explores the lives of American Indian women in a variety of contexts through time. The complexity and diversity of Indian women's experiences throughout history are emphasized. Concerns Indian women's lives within the reality of European American colonization and its consequences for Indian peoples.

Cross Listed GWST 5360/SOC 5360.

Dual Listed NAIS 4360.

Prerequisite: 6 hours of 2000-level NAIS courses.

NAIS5462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed HIST 5462.

Dual Listed NAIS 4462.

Prerequisite: graduate standing.

NAIS5464 - American Indian History in the 20th Century

Credits: 3

Surveys the history of American Indians during the 20th century. Examines the development of new cultural, social, and political forms that help create an American Indian identity.

Cross Listed HIST 5464.

Dual Listed NAIS 4464.

Prerequisite: graduate standing.

NAIS5466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Dual Listed NAIS 4466.

Prerequisite: graduate standing.

Natural Science

NASC4790 - Topics in Natural Science

Credits: 1-6

Presents selected science topics to acquaint teachers or prospective teachers with new concepts, materials or techniques, as introduced in various new school curricula. Topics may include earth science for the middle school, computer learning and/or elementary school environmental science. Includes laboratory.

Prerequisite: junior standing.

NASC4800 - Field Studies in Natural Science

Credits: 1-6

Explores topics best studied in the field, on location, or otherwise outside the traditional classroom. Topics may include grassland ecosystem, geology field trips for elementary children and/or schoolyard study areas. Includes laboratory.

Prerequisite: junior standing.

NASC5110 - Physical Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Examines the global dynamics of energy, hydrocarbon combustion, and the physics and chemistry of water. Investigates relationships between energy transformations and pollutants. Considers environmental limitations of fresh water availability and the buffering effect of sea and fresh water.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in Elementary, middle school or general science education.

NASC5120 - Earth Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Emphasizes the lithosphere and atmosphere and their interactions with the hydrosphere and biosphere. Examines the interplay between tectonic processes, earth's radiation balance, ocean processes, ozone depletion and the greenhouse effect. Includes evaluation of methods of measuring and

monitoring these phenomena.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teach certification in elementary, middle school or general science education.

NASC5130 - Life Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Investigates ecosystem composition and processes, and biological responses to changes in ecosystem parameters. Examines terrestrial and aquatic communities, photosynthesis, energy flow, biogeochemical cycles, global climate change, climate warning, deforestation, population ecology, DNA/ RNA structure, function, genetic engineering and forensic applications.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science education.

NASC5140 - Numbers, Operations, and Patterns for the Middle-Level Learner, MMA

Credits: 3

Provides working middle-level mathematics teachers opportunities to understand and discuss numbers, their representations, and operations on them, from an abstract perspective that includes elegant proof. Also emphasized is the role of language and purpose in composing definitions.

Cross Listed MATH 5140.

Prerequisite: admission to a UW graduate program, either degree or non-degree seeking status, and acceptance into the Middle-level mathematics program.

NASC5160 - Social and Historical Issues in Mathematics and the Middle-Level Learner, MMA

Credits: 3

Empowers teachers of middle-level mathematics to design engaging experiences. Emphasizes the historical context for the development of mathematics, especially its symbols, tools, personalities, and classic problems.

Cross Listed MATH 5160.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5170 - Connecting Geometry with Problem- Solving for the Middle-Level Learner, MMA

Credits: 3

Showcases two aspects of 2D and 3D geometry: measurement and transformation. Emphasis reflects current State and National standards for middle-level mathematics classroom and teacher preparation, especially appropriate uses of technology, geometric tools, mathematical language, and problem-solving strategies.

Cross Listed MATH 5170.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, acceptance into the Middle-level mathematics program.

NASC5185 - Analysis of Data in the Media for the Middle-Level Learner, MMA

Credits: 3

Focuses on data collection, analysis, interpretation, and communication, using contexts relevant to everyday situations. Topics chosen integrate well with the concerns of middle-level teachers and connect with such curriculum areas as health, science, and social studies. This is not a research methods course.

Cross Listed STAT 5185

Prerequisite: Admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5190 - Mathematics of Change and the Middle-Level Learner, MMA

Credits: 3

Students gain a solid understanding of data and functions in the service of calculus. Hands-on, project-driven, and focuses on the essential concepts of functions and calculus and their role in middle-level mathematics. Emphasis is on writing and technology (calculators and probeware).

Cross Listed MATH 5190.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5205 - Methods of Teaching Middle-Level Mathematics, MMA

Credits: 3

Research-based pedagogy and pedagogical content knowledge for teaching middle-level mathematics. Designed for practicing teachers of middle-grades mathematics.

Cross Listed EDCI 5205.

Prerequisite: admission to the SMTC Program.

NASC5215 - Using Technology for Middle-Level Mathematics

Credits: 3

Covers the use of technology appropriate to middle-level mathematics teaching, such as microworlds, geographic information systems, spreadsheets, and other content appropriate technologies. Cross Listed with EDCI 5215.

Prerequisite: admission to the SMTC Program.

Cross Listed EDCI 5215

Prerequisite: Admission to the SMTC Program.

NASC5225 - Assessment for Middle-Level Mathematics, MMA

Credits: 3

Middle-level Mathematics Initiative teacher participants examine, analyze, and implement a variety of assessments that are aligned with standards and instruction appropriate to the middle level math learner.

Cross Listed EDCI 5225.

Prerequisite: admission to the SMTC Program.

NASC5300 - Classroom Assessment in Middle-level Science, MSC

Credits: 2

Deals with the design, construction, and testing of curriculum materials to bring the spirit of scientific inquiry to elementary school pupils. Research to be conducted in the Science and Mathematics Teaching Center.

NASC5400 - Spatial Data Instructional Technology

Credits: 1

Teaching strategies appropriate for elementary/middle school students' conceptual level of development. Positive attitudes toward teaching children about the Earth, its physical environment and human/environment relationships will be promoted. The course content will be supported by the use of geospatial technologies, such as GPS and GIS.

Prerequisite: graduate standing.

NASC5510 - Integrated Instructional Strategies, MSC

Credits: 2

Appropriate instructional strategies are discussed and modeled for aligning standards, expectations, and experiences in an integrated science environment. Attention is given to unique characteristics of each strategy, including a review of research on the effectiveness of each strategy on student achievement and attitudes.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5600 - Mathematics and Statistics in Science Teaching, MSC

Credits: 2

Provides science teachers with the knowledge and experience necessary to help students use statistics in the scientific process. Activities emphasize a hands-on inductive approach closely related to the school science curriculum. Important statistical ideas and methods are studied as they arise naturally in the biological, physical, and earth sciences.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5610 - Field Studies in Environmental Education, NED

Credits: 4

Expands student's knowledge of ecological and physiological animal and plant adaptations to environmental conditions, the use of teaching methods and tools of naturalists, the range of resources available for designing and evaluating curriculum, and promotes an appreciation and understanding of the diversity of environments. Contains 4 modules.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5620 - Advanced Elements of Field Ecology Course Design, NED

Credits: 5

Max Credit (Max. 6)

Addresses designing field ecology courses that include research, outdoor leadership, and natural history components. Opportunities are provided to gain deeper understanding of key natural history and ecology concepts of the bioregion; practical strategies for teaching these concepts in field programs; and to formally present student work.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5625 - Place-Based Education-Teton Science School

Credits: 3

Introduces graduate students at Teton Science Schools to the theory and practice of place-based education. The design of the course exposes students to the historical, political, and eco-social underpinnings of place-based education while supporting students in developing thoughtful place-based pedagogies.

Prerequisite: graduate student status.

NASC5630 - Teaching Practicum-Teton Science School

Credits: 2-4

Max Credit (Max. 6)

To improve teaching methods and techniques and expand professional skills. Integrates the foundation of Teton Science Schools, applies coursework content understanding and develops leadership. The course is intended to challenge previously held instructional beliefs and nurture an evolving set of skills and instructional identity. Not equivalent to EDSE 4500 or EDCI 5990 or EDEL 4500.

Prerequisite: current enrollment at Teton Science School.

NASC5640 - Introduction to Field Science Teaching

Credits: 3

Designed to introduce graduate students at Teton Science Schools' to the field of environmental education and instructional concepts for teaching environmental science in the outdoors. Learn field science content, principals of connecting to place, teaching techniques, and learning theories related to environmental education and field science

teaching.

Prerequisite: current enrollment at Teton Science School.

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

NASC5660 - Standards, Pedagogy and Research

Credits: 2

This course is designed to provide Master of Science in Natural Science students with background in three areas: current science standards, pedagogical practices, and the understanding of various types of educational research as well as some of the practices related to conducting their own research projects.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5670 - Research Methodology

Credits: 4

This course provides foundational information on asking appropriate questions, researching (including IRB), writing, formatting, and defending a Plan B project. At the end of the semester students will have a committee, a preliminary draft, and present their research. Spring semester will be used to complete projects with committee members.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5700 - Seminar in Science for Secondary School Teachers

Credits: 1-6

Max Credit (Max. 6)

A course to give graduate students in education, or in-service teachers, an in-depth view of the new materials for teaching science in secondary schools.

Prerequisite: consent of instructor.

NASC5770 - Investigation in Natural Science for Secondary Teachers

Credits: 1-5

Max Credit (Max. 10)

Deals with the design, construction, and testing of curricula materials to bring the spirit of scientific inquiry to

secondary school students. Research to be conducted in the Science and Mathematics Teaching Center.

Prerequisite: consent of instructor.

NASC5810 - ML Science & Math Practicum

Credits: 3

Practica for graduate students in the MS-Natural Science MSC and MMA programs in Middle and Junior High schools. Mathematics and science classrooms will serve as sites for assignments. Students complete assignments for the content area of certification as well as appropriate discussions.

Prerequisite: Graduate students in department who have passed at least four departmental courses or consent of the instructor.

NASC5890 - Directed Professional Study

Credits: 1-6

Max Credit (Max. 6)

Primarily for upper-division students who can benefit from independent study with minimal supervision. Given to allow interested students to pursue specific aspects of curriculum and instruction.

Prerequisite: consent of instructor and graduate standing.

NASC5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

NASC5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NASC5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NASC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: graduate standing.

NASC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

NASC5961 - Plan B Project

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have program approval.

NASC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Neuroscience

NEUR4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 4295.
Dual Listed NEUR 5295.
Prerequisite: ZOO 4280.

NEUR4720 - Neuroscience Speaker Seminar

Credits: 2
Max Credit (Max. 6)

The purpose of this course is to use the Neuroscience/sensory biology visiting speaker series to build student knowledge in neuroscience, as well as skills in critical evaluation of the research literature, and oral/ written communication. This will maximize student learning from the speaker series. The course may be taken up to three times.

Dual Listed NEUR 5720.

Prerequisite: Graduate level standing in neuroscience, biomedical sciences, zoology/physiology, or other life science programs. Undergraduates: concurrent or prior ZOO 4280.

NEUR5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed ZOO 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5280 - Introduction to Neuroscience

Credits: 3

Examines the basic properties of neurons and from there identifies determinants of brain development and how neuronal circuits are formed. How neuronal circuits underlie processing sensory information, coordinated movement, complex functions (e. g. sleep, learning) and homeostasis are discussed.

Cross Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

NEUR5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed ZOO 5295.

Dual Listed NEUR 4295.

NEUR5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms will be covered in addition to the basic neurophysiology of nerve cells.

Cross Listed ZOO 5685.

Prerequisite: one course in physiology, chemistry, physics.

NEUR5715 - Seminar in Neuroscience

Credits: 1-2

Max Credit (Max. 20)

A continuing seminar. All students in the graduate neuroscience program are expected to register for this seminar each semester. The interdisciplinary approach to the nervous system is used employing work from physiology, neuroanatomy and neurochemistry, psychology, pharmacology and biochemistry.

Cross Listed ZOO 5715.

Prerequisite: admission to the graduate neuroscience program or graduate standing.

NEUR5720 - Neuroscience Speaker Seminar

Credits: 2

Max Credit (Max. 6)

The purpose of this course is to use the Neuroscience/sensory biology visiting speaker series to build student knowledge in neuroscience, as well as skills in critical evaluation of the research literature, and oral/ written communication. This will maximize student learning from the speaker series. The course maybe taken up to three times.

Dual Listed NEUR 4720.

Prerequisite: Graduate level standing in neuroscience, biomedical sciences, zoology/physiology, or other life science programs. Undergraduates: concurrent or prior ZOO 4280.

NEUR5800 - Research in Neuroscience

Credits: 1-16

Max Credit (Max. 16)

The research must be conducted under the supervision of one of the neuroscience program faculty. Laboratory opportunities for research include neuroendocrinology, behavioral neuroscience, sensory neurophysiology, neuroanatomy, neuropharmacology, neurotoxicology, neural cell biology, and neurochemistry.

Prerequisite: admission to the graduate neuroscience program or graduate standing.

NEUR5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

NEUR5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NEUR5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NEUR5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Prerequisite: advanced degree candidacy.

NEUR5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

First-Year Seminar.

Prerequisite: advanced degree candidacy.

Nursing

NURS1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

NURS2340 - Developmental Influences on Health

Credits: 3

Explores interaction between development and health. Discusses human development of physiological, psychological, cognitive, sociocultural, and spiritual systems across the lifespan. Identifies selected theories associated with development over the lifespan and implications for healthcare.

Prerequisite: Completion or concurrent enrollment in NURS 3445 or NURS 3745, NURS 3665 or NURS 3730 and NURS 3790, and PHCY 3450.

NURS3005 - ReNEW Distance Foundations

Credits: 1

Prepares learners for ReNEW BSN Completion in a distance delivery format. The course includes concept-based delivery in the UW learning system, APA formatting, writing scholarly papers, and library resources and skills.

Prerequisite: Enrolled in or graduate of Wyoming ReNEW Nursing Program.

NURS3425 - Bridging Nursing Paradigms

Credits: 3

This course prepares incoming ADN- or Diploma-educated Registered Nurses for completion of the Fay W. Whitney School of Nursing (FWWSON) BSN degree. Nursing knowledge, skills, and abilities in selected content areas will be evaluated and augmented in preparation for BSN Completion coursework.

Prerequisite: Current RN license.

NURS3445 - Fundamentals and Health Assessment in Professional Nursing Practice

Credits: 4

This course introduces the concepts of nursing care, safety, and assessment. Students learn to assess and document normal variations and potential alterations of physiological, psychological, sociocultural, spiritual, and developmental dimensions of individuals across the lifespan.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3665, and PHCY 3450.

NURS3490 - Health Promotion in Professional Nursing Practice

Credits: 4

Students will learn and apply concepts of health promotion across the lifespan. Emphasis is on cultural diversity, health risks, behavior change and healthy practices for individuals, families, and populations. Students will incorporate evidence in designing interventions to promote health and prevent illness for self and clients.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: 3 credits; Prerequisite: NURS 3445, PHCY

4470, and completion or concurrent enrollment in NURS 3690, NURS 3695, and NURS 4125.

Prerequisite: Progression or admission to the clinical component of the program and completion or concurrent enrollment with NURS 2340, NURS 3435, and PHCY 3450 or PHCY 4450.

NURS3635 - Health Assessment and Clinical Judgement

Credits: 3

Students learn to assess the physiological, psychological, sociocultural, spiritual, and developmental dimensions of individuals across the lifespan. Normal variations and potential alterations of health are identified. Clinical judgment and documentation skills are developed.

A&S College Core 2015 **Course changes effective Spring 2022 - Discontinuing course.**

Prerequisite: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3665, NURS 3690, and NURS 3695.

NURS3665 - Foundations of Professional Nursing Roles

Credits: 3

This course introduces the student to professionalism, leadership, safety, and patient-centeredness. The concepts emphasized provide the foundation for professional nursing practice.

Prerequisite: Fall 2021: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3690, and NURS 3695. **Effective Spring 2022:** Completion or concurrent enrollment in NURS 2340, NURS 3445, and PHCY 3450.

NURS3690 - Professional Nursing Acute/Chronic Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with acute and chronic illness. Emphasis is on utilizing the nursing process to develop clinical judgement.

A&S College Core 2015 **Course changes effective Fall 2022 - Prerequisite:** *NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3490, NURS 3695, and NURS 4125.*

Prerequisite: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3665, and NURS 3695.

NURS3695 - Professional Nursing Acute/Chronic Illness Practicum

Credits: 4

Students provide nursing care using the nursing process in a clinical setting with adult clients experiencing acute and chronic illness. Emphasis is on demonstration of clinical judgement.

A&S College Core 2015 **Course changes effective Fall 2022 - Prerequisite:** *NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3490, NURS 3690, and NURS 4125.*

Prerequisite: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3665, and NURS 3690.

NURS3730 - Introduction to Professional Nursing

Credits: 2

Introduces students to the core concepts of professional nursing practice. Nursing process, domains of nursing practice, health policy, evidence-based practice, legal and professional standards will be introduced.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3745, NURS 3790, and PHCY 3450.

NURS3745 - Nursing Fundamentals and Health Assessment

Credits: 4

Includes concepts of basic care/comfort, technical skills, medical equipment, asepsis, medication administration, nurse/client safety, and client rights. Students learn to assess and document normal variations and potential alterations of physiological, sociocultural, spiritual, and developmental dimensions of individuals across the lifespan.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3730, NURS 3790, and PHCY 3450.

NURS3770 - Nursing Care in Acute and Chronic Illness

Credits: 8

Discern critical elements of professional nursing medical-surgical concepts for adults experiencing acute/chronic health alterations progressing to complex health alterations. Focuses on patient safety principles; quality initiatives; evidence-based nursing; information technology; interprofessional collaboration, communication; health promotion strategies; and critical thinking in the planning of client centered nursing care for the adult.

Prerequisite: NURS 3745 and completion or concurrent in NURS 3771, NURS 3780, and NURS 4765

NURS3771 - Nursing Care in Acute and Chronic Illness Practicum

Credits: 6

Application of critical elements of professional nursing practice with adults experiencing acute and chronic health alterations. Focus is on incorporation of patient safety principles; quality initiatives; evidence-based nursing practice; information technology; interprofessional collaboration and communication; health promotion strategies; and critical thinking and clinical reasoning in the provision of nursing care.

A&S College Core 2015 **Course changes effective Fall 2022 - Name: *Nursing Care in Acute, Chronic, and Complex Illness Practicum*; Credits: 4 credits; Prerequisite: *NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3780, and NURS 4765.***

Prerequisite: NURS 3710, NURS 3750, NURS 3730, NURS 3780.

NURS3780 - Evidence-Based Practice in Nursing

Credits: 4

Prepares nursing students to engage in evidence-based practice in nursing, specifically how to search the literature and databases, ask meaningful clinical questions, find relevant evidence, critically appraise evidence, integrate best evidence with clinical expertise and patient/community values.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: 3 credits; Prerequisite: STAT 2050 or STAT 2070 or equivalent; *NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3771, and NURS 4765.*

Prerequisite: admission to the BRAND program, concurrent enrollment in NURS 3770.

NURS3790 - Health Promotion of Individuals, Families, and Populations

Credits: 3

Components of the nursing process and evidence-based nursing practice are used to protect the health of clients through health promotion, risk reduction, and disease prevention.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3730, NURS 3745, and PHCY 3450.

NURS3890 - Professional Nursing Care in Complex Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with complex illness. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 3695 and completion or concurrent enrollment in NURS 3891, NURS 3892, and NURS 3895.

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3891, 3892, 3895, 4125.

NURS3891 - Professional Nursing Care of Older Adults

Credits: 3

Students will examine concepts of nursing practice in the care of older adults. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3892, and NURS 3895.

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3895, NURS 4125.

NURS3892 - Professional Nursing Care in Mental Health and Illness

Credits: 3

This course explores mental health and illness concepts. Emphasis is on the role of the professional nurse in caring for clients with alterations in mental health.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3895.

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3891, NURS 3895, NURS 4125.

NURS3895 - Professional Nursing Care in Complex Illness Practicum

Credits: 4

Students provide patient-centered care using the nursing process in clinical setting with adult and older adult clients experiencing complex illness and alterations in mental health. Emphasis is on demonstration of clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3892.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3891, NURS 3892, NURS 4125.

NURS3970 - Nursing Externship

Credits: 1-6

Max Credit 6

Allows students to obtain college credit for nursing experience gained in an approved setting. Increases application of nursing theory, knowledge of a health care agency, interpersonal working relationships, technical skills and organization of time in providing nursing care.

When Offered (Offered once a year in summer)

Prerequisite: Junior standing in nursing and consent of instructor

NURS4055 - Application of Evidence in Nursing Practice

Credits: 3

Prepares RN students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L

USP 2015 Code U5C3

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; STAT 2050 or STAT 2070 or equivalent; COM1 and COM2.

NURS4125 - Evidence-Based Nursing

Credits: 3

Prepares students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB or COM1 and COM2; STAT 2050 or STAT 2070 or equivalent; admission into the nursing major component of the program.

NURS4630 - Public/Community Health

Credits: 2

Learners examine public/community health nursing roles and apply the nursing process to community as client. Focuses on improving community health, levels of prevention, and addresses multiple determinants of health. Core functions, essential services, community assessment and planning, emergency preparedness, and analysis of the public healthcare system will be studied.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4635 - Community as Client

Credits: 2

Learners will understand relationships among health, disease, and the environment, with emphasis on the role of community health agencies and programs for communities in need of health care support, regionally, nationally, and globally. In this course, an assessment and planning framework guides students in assessing the health of a community.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4640 - Health Equity

Credits: 2

Learners will examine population-focused concepts to assess vulnerable and oppressed populations. The magnitude of health disparities both in the United States and globally will be discussed. Focuses on a multi-level and multi-cultural view of population health challenges, alleviating health disparities, and a commitment to health equity.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4645 - Population Health

Credits: 2

Focuses on analysis of local, regional, national, and international data that are indicators of population health. Disease outbreaks are analyzed. Learners study development of innovative, collaborative, multi-disciplinary interventions and policies to improve public health. This course provides opportunities for learners to improve population health through application of theory and evidence.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4660 - Healthcare Informatics

Credits: 3

Students will develop knowledge and skills to utilize and evaluate information technologies to improve patient outcomes across diverse populations. Includes the use of Clinical Information Systems to plan and document the nursing process. Ethical and legal considerations of data management and interdisciplinary use of healthcare informatics are presented.

Prerequisite: ReNEW Progression or Current RN license.

NURS4665 - Healthcare Informatics in Professional Nursing Practice

Credits: 3

Utilizing a conceptual framework, students will examine nursing informatics within healthcare systems. Emphasis is placed on examining the role of clinical information systems in improving patient outcomes across practice, education, administrative, research, and interdisciplinary applications. Ethical and legal considerations of data management are examined.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: *NURS 3895 and completion or concurrent enrollment in NURS 4690, NURS 4691, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4690, 4691, 4695.

NURS4690 - Professional Nursing Care of Populations

Credits: 4

Introduces the student to population-focused nursing and applies the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, planning, and implementation; analysis of the healthcare system; emergency preparedness; and ethical/legal aspects of public health.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: *Introduces the student to population-focused nursing and applies the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, and analysis of the healthcare system. Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4691, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4691, NURS 4695.

NURS4691 - Professional Nursing Care of Children and Families

Credits: 3

This course encompasses the care of women, children, and their families across physiological, psychological, spiritual, developmental, and socio-cultural dimensions. The focus of this class is on women's health, obstetrical, and pediatric nursing care including health promotion and wellness specific to maternal and pediatric health.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: *4 credits; Course changes effective Fall 2023* - Description: *This course encompasses the care of women, children, and their families across physiological, psychological, spiritual, developmental, and sociocultural dimensions. The focus is on women's health, obstetrical, and pediatric nursing care including health promotion and wellness specific to maternal and pediatric health. Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4690, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4690, NURS 4695.

NURS4695 - Professional Nursing Care of Populations Practicum

Credits: 4

Students will apply the nursing process to childbearing families, children, and communities. The focus is on physiological, psychological, spiritual, developmental, and socio-cultural dimensions of individuals, families, and populations. Students will incorporate professional nursing roles into population-based care.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: *The focus is on the application of professional nursing roles to the physiological, psychological, spiritual, developmental, and sociocultural dimensions of individuals, families, communities, and populations.* Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4690, and NURS 4691.

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4690, NURS 4691.

NURS4710 - Population Health

Credits: 4

Introduces the student to population-focused nursing and applied the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, planning and implementation; analysis of the health care system; emergency preparedness; and legal aspects of public health.

A&S College Core 2015 **Course changes effective Spring 2023** - Name: *Nursing Care for Population Health;* Description: *Introduces the student to population-focused and public health nursing through the application of the nursing process with the community as client. Focuses on vulnerable populations; epidemiology; community assessment, and analysis of the healthcare system.* Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4735, NURS 4740, and NURS 4771.

Prerequisite: NURS 3770, NURS 3771; concurrent enrollment in NURS 4740, NURS 4741, NURS 4735, NURS 4736.

NURS4735 - Vulnerable Populations and Mental Health

Credits: 3

This course introduces students to nursing principles and concepts of mental health psychopathology, physiology, psychology, and spirituality, along with developmental and socio-cultural considerations while incorporating treatment modalities related to the nursing of the middle-aged and aging adult.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4740, and NURS 4771.

Prerequisite: NURS 3770 and NURS 3780; concurrent enrollment in NURS 4736.

NURS4740 - Nursing Care of the Young Family

Credits: 6

Utilizes nursing process to assess, promote, and protect the health of young families as client. Focus is human sexuality and reproduction, family planning, pregnancy stages, neonatal, pediatrics. Growth and development, health promotion, disease prevention, family dynamics are included. Evidence-based nursing guides practice to promote a healthy family and family system.

A&S College Core 2015 **Course changes effective Spring 2023** - Description: *Utilizes nursing process to assess, promote, and protect the health of young families as client. Focus is human sexuality and reproduction, family planning, pregnancy stages, and pediatrics to promote a healthy family and family system.* Credits: 4 credits; Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4735, and NURS 4771.

Prerequisite: NURS 3770; NURS 3771, and concurrent enrollment in NURS 4741.

NURS4750 - Independent Study in Nursing

Credits: 1-4

Provides students with opportunity to investigate a problem in nursing care not considered in required nursing courses or to explore in more depth an area considered in one of required nursing courses. Area of study and requirements for earning credit are determined in consultation with nursing faculty member.

When Offered (Normally offered fall, spring and summer)

Prerequisite: senior standing in nursing or consent of instructor.

NURS4765 - Healthcare Informatics in Nursing

Credits: 3

Students will describe information and technology utilized to communicate, manage knowledge, support clinical decision-making, and effectively optimize patient outcomes while adhering to ethical and legal considerations of data management.

Prerequisite: NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3771, and NURS 3780.

NURS4771 - Nursing Care of Young Families and Vulnerable Populations Practicum

Credits: 4

Applies and synthesizes clinical judgment related to nursing care of clients with a focus on the young family and vulnerable populations across the lifespan. Concepts address human sexuality, reproduction, mental health, and core functions of public health.

Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4735, and NURS 4740.

NURS4775 - Nursing Senior Capstone

Credits: 10

Provides opportunities to utilize and synthesize core concepts of professional nursing. Intensive clinical experience allowing students to become socialized into health care delivery system; gain in autonomy/confidence in performing skills; practice critical thinking and clinical reasoning in making ethical clinical decisions; develop leadership in providing and coordinating evidence-based nursing care.

A&S College Core 2015 **Course changes effective Summer 2023** - Description: *Provides opportunities to synthesize core concepts of professional nursing through intensive clinical experiences. Focuses on students' socialization into the healthcare system through application of clinical judgment in making safe and ethical decisions while coordinating evidence-based nursing care.* Prerequisite: NURS 4771 and completion or concurrent enrollment in NURS 4785.

Prerequisite: NURS 4710; NURS 4735; NURS 4736; and concurrent enrollment in NURS 4785.

NURS4785 - Nursing Integration

Credits: 2

Focuses on the continuing integration of previously learned concepts. The student further develops the role of consumer of research and incorporates leadership and management skills as a member of the profession.

A&S College Core 2015 **Course changes effective Summer 2023** - Name: *Integration of Leadership in Nursing*; Description: *Focuses on the continuing integration of previously learned concepts of leadership, management, and professional development. The student further develops their role as a consumer of research and as a leader of an interprofessional healthcare team.* Prerequisite: NURS 4771 and completion or concurrent enrollment in NURS 4775.

Prerequisite: NURS 4735; NURS 4736; NURS 4710; and concurrent enrollment in NURS 4775.

NURS4790 - Special Topics in Nursing

Credits: 1-3

Max Credit (Max. 8)

Provides offerings in selected nursing topics on concepts, theories or practices as related to specified areas in nursing.

Prerequisite: junior standing in nursing and consent of instructor.

NURS4792 - Cultural and International Health Care Immersion

Credits: 3

An in-depth examination of cultural influences on health care systems, which will include both classroom and in-field immersion experiences.

Prerequisite: senior or graduate standing in student's major and instructor permission.

NURS4830 - Leadership in Healthcare Today

Credits: 2

Focuses on the role of nurse leader and manager through integration of leadership, management, and organizational concepts, models, and theories. Emphasis in on leadership, followership, management, advocacy, professional development and activism, and managing resources.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4835 - Leading Nursing Practice

Credits: 2

Focuses on nurse leaders making a difference using evidence-based nursing practice. Learners utilize and synthesize basic concepts of professional nursing practice. This course creates the opportunity for learners to lead nursing practice in a variety of settings.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4840 - Healthcare Systems and Policy

Credits: 2

Learners examine healthcare quality and the regulation of professional nursing practice in various settings. The focus is on ethical and legal issues and policy development for healthcare delivery.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4845 - Innovation in Nursing Practice

Credits: 2

Focus in on use and synthesis of concepts in professional nursing practice. This course provides an opportunity to employ critical thinking, to apply ethical decision-making, to use evidence, and to demonstrate the ability to lead planned change.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4855 - Contemporary Nursing Practice

Credits: 2

Focus in on practice as critically effective members and leaders of the healthcare team. Learners analyze a variety of societal, economic, political, and professional issues that influence contemporary nursing. This course provides an opportunity to be creative in examining trends in nursing and healthcare.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4865 - Professional Nursing Leadership

Credits: 3

The role of the nurse leader in nursing practice is developed through integration of leadership, management, and organizational theories. Emphasis is on interprofessional care management, planned change, advocacy, activism, and professional development.

A&S College Core 2015 **Course changes effective Spring 2024** - Description: *The role of the nurse leader is developed through integration of leadership, management, and organizational theories. Emphasis is on interprofessional care, planned change, advocacy, activism, and*

professional development. Prerequisite: *NURS 4695 and completion or concurrent enrollment in NURS 4895.*
Prerequisite: NURS 4695 and completion or concurrent enrollment with NURS 4895.

NURS4895 - Professional Nursing Capstone Practicum

Credits: 9-12

Students utilize and synthesize basic concepts of professional nursing practice. The course socializes students into a healthcare system. Learning experiences allow students to gain confidence in managing patient care, practicing critical thinking, developing leadership and advocacy skills, and exploring ethical decision-making in clinical situations.

A&S College Core 2015 **Course changes effective Spring 2024** - Description: *Students synthesize concepts of professional nursing practice. The course socializes students into a healthcare system. Learning experiences allow students to manage patient care, apply critical judgment, develop leadership and explore ethical decision-making in healthcare settings.* Prerequisite: *NURS 4695 and completion or concurrent enrollment in NURS 4865 .*

Prerequisite: NURS 4695 and completion or concurrent enrollment with NURS 4865.

NURS5140 - Pharmacotherapy for Primary Care

Credits: 4

Prepares primary care practitioners in drug therapy management for a variety of client populations with an emphasis on rural practice.

Prerequisite: NURS 5601, NURS 5602, NURS 5603, NURS 5604, NURS 5605, and NURS 5830.

NURS5165 - DNP: Adv Pathophysiology

Credits: 2

A system-based approach is used to explore selected pathophysiological states encountered across the lifespan in primary care. The developmental physiology, etiology, pathogenesis, clinical manifestations, and physiological responses to illness and treatment regimens are examined, providing a basis for the foundation of clinical decisions.

Prerequisite: NURS 5603 , NURS 5604 , NURS 5605 , and NURS 5830

NURS5420 - Leadership Within Health Care Systems

Credits: 3

Emphasis on strategic use of systems and outcomes as a foundation for professional leadership development.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5606, NURS 5472.

NURS5425 - Health Policy for Rural and Global Population Health

Credits: 3

Emphasis on health policy as it influences rural and global population health.

Prerequisite: NURS 5415; NURS 5420; NURS 5430.

NURS5430 - Population Health

Credits: 3

Emphasis on epidemiology and population health.

Prerequisite: NURS 5415; NURS 5420; NURS 5425.

NURS5452 - Curriculum Development

Credits: 3

Emphasis on the process of developing curricula in nursing educational or healthcare setting to include evaluation of program outcomes.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5605 , NURS 5472 ; Co-requisite of NURS 5462.

NURS5461 - Business of Healthcare

Credits: 3

Emphasis on leading and managing entrepreneurial healthcare opportunities.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5605 , NURS 5472

NURS5462 - Teaching Methodologies and Evaluation

Credits: 3

Emphasis on evidence-based teaching methodologies, development of course materials, and evaluation of students learning outcomes.

Prerequisite: Admission to MS; NURS 5405; NURS 5410.

NURS5472 - Integrated Advanced Pathophysiology, Pharmacology, and Assessment

Credits: 3

Emphasis on the integration of advanced pathophysiology, pharmacology, and assessment in relation to chronic conditions.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5602 , NURS 5604 ; Co-requisite NURS 5605

NURS5473 - Advancing Healthcare Transform

Credits: 2
Max Credit 2

Emphasis on academic/practice partnerships as avenues for addressing population health and related workforce development.

Prerequisite: Admission to the NURS MS program, NURS 5405, NURS 5410

NURS5483 - Practicum: Rural Healthcare Leadership

Credits: 3
Emphasis on the integration of learning through a practicum experience in educational or healthcare leadership.

Prerequisite: Completion of all required MS courses, corequisite NURS 5473.

NURS5601 - Theoretical Foundations Advanced Practice Nursing

Credits: 3
An introduction to the discipline of nursing for graduate nursing students

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5602 - Advanced Nursing Leadership

Credits: 3
Focus on developing advanced nursing leadership skills and attributes for interprofessional collaboration to create viability of the profession and health-related practice environments

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5603 - Evidence-Based Practice for Advanced Nursing

Credits: 3
Focuses on the use of EBP to solve clinical, educational, and administrative problems in advanced nursing practice.

Prerequisite: Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5604 - Population and Health Policies

Credits: 3
Emphasis on population health, epidemiology, and health policy related to rural and global health issues.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5605 - Informatics and Quality Improvement for Advanced Nursing Practice

Credits: 3

Emphasis on theoretical and scientific foundations for quality improvement, safety, and informatics in health care.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5750 - Independent Advanced Study

Credits: 1-4

Max Credit (Max. 8)

Provides students the opportunity to analyze a problem in nursing; apply theory to clients in a clinical setting; or pursue an area of interest under the guidance of a faculty member. Requirements and evaluation are mutually established between the student and faculty member.

NURS5790 - Advanced Issues in Health

Credits: 1-3

Max Credit (Max. 12)

Designed to provide graduate students the opportunity of pursuing advanced issues in health.

Prerequisite: graduate status.

NURS5820 - Health Behavior Change I: Primary Prevention and Wellness

Credits: 3

This course will cover the application of theories and techniques of health behavior change and principles of epidemiology to health issues from the individual to the community level.

Prerequisite: Admission to the DNP program.

NURS5824 - Advanced Health Assessment and Clinical Decision-Making for Nurse Practitioners

Credits: 2

Builds upon basic nursing assessment skills; includes a human cadaver lab experience to enhance learners' understanding of anatomy, physiology, and pathophysiology, progressing to didactic, hands-on practice, and check-offs of student ability to perform client interviewing and advanced physical assessment techniques. Prepares learners for the clinical decision-making required of nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2022** - **Credits:** 3 credits; **Description:** *Advanced health assessment and diagnostic decision-making for nurse practitioners. Builds on previous nursing assessment skills. Emphasizes person-centered communication skills and a systematic diagnostic-reasoning approach that leads to accurate clinical decision-making. Clinical correlation amongst anatomy, physiology, pathophysiology, and physical examination.* **Prerequisite:** NURS 5140 and NURS 5165.

Prerequisite: NURS 5165, NURS 5800, NURS 5805, NURS 5810, and NURS 5865

NURS5825 - Advanced Health Assessment and Clinical Decision-Making for Family Nurse Practitioners

Credits: 4

Advanced health assessment and diagnostic decision-making for family nurse practitioners. Builds on previous assessment skills and covers specialty exams used in primary care. Emphasizes a systematic diagnostic reasoning approach that leads to accurate clinical decision-making. Additionally, course focuses on sociocultural influences, growth and development, and gender concepts.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: *Advanced Health Assessment for Family NPs*; Credits: 2 credits; Description: *Advanced primary care assessment skills for family nurse practitioners. Focusing on specialty examination techniques for all body system.* Prerequisite: NURS 5140 and NURS 5165.

Prerequisite: NURS 5166, NURS 5815, NURS 5820, and NURS 5824.

NURS5826 - Advanced Health Assessment for Psych NPs

Credits: 2

Advanced assessment skills for psychiatric mental health nurse practitioners. Focusing on specialty examination techniques in the mental health setting.

Prerequisite: NURS 5165 and NURS 5140.

NURS5827 - Skills for Family NP

Credits: 3

Developing skills for advanced practice nursing and practice management for the family nurse practitioner.

Prerequisite: NURS 5824, NURS 5825, NURS 5871, and NURS 5875.

NURS5828 - Skills for Psych NP

Credits: 2

Developing skills for advanced practice nursing and practice management for the psychiatric mental health nurse practitioner.

Prerequisite: NURS 5824, NURS 5826, NURS 5880, and NURS 5881.

NURS5830 - Health Behavior Change II: Behavioral Skills for Secondary and Tertiary Prevention

Credits: 3

This course will cover the application of health behavior change skills in advanced nursing practice, including theories/models and techniques, with a focus on chronic illness.

Prerequisite: NURS 5820 and NURS 5865.

NURS5862 - Practicum: Diagnosis and Management of the Psychiatric Client for the PMHNP I

Credits: 5

Clinical practicum that allows students to continue to practice and refine competencies in the PMHNP role with multiple and complex psychiatric populations.

A&S College Core 2015 **Course changes effective Summer 2023** - Prerequisite: *NURS 5828, NURS 5882, and NURS 5883.*

Prerequisite: NURS 5850.

NURS5863 - Practicum: Diagnosis and Management of the Psychiatric Client for the PMHNP II

Credits: 5

Clinical practicum that allows students to continue to practice and refine competencies in the PMHNP role with multiple and complex psychiatric populations.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: *NURS 5862 and NURS 5891.*

Prerequisite: NURS 5862, NURS 5883 and NURS 5891.

NURS5864 - Final PSH Practicum

Credits: 6

This final clinical experience provides learners with the opportunity to integrate previous learning from the PMHNP program in the provision of evidence-based health care.

Prerequisite: NURS 5863, NURS 5866, NURS 5892, and NURS 5893.

NURS5865 - DNP Seminar

Credits: 1

Max Credit (Max. 6)

Instructor and student-led discussions designed to facilitate role transition of the doctorally-prepared nurse practitioner. Seminars include topics related to integration and application of nursing and other health-related theories and models in rural nurse practitioner-delivered care.

Prerequisite: Admission to the DNP program.

NURS5866 - DNP Seminar II

Credits: 1

Instructor and students lead discussions designed to facilitate role transition of the doctorally prepared nurse practitioner. Seminars include topics related to transitioning from nurse practitioner students into practicing nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891, NURS 5862 and NURS 5883 OR NURS 5891, NURS 5875 and NURS 5876.

NURS5871 - Wellness for Adults in Primary Care

Credits: 3

Provision of wellness primary care for adults across the lifespan, including primary and secondary prevention.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 5165 and NURS 5140.

Prerequisite: NURS 5140 and NURS 5825.

NURS5872 - Practicum for Wellness in Primary Care

Credits: 3

Clinical practicum for NURS 5871, Wellness for Adults in Primary Care.

A&S College Core 2015 **Course changes effective Summer 2023** - Name: *Practicum: Diagnosis and Management of the Primary Care Client for the FNP I*; Credits: 5 credits; Description: *Clinical practicum focused on beginning level diagnostic and clinical management competencies for the FNP.* Prerequisite: NURS 5873, NURS 5877, and NURS 5827.

Prerequisite: NURS 5140 and NURS 5825.

NURS5873 - Primary Care for Children, Adolescents, and Families

Credits: 3

Provision of primary care for children, adolescents, and families across the lifespan, including primary and secondary prevention.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 5871, NURS 5875, NURS 5824, and NURS 5825.

Prerequisite: NURS 5440, NURS 5830, NURS 5871 and NURS 5872.

NURS5874 - Practicum for Primary Care for Children, Adolescents, and Families

Credits: 3

Clinical practicum for NURS 5873, Primary Care for Children, Adolescents, and Families.

A&S College Core 2015 **Course changes effective Fall 2023** - Name: *Diagnosis and Management of the Primary Care Client for the FNP II*; Credits: 5 credits; Description: *Clinical practicum that allows students to continue to practice and refine competencies in the FNP role.* Prerequisite: NURS 5872 and NURS 5891.

Prerequisite: NURS 5440, NURS 5830, NURS 5871 and NURS 5872.

NURS5875 - Primary Care for Acute & Chronically Ill Adults

Credits: 3

Diagnosis and management of select acute and chronic illnesses experienced by adults across the lifespan. Primary focus is on those physical and behavioral illnesses with high prevalence in rural primary care.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: NURS 5165 and NURS 5140.

Prerequisite: NURS 5850.

NURS5876 - Practicum for Primary Care for Acute & Chronically Ill Adults

Credits: 3

Clinical practicum for NURS 5875, Primary Care for Acute & Chronically Ill Adults I.

A&S College Core 2015 **Course changes effective Fall 2023** - Name: Final FNP Practicum; Credits: 6 credits;

Description: This final clinical experience provides learners with the opportunity to integrate previous learning from the FNP program in the provision of evidence-based health care. Prerequisite: NURS 5866, NURS 5874, NURS 5892, and NURS 5893.

Prerequisite: NURS 5850.

NURS5877 - Primary Care for Acute & Chronically Ill Adults II

Credits: 3

Continuation of NURS 5875. Diagnosis and management of select acute and chronic illnesses experienced by adults across the lifespan. Primary focus is on those physical and behavioral illnesses with high prevalence in rural primary care.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: NURS 5871, NURS 5875, NURS 5824, and NURS 5825.

Prerequisite: NURS 5875, NURS 5876 and NURS 5891.

NURS5878 - Practicum for Primary Care for Acute & Chronically Ill Adults II

Credits: 3

Clinical practicum for NURS 5877, Primary Care for Acute & Chronically Ill Adults II.

Prerequisite: NURS 5875, NURS 5876 and NURS 5891.

NURS5880 - Neurobiology & Psychopharm

Credits: 3

The advanced study of neurobiology and psychopharmacology in the treatment of psychiatric disorders across the lifespan. In depth exploration of how the advanced practice psychiatric nurse can utilize pharmacodynamics and pharmacogenetics to inform the clinical decision making in the treatment complex mental illnesses and addiction.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: Neurobiology and Psychopharmacology; Credits: 4 credits; Prerequisite: NURS 5140 and NURS 5165.

Prerequisite: NURS 5140.

NURS5881 - Psychotherapy Models and Theories for Advanced Practice Mental Health Nursing

Credits: 3

Utilization of psychotherapy frameworks in the care of individuals, families, and groups. Emphasizing the counseling role and skill development of the advanced practice mental health nurse in the assessment, intervention and evaluation of diverse populations across the lifespan. Issues of ethics, rural practice, and diversity are addressed throughout the course.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 5140 and NURS 5165.*

Prerequisite: NURS 5140.

NURS5882 - Advanced Psychiatric Mental Health Nursing Diagnosis and Management for the Adult, Older Adult, and Vulnerable Populations

Credits: 4

Advanced knowledge of evidence based assessment, diagnosis, treatment, management, and health promotion of adults and aging adults with mental illness. Explore culturally sensitive care among vulnerable populations. Examine the professional, ethical, policy, and practice issues influencing the role of the advanced practice psychiatric nurse.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: *NURS 5824, NURS 5826, NURS 5880, and NURS 5881.*

Prerequisite: NURS 5440, NURS 5830, NURS 5880 and NURS 5881.

NURS5883 - Advanced Psychiatric Mental Health Nursing Diagnosis and Management for the Child and Adolescent

Credits: 4

Evidenced based assessment, diagnosis, treatment and management of mental health disorders in children and adolescence at the individual, family and community level. Theories of family development including behavioral patterns will be assessed using a culturally sensitive lens. Review of psychotherapy, psychopharmacology, psychoeducation, and health promotion as is developmentally appropriate.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: *NURS 5824, NURS 5826, NURS 5880, and NURS 5881.*

Prerequisite: NURS 5850.

NURS5891 - DNP Project I

Credits: 3

In collaboration with a facility, learners will examine clinically relevant data to target a practice and/or patient outcome for improvement. Learners will collect and critically appraise related evidence and develop an intervention, including an outcome evaluation plan.

A&S College Core 2015 **Course changes effective Summer 2023** - Credits: *1 credit;* Description: *In collaboration with a health-related organization, learners will identify a problem, concern, or question that can be addressed through a rapid cycle quality improvement project for a Doctor of Nursing Practice project.* Prerequisite: *NURS 5873,*

NURS 5877 and NURS 5827 or NURS 5882, NURS 5883 and NURS 5828.

Prerequisite: NURS 5850.

NURS5892 - DNP Project II

Credits: 3

Continuation of NURS 5891, DNP Project I. In collaboration with facility, learners will implement the proposed clinical intervention, evaluate the outcome, and professionally disseminate the results.

A&S College Core 2015 **Course changes effective Fall 2023 - Description:** *Continuation of NURS 5891, DNP Project I. In collaboration with a health-related organization, learners will plan and begin to implement a quality improvement project. Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.*

Prerequisite: NURS 5891 AND NURS 5875, NURS 5876 OR NURS 5862, NURS 5883.

NURS5893 - DNP Project III

Credits: 1

Continuation of NURS 5892, DNP Project II. In collaboration with a health-related organization, learners will continue to implement their scholarly quality improvement project.

Prerequisite: NURS 5874, NURS 5892 and NURS 5866 or NURS 5863, NURS 5892, NURS 5866.

NURS5894 - DNP Project IV

Credits: 2

Continuation of NURS 5893, DNP Project III. In collaboration with a health-related organization, learners will finalize their scholarly quality improvement project and disseminate the findings.

Prerequisite: NURS 5893.

NURS5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

NURS5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NURS5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

Online Master of Business Administration

MBAX5103 - Business Research Methods

Credits: 3

An overview of the scientific research process applied in the context of business. Topics include problem definition, selection of a methodological approach, design and implementation of field work (qualitative and survey methods), analysis techniques (thematic analysis for qualitative research and statistical analysis for survey research, and communicating results.

Prerequisite: Admission to the MBA online program, or permission from the MBA Program Director.

MBAX5104 - Organizational Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5108 - Financial Accounting

Credits: 3

This course provides students with tools to use financial information from the accounting system. This course addresses how financial statement information is used to make business decisions and allows students to learn about how generally accepted accounting principles are applied to and account for and report on business transaction results. #304.

Prerequisite: Admission to the MBA online program, or permission from the MBA Program Director.

MBAX5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operation, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analysis including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5203 - New Ventures

Credits: 3

This course explores and evaluates various intrapreneurial and entrepreneurial opportunities and focuses on lean startup methodologies, use of open innovation techniques, and team productivity. Dynamic business environments characterized by technological diversity and global enterprise will also be considered as student strategically analyze a business opportunity using practical theory application.

Restricted Admitted to MBAX program.

Prerequisite: Admission to the MBA online program, or permission from the MBA Program Director.

MBAX5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamental principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval

MBAX5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of

business decisions. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval

MBAX5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5330 - The Global Business Environment

Credits: 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5502 - Energy Finance: Project Evaluation

Credits: 3

Introduction to traditional engineering cost methods to evaluate investments in energy and mineral projects, and to modern techniques to make these decisions under uncertainty given the technical and economic risks facing minerals industries.

Prerequisite: Admission to the MBA program, or permission of the MBA Program Director or the MBA Program Coordinator. #304.

MBAX5503 - Fundamentals of Accounting in the Energy Industry

Credits: 3

Introduction to basic financial accounting and reporting issues related to energy producing activities. Investigate current accounting practices of energy producing companies related to exploration, acquisition, development, and

delivery of energy products. Cover financial requirements of the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and the Securities and Exchange Commission (SEC).

Prerequisite: Admission to the MBA program, or permission of the MBA Program Director or the MBA Program Coordinator. #304.

MBAX5504 - Supply Chain Management in the Energy Industry

Credits: 3

Examines the field of supply chain management in an energy context. Study procurement and distribution strategies, concepts, tools and techniques that support energy operations. Course activities and case studies will address effective execution of these strategies and the appropriate supporting activities.

Prerequisite: Admission to the MBA program, or permission of the MBA Program Director or the MBA Program Coordinator. #304.

Outdoor Recreation and Tourism Management

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM1050 - Natural and Cultural Resources of the West

Credits: 3

The American West is an attraction for visitors, largely due to its unique sense of place, blend of people and culture, history and natural resources. Within the context of outdoor recreation and cultural/historical tourist attractions, students will examine diverse natural and cultural resources.

ORTM2000 - Foundations of Customer Service and Hospitality

Credits: 3

Customer service and hospitality are fundamental to providing high-quality services. This course examines critical elements of excellent customer service in the tourism industry, including transportation, accommodation, food and beverage, and attractions. Students will develop communication skills relating to customer service, self-presentation, and interpersonal interactions, including international and cultural communications.

Cross Listed HOSP 2000

ORTM2050 - Program Planning, Design and Delivery

Credits: 3

Design, delivery, and marketing of programs to diverse and inclusive audiences. Students will utilize tools, analytics,

and techniques in both the direct supply and facilitation of a planned experience. Students will design and implement a program to a non-peer group.

USP 2015 Code U5C2

Prerequisite: ORTM 1000.

ORTM2800 - Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. There is a significant focus on self-awareness, judgment, and decision-making. The specific skills and theories students learn in the class provide a foundation for other leadership endeavors.

Cross Listed ENR 2800

Prerequisite: COM 1

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

ORTM3050 - Operations, Management and Environmental Stewardship

Credits: 3

Operations and management are critical aspects of the successful delivery of quality recreation and tourism experiences. Students will evaluate environmental stewardship challenges and potential solutions with the integration of operations and management. Students will develop an understanding of functions that are critical to operational leadership, such as revenue management (budgeting, cost controls, profit centers), and human capital management.

Prerequisite: ORTM and junior standing.

ORTM4050 - Global Tourism

Credits: 3

This course focuses on global destinations and the people who inhabit and visit them. Students will examine tourism from different human angles including that of the tourist, the tourism service providers, the government agencies that promote and regulate it, researchers, and the local populations whose lives are impacted.

A&S College Core 2015 ASG

Prerequisite: COM2 and ORTM 1000; junior or senior standing.

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4901 - Human Dimensions of Outdoor Recreation and Tourism Management

Credits: 3

This course synthesizes social, environmental, and economic aspects of outdoor recreation and tourism by examining social science methods and research conducted within these spheres. This course will be an applied experience in learning how to answer the question "Why do recreationists and tourists do what they do?"

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4902 - Recreation Venue Operations

Credits: 3

Applied best practices of resource and facility management in conjunction with recreation use and infrastructure development and maintenance. Students will examine the importance and challenges of matching user expectations with quality amenities of both private business and resource management agencies. Students will evaluate real-world problems and opportunities.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4903 - Capstone

Credits: 3

Integrates theory and practice to create solutions for real-world problems and opportunities in outdoor recreation and tourism. Industry or government sponsors will mentor projects; students will research and execute a project and share a product with direct value to the sponsor and community.

USP 2015 Code U5C3

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

ORTM4970 - Internship

Credits: 1-6
Max Credit (Max. 6)

Provides students the potential to succeed as professional at management or higher levels in park, recreation, tourism, or related organizations. Internships are required to be at least 400 clock hours, and no fewer than 10 weeks. Please discuss the criteria and requirements of employers/sponsors and students with your advisor.

Restricted Restricted to ORTM majors only.

Prerequisite: Any ORTM class and junior standing.

ORTM4975 - Independent Study

Credits: 1-6
Max Credit (Max. 6)

Supervised study and investigation in topics related to students' research.

Prerequisite: junior standing.

Pathobiology

PATB1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

PATB2220 - Pathogenic Microbiology

Credits: 3
This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed MICR 2220
When Offered (Offered spring semester)
Prerequisite: MICR 2210

PATB2400 - Host Defenses Against Infection

Credits: 3

Course content will address history of immunology in the context of infectious diseases, different pathogens and their interaction with higher-order life forms and an introduction of the immune system relevant to protect against invasive microorganisms.

A&S College Core 2015 Course is appropriate for students majoring in Veterinary Sciences, Microbiology, or other Life Sciences fields.

Prerequisite: MOLB/MICR 2021 and PATB/MICR 2220

PATB3021 - Eukaryotic Microbes

This course will address the biology and ecology of lower eukaryotic life-forms. Topics include: marine phyto- and zooplankton, terrestrial and fresh water aquatic micro-algae, protists, the evolution of multicellularity, and a phylogenetic survey of microscopic multi-cellular life.

Cross Listed PATB/MICR 3021

Prerequisite: MOLB/MICR-2021, General Microbiology

PATB3400 - Host Defenses Against Infect.

Credits: 3

Max Credit 3

Topics will include the history of immunology in the context of infectious diseases, different infectious pathogens and their interactions with higher order life forms, and introduction to the immune system relevant to protection against invasive microorganisms.

Prerequisite: MOLB/MICR 2021 and PATB/MICR 2220

PATB4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed MICR 4001

Dual Listed PATB 5001

Prerequisite: STAT 2050 or STAT 2070

PATB4050 - Problems in Animal Disease

Credits: 1-4

Max Credit (Max. 6)

Offers opportunity for supervised investigation of animal disease problems involving techniques of bacteriology, mycology, virology, gross pathology, histopathology and/ or toxicology.

Prerequisite: 12 semester hours of biological science and consent of instructor; MOLB 2021 is recommended for most students.

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

PATB4111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed ANSC 4111

Dual Listed PATB 5111

Prerequisite: ANSC 1030

PATB4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed MICR 4130

Dual Listed PATB 5130

When Offered (Normally offered spring semester)

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

PATB4140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action and their effects on various organisms including man and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 5140

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: 9 hours of biological science (e.g., physiology), 4 hours chemistry, 3 hours biochemistry.

PATB4150 - Seminar

Credits: 1
Max Credit (Max. 4)

Preparation and oral presentation of papers on veterinary sciences topics.

Prerequisite: 8 hours of biology and consent of instructor.

PATB4170 - Diseases of Wildlife

Credits: 3

Introduction to wildlife diseases of the Rocky Mountain region and North America. Emphasis on infectious, parasitic, traumatic, toxic, and other disease agents with coverage of mechanisms of disease, epidemiology, and disease impacts on wildlife populations and species. Significant discussion of zoonotic diseases and diseases at the wildlife/domestic animal interface.

Dual Listed PATB 5170

When Offered (Offered spring semester of even numbered years)

A&S College Core 2015 12 hours of biological or zoological sciences.

Former Course Number [4120]

PATB4220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scope objective is to assist students in gaining an understanding of principals and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/ discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principals and concepts through knowledge of experimental approaches.

Cross Listed MICR 4220

Dual Listed PATB 5220

Prerequisite: PATB 2220/MICR 2220 and statistics (or epidemiology).

PATB4240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed ENR 4240

Dual Listed PATB 5240

Prerequisite: LIFE 2022 or LIFE 2023 and STAT 2050 or STAT 2070

PATB4300 - Microscopic Anatomy

Credits: 3
Max Credit 3

Covers mammalian tissue anatomy and function at a microscopic level. Emphasizes the relationship of tissue structure and function to health and the development of disease. Intended for students pursuing careers or continuing education in medical/veterinary medical, research, and related fields.

Dual Listed PATB 5300
Prerequisite: BIOL 2000

PATB4320 - Problems in Parasitology

Credits: 1-3
Max Credit (Max. 5)

Individual laboratory, library or field study of parasites and their host relations.

Prerequisite: 8 semester hours of biological sciences or 3 semester hours of parasitology and consent of instructor.

PATB4400 - Immunology

Credits: 4
Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed MOLB 4400
Dual Listed PATB 5400
When Offered (Normally offered spring semester)
Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

PATB4500 - Veterinary Parasitology

Credits: 4
Biology, importance, diagnosis and control of helminth and protozoan parasites of wild and domestic animals. Arthropod vectors and/or intermediate hosts of helminth & protozoan parasites are included. Diagnostic procedures and identification familiarity with agents are emphasized in lab.

When Offered (Offered fall semester of even-numbered years)
Prerequisite: 8 hours of biological science.

PATB4710 - Medical Virology

Credits: 3
Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710
Dual Listed PATB 5710
When Offered (Normally offered fall semester)
Prerequisite: MOLB 2240

PATB5001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed MICR 5001
Dual Listed PATB 4001
Prerequisite: STAT 2050

PATB5110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 4110
When Offered (Offered fall semester)
Prerequisite: LIFE 2022

PATB5111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed ANSC 5111
Dual Listed PATB 4111
Prerequisite: ANSC 1030

PATB5120 - Topics in Pathobiology

Credits: 1-4
Max Credit (Max. 8)

This course will have a focus on conservation genomics. Lectures in current pathobiology topics derived from the expertise of the lecturer.

Prerequisite: 12 hours of biological sciences and consent of instructor.

PATB5130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Dual Listed PATB 4130

Prerequisite: C or better in LIFE 2022

PATB5140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action, and their effects on various organisms including man and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 4140

Prerequisite: 9 hrs. biological science (eg. physiology), 4 hrs. chemistry, 3 hrs. biochemistry.

PATB5170 - Diseases of Wildlife

Credits: 3

Introduction to wildlife diseases of the Rocky Mountain region and North America. Emphasis on infectious, parasitic, traumatic, toxic, and other disease agents with coverage of mechanisms of disease, epidemiology, and disease impacts on wildlife populations and species. Significant discussion of zoonotic diseases and diseases at the wildlife/domestic animal interface.

Dual Listed PATB 4170

Prerequisite: 12 hours of biological or zoological sciences.

PATB5220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scope objective is to assist students in gaining an understanding of principles and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/ discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principles and concepts through knowledge of experimental approaches.

Cross Listed MICR 5220

Dual Listed PATB 4220

Prerequisite: PATB 2220/MICR 2220 and statistics (or epidemiology).

PATB5240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens,

conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed ENR 5240

Dual Listed PATB 4240

PATB5300 - Microscopic Anatomy

Covers mammalian tissue anatomy and function at a microscopic level. Emphasizes the relationship of tissue structure and function to health and the development of disease. Intended for students pursuing careers or continuing education in medical/veterinary medical, research, and related fields.

Prerequisite: BIOL 2000

PATB5400 - Immunology

Credits: 4

Biology of the immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques. Students are required to complete a term paper and make a presentation.

Cross Listed MOLB 5400

Dual Listed PATB 4400

Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

PATB5500 - Veterinary Parasitology

Credits: 4

Biology, importance, diagnosis and control of helminth and protozoan parasites of wild and domestic animals. Arthropod vectors and/or intermediate hosts of helminth & protozoan parasites are included. Diagnostic procedures and identificational familiarity with agents are emphasized in lab.

Prerequisite: 8 hours of Biological Science.

PATB5505 - Investigations in Pathobiology

Credits: 1-4

Max Credit (Max. 8)

Research involvement in pathobiology to learn laboratory methods, scientific literature, research design and data analysis and presentation.

Prerequisite: graduate standing and/or consent of instructor and 16 hours of biological sciences.

PATB5510 - Introductory Virology

Credits: 3

Prokaryotic and eukaryotic viruses as infectious agents and models for modern molecular biology. Examines concepts and principles of pathogenesis, host response and the regulation of virus-host interactions. Genome organization, structure and replication will be examined within the context of the co-evolution of virus and host.

Cross Listed MOLB 5510

Prerequisite: MOLB 3610 or MOLB 4600 plus MOLB 4610.

PATB5515 - Advanced Seminar in Pathobiology

Credits: 1

Max Credit (Max. 4)

Preparation and presentation of research topics in pathobiology with participation in discussions.

Prerequisite: graduate standing and/or consent of instructor and 16 hours of biological sciences.

PATB5710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Dual Listed PATB 4710

PATB5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

PATB5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PATB5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PATB5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

PATB5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

PATB5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Petroleum Engineering

PETE1060 - Introduction to Petroleum Engineering Problem Solving

Credits: 1
Covers elements of Petroleum Engineering calculations associated with typical computations in Drilling, Production, and Reservoir Engineering, Rock and Fluids properties, to simultaneously train the student on basic computing skills as well as basic language of Petroleum Engineering. The preferred computing tool is Matlab, which will be introduced through simple calculations on the computer. Notions of the petroleum engineering curriculum will also be provided through examples of the different subjects.

Prerequisite: Math placement 5 or concurrent enrollment in MATH 2200.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3
General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of

production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

PETE2060 - Introduction to Petroleum Engineering Computing

Credits: 3

Introduces Petroleum Engineering problems and principles, develops computational skills needed to solve them, and reinforces a computational tool that will be useful for other Petroleum Engineering classes.

Prerequisite: C or better in PETE 1060, and either a D or better in MATH 2310 or concurrent enrollment in MATH 2310.

PETE3015 - Multicomponent Thermodynamics

Credits: 3

Introduces mixture properties, such as chemical potentials, excess properties, partial molar properties, heats of mixing, fugacities, and practical tools for estimating them from solution theories and equations of state. These tools and concepts are applied to phase and chemical equilibria.

Prerequisite: C or better in ES 2310 and concurrent enrollment in PETE 2060. Student must be a Petroleum Engineering major.

PETE3025 - Heat and Mass Transfer

Credits: 3

Introduces energy and mass transfer concepts and the development of mathematical models of physical phenomena, including convection, conduction, radiation, and mass diffusion and convection.

Prerequisite: C or better in ES 2330 and MATH 2310. Student must be a Petroleum Engineering major.

PETE3100 - Rock and Fluids Lab

Credits: 2

Provides understanding of principles of rock and fluid properties and their measurement as part of conventional and special core analysis, as well as PVT characteristics of reservoir fluids. Students are expected to understand how to measure important rock and fluid properties using laboratory equipment, as part of reservoir characterization routines, formation damage evaluations and well log calibration protocols. Students are also expected to learn how to write succinct and organized reports.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3200 - Reservoir Engineering

Credits: 3

Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of

different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: PETE 3025, C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3255 - Basic Drilling Engineering

Credits: 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hold deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3265 - Drilling Fluids Laboratory

Credits: 3

Measurement of physical and chemical properties of drilling fluids, including experiments on mud density control, viscosity control, rheological properties, mud hydraulics, filtration properties, mud contaminants and their treatments. Includes design of experiments, data processing, interpretation and writing technical reports.

Prerequisite: PETE 3255, C or better in both ES 2310 and ES 2330. Student must be a Petroleum Engineering major.

PETE3715 - Production Engineering

Credits: 3

Provides elements for calculating the production rate of oil or gas wells, including reservoir inflow performance, which is determined by the reservoir rock and fluids properties and calculated based on Darcy's law, and tubing performance, which is determined by tubing parameters and calculated based on Newtonian dynamics. Basic design of artificial lift systems, reservoir stimulations and optimization of production systems are also included.

Prerequisite: C or better in ES 2310, ES 2330 and PETE 2050. Student must be a Petroleum Engineering major.

PETE3725 - Well Completions

Credits: 3

Covers many facets of completion and intervention in oil and gas wells, including design and procedures to meet deliverability, safety, and integrity, starting with completion, stimulation, workover, and intervention, ending with plug and abandonment requirements.

Prerequisite: C or better in both PETE 2050 and ES 2410. Student must be a Petroleum Engineering major.

PETE3890 - Engineering Honors Program Research Methods

Credits: 3

A general approach to scientific research and graduate school preparation. Topics will include: finding a research mentor, literature search skills, using the scientific method for approaching a research problem and developing a research methodology, writing a research funding proposal, delivering a research presentation and selecting and applying for graduate school.

Cross Listed ARE 3890/ATSC 3890/CE 3890/ CHE 3890/COSC 3890/EE 3890/ES 3890.

Restricted Restricted to College of Engineering Honors Program students.

Prerequisite: sophomore standing.

PETE3900 - Undergraduate Research in Petroleum Engineering

Credits: 1-6

Max Credit (Max. 6)

Students carry out research appropriate to undergraduates, under faculty supervision. May be taken more than once. Requires a written research proposal to be approved by instructor prior to course start.

Prerequisite: junior standing as a petroleum engineering major and consent of instructor.

PETE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Studies social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed CHE 4000.

Prerequisite: junior standing and completion of two lab sciences.

PETE4030 - Rock and Fluid Properties

Credits: 3

Reservoir rocks

Former Course Number [3010]

Prerequisite: PETE 2050.

PETE4050 - Life Cycle Analysis

Credits: 3

Max Credit 3

Focus on learning to use/apply Life Cycle Assessment (LCA) skills; compare other risk assessment tools; practice assessing environmental impact over whole product life cycle; learning to set fundamentals for comparative risks on

humans & ecosystems; to relate risk & impacts on human health to consumption/production.

Cross Listed PETE 5050

Prerequisite: Junior status or above.

PETE4060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of Fundamental Flow Equation. Constant Rate Solutions. Constant Pressure Solutions. The Principles of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, isochronal test analysis.

Dual Listed PETE 5060.

Prerequisite: PETE 3200.

PETE4200 - Natural Gas Engineering

Credits: 3

Studies development of natural gas reservoirs for normal production and as storage fields. Includes back pressure tests, hydrates, pipeline problems, cycling and use of the material balance equation. Also processing of natural gas, including compression, expansion, refrigeration, separation, sour gas treating, sulfur recovery, LNG production and carbon dioxide separation.

Prerequisite: PETE 2050.

PETE4215 - Rock Mechanics

Credits: 3

Covers rock mechanical properties, stress and strain in rock and rock masses, rock failure mechanisms, thermal-hydraulic-mechanical-chemical (THMC) coupling, and their applications to ground surface subsidence/uplift, borehole instability, and hydraulic fracturing.

Dual Listed PETE 5215.

Prerequisite: ES 2330 and 2410.

PETE4220 - Geostatistics and Subsurface Characterization

Credits: 3

An advanced skills course about subsurface modeling using diverse data (e. g. well data, seismic info, etc.), including model development, techniques, and practical applications. Students must have basic knowledge of mathematical and statistical modeling.

Dual Listed PETE 5220.

Prerequisite: Junior standing and PETE 3200 or consent of instructor.

PETE4225 - Well Test Analysis

Credits: 3

Covers knowledge of well test interpretation techniques. Theory for well testing include drawdown and buildup tests, single-rate and multi-rate testing, derivative analysis, wellbore storage, type curve matching, fall off and injectivity, fractured wells, fractured reservoirs, interference and pulse testing, and horizontal well analysis.

Prerequisite: PETE 3200. Student must be a Petroleum Engineering major.

PETE4300 - Reservoir Simulation

Credits: 3

Simulation of petroleum reservoirs, formulation of equations, finite difference methods of solution, data preparation and input, history matching case studies.

Dual Listed PETE 5300.

Prerequisite: PETE 3200, MATH 2210, MATH 4440.

PETE4310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 5310.

Prerequisite: PETE 3200.

PETE4320 - Well Log Interpretation

Credits: 3

Studies use of various types of open hole logs for quantitative evaluation of formations.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE4330 - Geostatistics and Subsurface Characterization

Credits: 3

Max Credit 3

An advanced skills course about subsurface modeling using diverse data (e.g. well data, seismic info, etc.), including model development, techniques, and practical applications. Students must have basic knowledge of mathematical and statistical modeling.

Restricted Junior standing

Prerequisite: PETE 3200 or consent of instructor

PETE4340 - Petroleum Economics

Credits: 3

Applies principles of economics to petroleum properties. Studies taxation, present worth, rate of return, payout and decisions under uncertainty.

Prerequisite: PETE 3200. Student must be a Petroleum Engineering major.

PETE4400 - Tight Gas Sand/Coalbed Methane

Credits: 3

This course provides information needed to understand geoscience and engineering considerations concerning the development of Fractured, Tight Gas Sands and Coalbed Methane reservoirs. Subjects include the origin and accumulation of hydrocarbons within these reservoirs, and the tools, methods and workflows used for locating, characterizing, and developing these reservoir types.

Dual Listed PETE 5400.

Prerequisite: PETE 3200; Student must be a Petroleum Engineering major.

PETE4450 - Unconventional Reservoirs

Credits: 3

Provides fundamental knowledge of unconventional reservoirs, including types, experimental characterization, and petrophysical properties of unconventional oil reservoirs; modeling flow in unconventional rocks; and recovery enhancement in shale oil reservoirs.

Dual Listed Dual list with PETE 5450

Prerequisite: PETE 2050 & 3200.

PETE4580 - Honors Undergraduate Research

Credits: 3

An independent research experience for undergraduate students enrolled in the Engineering Honors Program. Before registering for this class, students are responsible for discussing their interests with faculty, identifying a willing research mentor, obtaining approval by said mentor, and communicating the student/ faculty partnership to the appropriate staff in their home department. Must be in the Engineering Honors Program.

Cross Listed ATSC 4580/BE 4580/CE 4580/CHE 4580/COSC 4580/ES 4580/ESE 4580.

Prerequisite: junior or senior standing.

PETE4736 - Petroleum Engineering Design

Credits: 4

Design and development of petroleum reservoirs using principles and skills learned in the Petroleum Engineering

program. Application of software for design and analysis of the drilling, reservoir and production of petroleum.

USP 2015 Code U5C3

Prerequisite: PETE 3200, PETE 3255, PETE 3715, PETE 3725, and C or better in COM2. Student must be a Petroleum Engineering major.

PETE4800 - Shale Reservoir Development

Credits: 3

Provides an overview of the geoscience and engineering aspects involved in the exploration and development of shale reservoirs. Topics covered include organic geochemistry, geomechanics, petrophysics, geophysics, reservoir and completion engineering, and drilling. The primary phases involved in obtaining hydrocarbon production from shale reservoirs are detailed.

Dual Listed PETE 5800.

Former Course Number [4850]

Prerequisite: C or better in both PETE 2050 and PETE 3200.

PETE4810 - Unconventional Gas Production

Credits: 3

Study of resource base, drilling, completion and production technology, and reservoir characteristics for tight gas sands. Devonian shales, coalbed methane, geopressed aquifers, and hydrates. Case histories and economics are presented in each of these.

Dual Listed PETE 5810.

Prerequisite: consent of instructor.

PETE4820 - Blockchain in Energy

Credits: 3

Max Credit 3

This course provides an overview of the global energy transition. It introduces Blockchain technology and provides hands-on experience in developing Smart Contracts, digital tokens, and Decentralized Applications. The application of Blockchain in energy, sustainability, and the carbon economy will also be explored.

Prerequisite: Junior status or higher

PETE4830 - Thermal Recovery

Credits: 3

Objective of this course is to examine and explore in depth the theoretical and applied aspects of thermal recovery process of producing hydrocarbons including state-of-the-art review.

Dual Listed PETE 5830.

Prerequisite: Senior standing in petroleum or chemical engineering.

PETE4860 - Energy, Environment, and Materials

Credits: 3

Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 5860.

Prerequisite: Junior standing and PETE 2050 or consent of instructor.

PETE4970 - Internship in Petroleum Engineering

Credits: 1-6

Max Credit (Max. 6)

Enables credit for students in appropriate engineering activities while serving as interns in an industrial, government, or other setting. Requires a written project proposal to be approved by instructor prior to course start.

Prerequisite: Must be involved in a petroleum engineering co-op/internship experience; consent of instructor.

PETE4990 - Topics in Petroleum Engineering

Credits: 1-6

Max Credit 6

Features topics not included in regularly offered classes.

Prerequisite: Junior status or higher

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5050 - Life Cycle Analysis

Credits: 3

Max Credit 3

Focus on learning to use/apply Life Cycle Assessment (LCA) skills; compare other risk assessment tools; practice assessing environmental impact over whole product life cycle; learning to set fundamentals for comparative risks on humans & ecosystems; to relate risk & impacts on human health to consumption/production.

Dual Listed PETE 4050

Prerequisite: Graduate standing.

PETE5055 - Drilling Engineering

Credits: 3

Max Credit 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hole deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: Graduate Standing

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5070 - Multiphase Flow

Credits: 3

A thorough background in the methods of analysis and current developments in gas-liquid, gas-solid, liquid-solid, and gas-liquid-solid flows. Introduction to multiphase flow instrumentation.

Prerequisite: graduate standing or consent of instructor.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5100 - Independent Study

Credits: 1-3

Max Credit (Max. 12)

Selected topics in petroleum engineering.

Prerequisite: graduate standing and consent of instructor.

PETE5150 - Topics in Petroleum Engineering

Credits: 1-3

Max Credit (Max. 12)

Selected topics in petroleum engineering.

Prerequisite: consent of instructor.

PETE5200 - Problems in Petroleum Engineering

Credits: 1-3

Max Credit (Max. 6)

Selected topics in petroleum engineering.

Prerequisite: doctoral student and consent of instructor.

PETE5215 - Electronics I Laboratory

Credits: 3

Covers rock mechanical properties, stress and strain in rock and rock masses, rock failure mechanisms, thermal-hydraulic-mechanical-chemical (THMC) coupling, and their applications to ground surface subsidence/uplift, borehole instability, and hydraulic fracturing.

Dual Listed PETE 4215.

Prerequisite: graduate standing.

PETE5220 - Geostatistical/Subsurface Characterization

Credits: 3

Providing practical way for building realistic subsurface models. Students must have basic knowledge of mathematical and statistical modeling. Both fundamental and practical aspects are covered. Students will be able to take real data derived from subsurface modeling and build geostatistical models, which will be performed deterministically and stochastically.

Dual Listed PETE 4220

Prerequisite: graduate standing.

PETE5255 - Advanced Drilling Engineering

Credits: 3

Principles and practices of advanced topics in oil and gas drilling engineering including advances in directional and horizontal drilling, drilling fluid hydraulics and cuttings transport. Non-Newtonian Fluid Flow Analysis, pore pressures and fracture resistance estimation methods. Application of modern computer-based analysis and design methods.

Prerequisite: graduate standing.

PETE5300 - Reservoir Simulation

Credits: 3

Simulation of petroleum reservoirs, formulation of equations, finite difference methods of solution, data preparation and input, history matching case studies.

Dual Listed PETE 4300.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5340 - Reservoir Engineering.

Credits: 3

Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: Graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

PETE5400 - Tight Gas Sand/Coalbed Methane

Credits: 3

This course provides information needed to understand geoscience and engineering considerations concerning the development of Fractured, Tight Gas Sands and Coalbed Methane reservoirs. Subjects include the origin and accumulation of hydrocarbons within these reservoirs, and the tools, methods and workflows used for locating, characterizing, and developing these reservoir types.

Dual Listed PETE 4400.

Prerequisite: graduate standing.

PETE5450 - Unconventional Reservoirs

Credits: 3

Provides fundamental knowledge of unconventional reservoirs, including types, experimental characterization, and petrophysical properties of unconventional oil reservoirs; modeling flow in unconventional rocks; and recovery enhancement in shale oil reservoirs.

Prerequisite: Graduate standing

PETE5715 - Production Engineering

Credits: 3

Provides elements for calculating production rate of oil/ gas wells, including reservoir inflow performance, determined by reservoir rock and fluids properties using Darcy's law, and tubing performance, determined by tubing parameters and using Newtonian dynamics. Basic design of artificial life systems, reservoir stimulations and optimization of production systems are included.

Prerequisite: graduate standing.

PETE5800 - Shale Reservoir Development

Credits: 3

Provides an overview of the geoscience and engineering aspects involved in the exploration and development of shale reservoirs. Topics covered include organic geochemistry, geomechanics, petrophysics, geophysics, reservoir and completion engineering, and drilling. The primary phases involved in obtaining hydrocarbon production from shale reservoirs are detailed.

Dual Listed PETE 4850.

Prerequisite: graduate standing.

PETE5810 - Unconventional Gas Production

Credits: 3

Study of resource base, drilling, completion and production technology, and reservoir characteristics for tight gas sands. Devonian shales, coalbed methane, geopressured aquifers, and hydrates. Case histories and economics are presented in each of these.

Dual Listed PETE 4810.

Prerequisite: graduate standing or consent of instructor.

PETE5830 - Thermal Recovery

Credits: 3

Objective of this course is to examine and explore in depth the theoretical and applied aspects of thermal recovery process of producing hydrocarbons including state-of-the-art review.

Dual Listed PETE 4830.

Prerequisite: graduate standing or consent of instructor.

PETE5840 - Miscible Processes

Credits: 3

Objective is to examine and explore in depth the theoretical and applied aspects of miscible processes of producing hydrocarbons including state-of the-art review.

Prerequisite: PETE 5310 and graduate standing or consent of instructor.

PETE5850 - Chemical Enhanced Oil Recovery Processes

Credits: 3

Objective is to examine and explore in depth the theoretical and applied aspects of the classification of enhanced oil recovery processes called chemical processes.

Prerequisite: graduate standing.

PETE5860 - Energy, Environment, and Materials

Credits: 3

Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 4860.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

PETE5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

PETE5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PETE5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PETE5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

PETE5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

PETE5970 - MS Plan B Research Project

Credits: 1-2
Max Credit 2

Students complete a non-thesis capstone project on a topic of choice within the petroleum or energy field, under the guidance of their graduate committee. Students must produce at least one final paper and present their results in a public forum (Final Examination). Must complete a minimum of two credit hours for the M.S. degree.

Prerequisite: Graduate Standing.

PETE5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

PETE5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Pharmacy

PHCY1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)
Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4050 - Evolution of American Health

Credits: 2

PHCY4141 - Health Economics and Outcomes

Credits: 3
This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

PHCY4160 - Problems in Pharmacy

Credits: 1-4
Original investigation on a library or laboratory problem concerned with a definite phase of work in pharmacy.

Prerequisite: consent of instructor.

PHCY4170 - Pharmacy Seminar

Credits: 1-4

Students present oral reports on selected topics of pharmaceutical interest for discussion by the group.

Prerequisite: consent of instructor.

PHCY4210 - Regulating Dangerous Drug Use

Credits: 2

Regulatory theory and practice is used to study the authority/responsibilities of three federal agencies that are entrusted to ensure the safe, effective, and efficient medication use in the United States. The practices and procedures of the FDA, DEA, and CMS are reviewed, describing why healthcare providers should comply with regulatory principles.

Dual Listed PHCY 5210.

Prerequisite: Upper division undergraduate status or department permission.

PHCY4240 - Pharmaceutical Homicide

Credits: 2

Legal pharmaceutical products are sometimes used by healthcare professional criminals to kill people. This course focuses on identifying the zone of risk for people who could be harmed by pharmaceuticals, and the development of best practices to protect patients and other from the harm.

Dual Listed PHCY 5240.

Prerequisite: Upper division undergraduate status or department permission.

PHCY4241 - Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

PHCY4341 - Intro to Healthcare Quality

Credits: 3

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

PHCY4441 - Intro Health Institution Leadership

Credits: 3

Max Credit 3

This course provides undergraduates information through analysis of theory and application. The course will use discussion boards to highlight examples of leadership roles and discuss differences in types of leadership roles. Organizational, team, and individual dimensions of leadership are examined.

Restricted Selection of leadership track in BAS program

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

PHCY4670 - Medication Malpractice

Credits: 2

Using a case-study approach, potential legal liability issues are studied, within a health care context that primarily focuses on legal liability related to the use of medications. Strategies for reduction of legal liability are explored. The implementation and oversight of legal risk management programs is addressed.

Dual Listed Dual listed with: PHCY 5670.

Prerequisite: Upper division undergraduate status or department permission.

PHCY5040 - The Evolution of American Health

Credits: 2

This course explores the evolution of the healthcare system in response to various needs and crises over the years. The professionalization of health care; the development of the modern hospital; the implications of computerized health information; and the empowerment of patients will be covered.

Prerequisite: Admission into the Health Services Administration MS program.

PHCY5041 - Health Services Administration Research Methods

Credits: 2

This course will cover the basic research designs used in health services research. Focus will be given on framing the research questions, selecting the appropriate study design and threats to the internal validity of the study designs.

Prerequisite: Must be enrolled in the HSA program.

PHCY5042 - Statistics for Health Services

Credits: 3

This course will introduce students to correlation analysis, regression, analysis of variance and selected non-parametric

tests, focusing on appropriate use of each and how to interpret the output of a statistical test to answer a research question.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5042 - Statistics for Health Services

Credits: 3

This course will introduce students to correlations analysis, regression, analysis of variance and selected non-parametric tests, focusing on appropriate use of each and how to interpret the output of a statistical test to answer a research question. Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5043 - Empirical Analysis for Health Services Administration

Credits: 3

This course will equip students with an understanding of research and policy debates related to economic, political, and administrative aspects of health services by providing an overview of how research can be used by health service researchers to draw conclusions about health services and their administration.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5044 - Preventing Fraud/Waste/Abuse

Credits: 2

Describes potential violations of legal requirements for health institutions and health professionals that can be considered fraud, waste and abuse. Compliance strategies to avoid legal consequences will be discussed.

Prerequisite: enrollment in graduate or professional program or department permission.

PHCY5045 - Health Services Administration Applied Research

Credits: 1-4

This course provides the opportunity for students to apply knowledge and skills obtained in the HSA program while gaining practical experience with real-world projects.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5046 - Health Services Administration Seminar1

Credits: 1

Max Credit (Max. 2)

An in-depth investigation of a timely issue in health services, including the regulatory, economic, patient-safety, marketing, leadership, and ethical aspects of that issue. Students will participate in separate group analysis of a presented problem, and in their presentations of their group's assessment of the problem.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5047 - Pandemic Preparedness Policy

Credits: 2

Analysis of regulatory measures undertaken to protect the public from adverse effects of a global pandemic. Evaluation of alternative means of preparing for a pandemic and for management of pandemic response. Considers balancing of individual interests and community interests.

PHCY5141 - Principles of Health Econ and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5142 - Health Economic Decision Analysis

Credits: 2

This class is designed to provide the student with the methods of comparative effectiveness research with special focus on how various decision makers use comparative effectiveness data to assist in decision-making.

Prerequisite: PHCY 5141.

PHCY5143 - Comparative Effectiveness Research

Credits: 2

This class is designed to provide the student with the methods of comparative effectiveness research with special focus on how various decision makers use comparative effectiveness data to assist in decision-making.

Prerequisite: PHCY 5141.

PHCY5144 - Patient Reported Outcomes

Credits: 2

This course is designed to provide an overview of methods pertaining to the development and evaluation of patient-reported outcome measures (PROs) and the role they play in regulatory, reimbursement, and market access decisions.

Prerequisite: Admission in the MS in Health Services Administration program.

PHCY5145 - PBM Decisions

Credits: 2

An overview of managed care pharmacy, with a focus on the relationship between cost controls and the access to pharmaceutical products and quality clinical services, and the relationships between, and relative responsibilities of,

health plan sponsors, PBMs and providers.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5146 - HEOR Data Analytics

Credits: 3

An introduction to analyzing medical and pharmacy data using SAS and SQL exploring the complexities of health data, focusing on phases of the data life cycle in health economics and outcomes research, including data validation and manipulation, merging data and creating data sets.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5147 - HEOR Data Analytics

Credits: 3

This is an introduction to intermediate and advanced methods of analyzing healthcare data focusing on clinical risk adjustment models in SAS. This course will further explore the features and complexities of health data and build upon the Introduction to HEOR Data Analytics Using SAS I.

Prerequisite: PHCY 5146 and must be enrolled in the HSA program, or by permission.

PHCY5148 - Health Economics and Policy

Credits: 2

This course explores the financing and structure of the U. S. healthcare system with the purpose of understanding how these systems impact patient care, health policy, and economics. Topics include organization of healthcare systems, insurance programs, legislation, healthcare labor markets and drug costs.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5160 - Graduate Problems Course

Credits: 1-6

Max Credit (Max. 12)

This course allows in-depth exploration of topics in pharmaceutical sciences, at the graduate level, that are mutually agreed upon by the student and faculty.

Prerequisite: consent of instructor.

PHCY5210 - Regulating Dangerous Drug Use

Credits: 2

Regulatory theory and practice is used to study the authority/responsibilities of three federal agencies that are entrusted to ensure the safe, effective, and efficient medication use in the United States. The practices and procedures of the

FDA, DEA, and CMS are reviewed, describing why healthcare providers should comply with regulatory principles.

Dual Listed PHCY 4210.

Prerequisite: Enrollment in graduate or professional program or department permission.

PHCY5240 - Pharmaceutical Homicide

Credits: 2

Legal pharmaceutical products are sometimes used by healthcare professional criminals to kill people. This course focuses on identifying the zone of risk for people who could be harmed by pharmaceuticals, and the development of best practices to protect patients and other from the harm.

Dual Listed PHCY 4240.

Prerequisite: Enrollment in graduate or professional program or department permission.

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5242 - The Food and Drug Administration

Credits: 2

This course examines the regulatory climate for FDA-regulated drug and biological products. Regulatory standards are reviewed (including discovery of new therapeutic modalities, their approval, manufacturing, promotion, and distribution), and the enforcement authority of the FDA is examined (focusing on methods that promote safe and effective drug use).

Prerequisite: PHCY 5241.

PHCY5243 - The Drug Enforcement Administration

Credits: 2

This course examines the balance of health professionals and institutions working with regulators to develop programs that reflect both the best interests of individual patients and of society. Focusing on challenges of treating chronic pain, prescription drug abuse, and actions that have led to conflict between regulators and health practitioners.

Prerequisite: PHCY 5241.

PHCY5244 - State Regulations of Health Professions

Credits: 2

This course examines how state regulatory agencies assure the initial competence of practitioners, as well as their continuing competence in the years following the completion of academic training. The course also examines the factors that are applied to the regulation of health care settings, using the structure-process-outcomes typology of Donabedian.

Prerequisite: PHCY 5241.

PHCY5245 - Medicare and Medicaid

Credits: 2

This course examines the structure, coverage, and operation of federal health programs, with a focus on health policy as reflected in the programs funded by federal resources. The primary focus of the course is on Medicare and Medicaid, and also reviewing other federal programs.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5246 - Prescription Drug Costs

Credits: 2

Max Credit 2

Overview of prescription drug prices and the consequences for patients and society of the high cost of pharmaceutical products. Causes of escalating pharmaceutical prices are reviewed. Legal and economic factors that contribute to high drug prices are considered. Potential solutions are identified.

Restricted Professional and Graduate students only.

PHCY5247 - HIPAA Compliance

Credits: 2

Max Credit 2

An overview of the basic principles of patient confidentiality. Emphasis is placed on the federal HIPAA legislation and its regulatory requirements. Challenges to the preservation of confidentiality in patient care are discussed, within the context of busy and public healthcare settings and the need for security of electronic healthcare records.

Restricted Professional and Graduate Students.

PHCY5248 - Professional and Graduate Students.

Credits: 2

Max Credit 2

The responsibility for safe and effective treatment of chronic pain is reviewed. The corollary responsibility for the prevention of opioid abuse is discussed. Regulatory compliance systems are developed to provide a patient-centered and evidence-based approach to deterring opioid use.

Restricted Professional and Graduate Students.

PHCY5269 - Healthcare Entrepreneur/Innov

Credits: 1

This interdisciplinary course will focus on real world examples of entrepreneurship and innovation in the healthcare field. It will utilize those innovators around Wyoming and the country to discuss what shortfalls they discovered and how they plan to get around them.

Restricted PharmD, MS HAS

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5342 - Healthcare Risk and Quality

Credits: 3

This course surveys the importance and processes of quality and risk in health care institutions. Students will be assigned to lead topics. Current events/topics will be utilized to inform the class.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5343 - Advanced Topics in Healthcare Quality

Credits: 4

Max Credit (Max. 4)

This is an advanced-level course on patient safety and quality improvement strategies in healthcare. The course will utilize many learning resources of the Institute for Healthcare Improvement (IHI) Open School so that students may earn an IHI Certificate.

Prerequisite: PHCY 5341.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5442 - Healthcare Financial Planning

Credits: 2

This course explores financial principles incorporating the unique environment of the health institution. The mix of services (inpatient, outpatient, nursing facilities, urgent/emergency care and components) will be studied through extensive use of case studies and models to develop the health institution leader's financial skills.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5443 - Healthcare Human Capital Plan

Credits: 2

This course will provide skills for developing and managing human capital by the health institution leader through exploration of best practices for human capital selection and development to optimize the performance of the workforce while complying with legal, regulatory, and contractual requirements through extensive use of case studies and models.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5444 - Healthcare Strategic Innovation

Credits: 2

This course develops strategic skills by the health institution leader through exploration of principles incorporating the unique environment of the health institution. The strategic skills will be applied to the concept of innovation through extensive use of case studies and models.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5541 - Introduction to Biopharmaceutical Marketing and Production

Credits: 3

This course will review empirical evidence in various topic areas within the fields of biopharmaceutical marketing, sales promotion, communication, and selling effectiveness focusing on the history and structure of the biopharmaceutical product representative function and theoretical domains associated with the associated activities.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5550 - Advanced Cardiovascular Physiology and Pharmacology

Credits: 3

An advanced study in the integration of modern cardiovascular physiology, pharmacology, biochemistry and cell biology concepts.

Dual Listed PHCY 6550.

Prerequisite: PHCY 6230 (or equivalent).

PHCY5660 - Health Care Law

Credits: 3

A survey of health care law for students in health care programs, law students, and other matriculated students. Subject matter includes, but is not limited to, the following: malpractice, licensing, informed consent, reform, reproduction and advanced directives.

Dual Listed PHCY 4660.

Prerequisite: consent of instructor.

PHCY5670 - Medication Malpractice

Credits: 2

Using a case-study approach, potential legal liability issues are studied, within a health care context that primarily focuses on legal liability related to the use of medications. Strategies for reduction of legal liability are explored. The implementation and oversight of legal risk management programs is addressed.

Dual Listed Dual listed with: PHCY 4670.

Prerequisite: Enrollment in graduate or professional program or department permission.

PHCY5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

PHCY5920 - Agents for Diagnostic Imaging

Credits: 2

Diagnostic Agents is currently designed as a one semester elective course with 2 credit hours. It is an introduction and survey of all diagnostic drugs used in the diagnosis and imaging of disease as approved by the US FDA for use in the United States.

Prerequisite: PHCY 6211, PHCY 6210, PHCY 6110, CHEM 2440, MOLB 3610.

PHCY6040 - Post-Graduate Career Planning

Credits: 1

This course helps student pharmacists make informed career choices. It is designed to allow students to prepare a CV and enhance a job search, interview and develop cover letter writing skills. Specific discussion topics will be largely focused on students' interest areas.

Prerequisite: PHCY 6480 or PHCY 6482, enrollment in professional PharmD program.

PHCY6051 - Topics in Illicit Drugs

Credits: 1

The course will address the basic pharmacology, physical signs of addiction, population demographics, abuse patterns and history of common illicit drugs. The course is designed to raise student awareness of illicit drug addiction.

Prerequisite: PHCY 6251, enrollment in professional Pharm D program.

PHCY6052 - Geriatric Pharmacotherapy

Credits: 1

Designed to develop the student's knowledge and understanding of geriatric pharmacotherapy through discussion of medical literature, case discussion, and providing patient care under supervision of the faculty member. Emphasis of the course is on class discussion and case-based learning.

Prerequisite: enrollment in professional PharmD program, P3 status.

PHCY6053 - Biotechnology

Credits: 2

Designed to introduce the student to the most rapidly growing area of biological drug pharmacotherapy which involves recombinant DNA technology and isolation from natural sources. A combined lecture, discussion of current literature and seminar topics approach is used.

PHCY6054 - Infectious Diseases

Let's talk bugs & drugs! This course discusses infectious disease pathogens and incorporates microbiology, pharmacology, & pharmacodynamics/ pharmacokinetics to optimize cost-effective & safe antimicrobials for patient care. This course is interactive & uses a variety of cases, discussions, and other active learning methods to achieve learning objectives.

Restricted Students in the Doctor of Pharmacy Program

PHCY6055 - Drug Information Resources

Credits: 1

Max Credit 1

Pharmacy and medicine are constantly evolving as new medications and therapies are developed. Pharmacists need to be able to locate reliable information rapidly. Students in PHCY 6054: Drug Information Resources (DIR) will explore many of the pharmacy-related databases to enhance their ability to efficiently and appropriately use the resources.

Restricted Pharmacy students

PHCY6100 - Dose Form Design

Credits: 4

Extensively introduces various types of dosage forms, discusses advantages and disadvantages of each. Pharmaceutical calculations are a major component of the course, as well as physicochemical principles involved in dose form stability.

Prerequisite: CHEM 2420 and CHEM 2440.

PHCY6102 - Biopharmaceutics and Pharmacokinetics

Credits: 4

Discusses biopharmaceutic and pharmacokinetic aspects of dosage form design. Basic pharmacokinetics and biopharmaceutics are interrelated to clinical applications. Also covers classical kinetics and dissolution.

USP 2015 Code U5C3

Prerequisite: MATH 2200 and PHCY 6100.

PHCY6106 - Pharmaceutical Calculations

Credits: 2

Application of basic mathematics and quantitative reasoning to pharmaceutical calculations, emphasizing calculations of doses, dosage requirements, compounding of formulations and parenterals.

Former Course Number [6105]

Prerequisite: MATH 1000 or MATH 1400.

PHCY6110 - Medicinal and Natural Products Chemistry I

Credits: 3

Three-semester series that studies the physicochemical, biochemical and pharmacological properties of substances of natural and synthetic origin that are used as medicinal agents.

Prerequisite: CHEM 2440 and MOLB 3610.

PHCY6111 - Medicinal and Natural Products Chemistry II

Credits: 3

Continuation of Medicinal and Natural Products Chemistry I.

Former Course Number [6210]

Prerequisite: Ph1 status in PharmD program or consent of instructor.

PHCY6120 - Advanced Pathophysiology

Credits: 3

Advanced course covering the molecular, cellular, genetic and clinical principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for Doctor of Pharmacy students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 3450 for interprofessional education revolving around student-led case study presentations.

Former Course Number [6220]

Prerequisite: LIFE 1010, LIFE 1020, CHEM 1020, CHEM 1030, CHEM 2420, CHEM 2440, MOLB 2240, MOLB 3610, ZOO 3115, ZOO 4125.

PHCY6140 - Introduction to Social Administrative Pharmacy

Credits: 2

Provides an introduction to socio-cultural, behavioral and administrative principles of pharmacy with a focus on pharmacist roles and their historical evolution, health disparities, health behavior theory and practice philosophy, and a survey of the U. S. health care system.

Prerequisite: Enrollment in the professional program or consent of instructor.

PHCY6151 - Pharmacy Practice

Credits: 2

Provides didactic content that enables students to accurately prepare and dispense prescription medications.

Former Course Number [6354]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6152 - Therapeutics I

Credits: 3

Emphasizes the role of the pharmacist in pharmaceutical self care, appropriate triage and referral involving prescription, non-prescription pharmaceuticals, complimentary, alternative therapies and devices in community dwelling patients with both acute and chronic self-care conditions.

Former Course Number [6352]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6160 - Pharmacist Skills I

Credits: 1

Preparation and evaluation of dosage forms is main thrust of course. Laboratory emphasizes manipulative and mathematical skills, prescription formats, packaging and storage as they apply to pharmaceuticals.

Former Course Number [6101]

Prerequisite: concurrent enrollment in PHCY 6100; MATH 2100.

PHCY6161 - Pharmacist Skills II

Credits: 1

Provides laboratory and other related experiences that enable students to accurately prepare and dispense prescription medications.

Prerequisite: P1 status in PharmD program or consent of instructor.

PHCY6170 - Introductory Pharmacy Practice Experience-IPPE1

Credits: 1

Provides an early curricular exposure to the roles and functions of pharmacists in their work environment through a shadow experience.

Prerequisite: satisfactory completion of PHCY 6185.

PHCY6215 - Medicinal and Natural Products Chemistry III

Credits: 3

Continuation of Medicinal and Natural Products Chemistry II.

Former Course Number [6211]

Prerequisite: PHCY 6111.

PHCY6230 - Pharmacology I

Credits: 4

First semester of a one-year series. Studies action of chemical agents on living systems to include pharmacodynamics, toxicology, and clinical therapeutics. Concepts are emphasized through case presentations and discussion.

Prerequisite: PHCY 4450.

PHCY6231 - Pharmacology II

Credits: 4

Second semester of a one-year series. Continuation of PHCY 6230. Lecture with separately scheduled discussion section.

Prerequisite: PHCY 6230.

PHCY6240 - Research and Evaluation Methods in Pharmacy

Credits: 3

The course focuses on research design and statistical analyses, as well as pharmaco-economic, pharmaco-epidemiology and public health concepts and methods for evidence-based practice applications and health care policy development.

Prerequisite: MATH 2200 and PharmD program P2 status.

PHCY6241 - Organizational and Societal Issues Within the Health Care System

Credits: 3

Surveys U. S. health care system. Discusses organization, insurance programs, legislation and health care professionals. Also discusses sociological issues pertinent to the patient and illness, the role of the pharmacist, and drugs and drug use.

USP 2015 Code U5C3

Prerequisite: enrollment in the professional program, School of Pharmacy or consent of instructor.

PHCY6245 - Patient/Professional Interactions

Credits: 3

Focuses on psychosocial and communication concepts pertaining to human interactions, with application to professional practice environments and clinical counseling situations.

USP 2015 Code U5C3

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6246 - Pharmacy Management, Marketing and Finance

Credits: 3

Examines management functions and leadership in various types of contemporary pharmacy practice including pharmacy services, drug distribution, technology, human resources, marketing, finance and accounting.

Prerequisite: P2 status.

PHCY6250 - Drug Literature Evaluation

Credits: 3

Provides a knowledge base, techniques and skills for information retrieval, evaluation of medical and pharmaceutical practice literature, and application to specific patient problems.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

Prerequisite: STAT 2050 or equivalent; WB designated course.

PHCY6251 - Therapeutics II

Credits: 3

Introduces pharmacotherapeutic principles employed in the patient care process for managing select disease states and specific patient populations. The course emphasizes the role of evidence-based medicine in developing pharmaceutical care plans (e. g. recommending therapy, evaluating and monitoring the efficacy and safety of medications).

Prerequisite: PHCY 6120, PHCY 6230.

PHCY6260 - Pharmacist Skills III

Credits: 1

This course is the third in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in the different subdisciplines represented in the SOP curriculum.

Prerequisite: P2 status in PharmD program or consent of instructor.

PHCY6261 - Pharmacist Skills IV

Credits: 2

This course is the fourth in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P2 status in PharmD program or consent of instructor.

PHCY6270 - Intermediate Pharmacy Practice Experience-IPPE2

Credits: 1

An advanced exposure to the practice of pharmacy in health care environments.

USP 2015 Code U5C3

Prerequisite: satisfactory completion of PHCY 6170.

PHCY6280 - Seminar: Pharmacy Ethics

Credits: 1

Focuses on ethical issues confronting pharmacists in practice, pharmacy as a profession, the health care delivery system and society.

Former Course Number [6385]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6281 - Pharmacy Research Ethics

Credits: 1

Understanding of the ethical issues that may arise while conducting health science research and potential strategies for properly addressing these ethical issues.

Prerequisite: concurrent or previous enrollment in PHCY 6280.

PHCY6300 - Sterile Products

Credits: 2

An introduction to the preparation and clinical application of sterile dosage forms in accordance with USP 797 and other related standards. Emphasizes basic principles related to preparation, dispensing and administration of parenteral medications in health care settings.

Former Course Number [6103]

Prerequisite: PHCY 6100, PHCY 6160, PHCY 6106, and concurrent enrollment in PHCY 6301.

PHCY6301 - Sterile Products Laboratory

Credits: 1

A hands-on training in techniques used to prepare, dispense and administer parenteral admixtures, parenteral nutrition, chemotherapy and ophthalmics forms in accordance with USP 797 and other related standards.

Former Course Number [6104]

Prerequisite: PHCY 6100, PHCY 6160, PHCY 6106 and concurrent enrollment in PHCY 6300.

PHCY6312 - Clinical Toxicology

Credits: 3

Focuses on biological and pharmacological effects of environmental, chemicals, OTC and prescription drug poisoning cases. Emphasis will be placed on the use of historical, laboratory and clinical data to diagnose and develop clinical management approaches for both acute and chronic poisoning cases.

Prerequisite: PHCY 6230, MOLB 3610.

PHCY6340 - Health Care Policy and Advocacy

Credits: 2

Prepares the future pharmacist leader to analyze and engage in professional advocacy and the healthcare policy process at the local, state and national level. Content will include details of the U. S. healthcare system, health policy, the policy-making process, key stakeholders' roles, sociocultural influences and current issues.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6341 - Pharmacy Practice Law

Credits: 3

Coverage of state, federal and local laws and regulations which relate directly to the practice of pharmacy. The Wyoming Pharmacy Act serves as a model for analogous laws in other states. Case law at the federal and state levels affecting pharmacy practice is analyzed and discussed.

Prerequisite: PH3 or consent of instructor.

PHCY6342 - Pharmacy Administration

Credits: 3

Examines management of pharmaceutical services, analysis of drug distribution systems in the U. S. , contemporary pharmacy practice and problems common or peculiar to all types of pharmacy services.

Prerequisite: PH3 status.

PHCY6343 - Methods for Population Health

Credits: 2

Students will be introduced to Pharmacoeconomic, Pharmacoepidemiology and Public Health concepts and methods for the purpose of applying the knowledge to provision of pharmacist-provided patient care as well as to development of health policy.

Prerequisite: MATH 2200; PHCY 6250.

PHCY6344 - Pharmacy Ethics

Credits: 1

Focuses on ethical issues confronting pharmacists in practice, pharmacy as a profession, the health care delivery system and society.

Former Course Number [6280, 6385]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6350 - Therapeutics III

Credits: 4

Provides an overview of the treatment of selected disease states. Students will develop skills in providing patient-centered care as a medication expert, interpreting evidence, and formulating, monitoring, and adjusting care plans. Course will build upon skills learned in PHCY 6251.

Prerequisite: grade of C or higher in PHCY 6251.

PHCY6351 - Therapeutics IV

Credits: 4

Provides the student with an overview of the treatment of complex disease states. Students will build on their patient-centered skills from PHCY 6350 by interpreting evidence, prioritizing patient needs, and formulating and monitoring evidence-based care plans. These skills will be essential as students begin advanced pharmacy practice experiences.

Prerequisite: grade of C or higher in PHCY 6350.

PHCY6353 - Drug Literature Application

Credits: 2

This course is designed to provide students with the fundamental knowledge and skills to practice evidence-based pharmacotherapy. Topics include: evaluation of drug information requests, informatics, understanding drug information resources, development and execution of search strategies, primary literature and research design analysis, and writing and presentation skills.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6356 - Physical Assessment in the Evaluation of Drug Therapy

Credits: 1

Physical examination techniques and the interpretation of physical examination data. Emphasis is on a systemic approach to the physical examination, evaluation of patient data, maintaining patient charts, monitoring of patient outcomes and development of treatment plans.

Prerequisite: P3 status or consent of instructor.

PHCY6357 - Clinical Pharmacokinetics

Credits: 2

Course will provide the student with an overview of the clinical application of pharmacokinetic concepts as used in providing quality patient care. Principles of pharmacokinetics may be applied to the therapeutic use of all medications, including those inherently discussed during this course.

Prerequisite: PHCY 6102.

PHCY6360 - Pharmacist Skills V

Credits: 1

This course is the fifth in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6361 - Pharmacist Skills VI

Credits: 2

This course is the sixth and final course in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6370 - Advanced Pharmacy Practice Experience-IPPE3

Credits: 2

Designed to prepare the student for 4th year advanced pharmacy practice experience (APPE) activities by discussion of logistics, professionalism, regulatory issues, portfolio requirements and assessment tools. In addition, students will continue building their clinical skills through a patient care practice experience.

USP 2015 Code U5C3

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6465 - Elective Rotation In:

Credits: 4

Max Credit (Max. 16)

Elective advanced pharmacy practice experience that is available in a variety of practice environments (e. g. direct patient care settings, management, research, and other pharmacy-related locations). Rotation requires active participation and application of knowledge, skills, values, and attitudes.

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6470 - Internal Medicine I

Credits: 4

An advanced practice experience to develop skills as a medication expert within an inpatient internal medicine or family medicine experiential setting. Students will coordinate, collaborate, and communicate among themselves, their preceptor, and other members of the interprofessional healthcare team to provide patient-centered care.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6471 - Internal Medicine II

Credits: 4

Course is a continuation of PHCY 6470 in which students take on increasing responsibility and/or more complex patient cases to develop skills as a medication expert in the acute care setting. Students will continue providing patient-centered care by collaborating with their preceptor and other members of the interprofessional healthcare team.

USP 2015 Code U5C3

Prerequisite: PHCY 6470.

PHCY6473 - Ambulatory Pharmaceutical Care

Credits: 4

An experiential course focusing on the pharmacist as the drug expert in a multidisciplinary health care team. Students will provide direct patient care to patients in an outpatient setting.

USP 2015 Code U5C3

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6474 - Ambulatory Pharmacy Care II

Credits: 4

Course is a continuation of PHCY 6473 in which students will take on increasing responsibilities, develop an expanded understanding for systems management, and further advance their clinical skills as medication experts in the outpatient setting.

USP 2003-2014 Code [COM3]

Prerequisite: PHCY 6473.

PHCY6480 - Introduction to Community Pharmacy Practice

Credits: 4

Four-week rotation in community pharmacy practice completed under the guidance of a licensed pharmacist. Patient care activities will include, but not be limited to, basic patient and drug therapy assessment, performing medication histories and prospective drug utilization reviews, basic patient counseling and active participation in the medication distribution process.

Prerequisite: grade of C or higher in PHCY 6352 and 6354 and satisfactory completion of all courses within the P1 curriculum (i. e. P2 standing).

PHCY6481 - Advanced Community Pharmacy

Credits: 4

An advanced practice experience in community pharmacy designed to build upon introductory experiences and promote active participation in caring for patients in this practice setting. Students will spend 25-30 of their time in non-dispensing activities (e. g. screenings, in-depth counseling, MTM, immunizations, self-care treatment, community presentations, etc.).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6482 - Introduction to Hospital Pharmacy Practice

Credits: 4

Four-week rotation in hospital pharmacy practice completed under the guidance of a licensed pharmacist. Patient-care activities will include basic drug therapy and patient assessment, prospective drug utilization reviews, participating in the hospital's medication distribution process, performing calculations, compounding preparations and understanding pharmacy's role within the health-system through interdisciplinary interactions.

Prerequisite: grade of C or higher in PHCY 6352 and 6354 and satisfactory completion of all courses within the P1 curriculum (i. e. P2 standing).

PHCY6483 - Advanced Institutional Pharmacy

Credits: 4

An advanced practice experience in institutional/hospital pharmacy designed to build upon introductory experiences and promote active participation within the health-system through interdisciplinary interactions, projects, presentations, and patient care activities. Students will devote at least 50 of their time to nondispensing activities (e. g. monitoring meds, consults, discharge counseling, medication reconciliation, inservices).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6485 - Reflective Learning in Pharmacy

Credits: 1

Max Credit (Max. 4)

Designed to help prepare P4 pharmacy students to be knowledgeable and well-rounded practitioners. Provides an opportunity to reflect on rotation experiences, give professional level presentations, and exposure to content not covered elsewhere in curriculum. Course includes guest speakers, Pharm. D. seminars, assessment activities, job/residency fairs, P4 portfolio, and reflective writing.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6550 - Advanced Cardiovascular Physiology and Pharmacology

Credits: 3

An advanced study in the integration of modern cardiovascular physiology, pharmacology, biochemistry and cell biology concepts.

Dual Listed PHCY 5550.

Prerequisite: PHCY 6230 (or equivalent).

Philosophy

PHIL1000 - Introduction to Philosophy

Credits: 3

Introduces critical thinking through a study of elementary logic, scientific method and philosophical problems of ethics, religion, epistemology and metaphysics.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

PHIL2100 - The Greek Mind

Credits: 3

Part one of the history of philosophy sequence. The first great age of philosophy was in ancient Greece. Students read from ancient Greek poets, historians and medical writers, as well as philosophers. The course attempts to understand the Greek mind: what Greeks thought of persons, society and the universe.

USP 2003-2014 Code U3CH

PHIL2300 - Ethics in Practice

Credits: 1-3

Alerts preprofessional students and other interested individuals to various ethical issues they will encounter and relevant professional work on those issues. Emphasis of the course concentrates one time on biomedical ethics, another on technology and engineering ethics, another on ethics in the professions.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL2310 - Philosophy of Religion

Credits: 3

Systematically examines philosophical questions, arguments and theories arising from study of religion. Topics may include: reason and religion; the existence and nature of God.

USP 2003-2014 Code U3CH

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

PHIL3000 - Special Topics

Credits: 3

Max Credit (Max. 9)

Provides undergraduates with the opportunity for in-depth discussion of seminal works in the history of philosophy or a problem in contemporary philosophy not offered in regular courses or independent study. Open to interested undergraduates from all majors.

Prerequisite: 3 hours of philosophy.

PHIL3100 - History of Modern Philosophy: The Rationalists

Credits: 3

The second great age of philosophy absorbed the influence of the new science during the 17th and 18th centuries. People to be studied include: Descartes, Spinoza and Leibniz.

Prerequisite: 3 hours of philosophy.

PHIL3110 - History of Modern Philosophy: The Empiricists

Credits: 3

People to be studied include: Locke, Berkeley, Hume and Kant. These philosophers are included in the second great age of philosophy.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3120 - Ancient Greek Philosophy

Credits: 3

Surveying some of ancient Greek philosophy. Begins with the works of the earliest extant philosophical thinkers, the pre-Socratics. Remainder of focus on Plato and Aristotle.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3140 - Philosophy of Science

Credits: 3

Systematically examines philosophical problems about the nature of science, its methods of explanation, and the status of its laws.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/HIST 3160.

Prerequisite: WB or COM2.

PHIL3220 - Existentialism and Phenomenology

Credits: 3

Examines fundamental perspectives of existentialist thought, beginning with its roots in Kierkegaard and Nietzsche. Looks at a large variety of existentialist perspectives presented by Sartre, Heidegger, Buber, Jaspers and Camus. Considers the relation of Husserl's phenomenological method to existentialism.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3260 - Seeking Justice and Equality

Credits: 3

Max Credit 3

A philosophical examination of justice and equality, as virtues of many different practical contexts in a society (individuals and relationships, laws, public policies), emphasizing both theory and practice. Topics include equality, distributive justice, retributive justice.

Cross Listed POLS 3260

USP 2015 Code H

Prerequisite: One course in Philosophy or Political Science

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3340 - Philosophy in Literature

Credits: 3

Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL

USP 2015 Code U5H

Former Course Number [2340]

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3420 - Symbolic Logic

Credits: 3

Studies both propositional and quantificational logic, concentrating on methods of proof. Takes up such topics as identity, singular terms, intuitive set theory, and translating English sentences into symbolic notation.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3440 - Philosophy of Mind

Credits: 3

Considers topics in philosophy of mind, including the mind-body problem, emotions, attitudes, perception and psychological explanation.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3500 - History of Science

Credits: 3

Historic and philosophic survey of the development of science from the ancient Greeks to the 20th century.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3510 - Introduction to Epistemology

Credits: 3

Systematic introduction to epistemology, the philosophical study of knowledge and justified belief. Aims to answer questions such as: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? How we are to understand the concept of justification?

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3560 - Introduction to Metaphysics

Credits: 3

A systematic introduction to metaphysics, the branch of philosophy concerned with providing a comprehensive account of the most general features of reality as a whole. Of central importance is the study of ontology, which seeks to address the question of what general sorts of things exist: particulars, universals, propositions, numbers, minds.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3933 - African Philosophy

Credits: 3

Examines the work of philosophers of Africa, of African descent and others who deal with African diaspora.

Cross Listed AAST 3933/INST 3933.

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 6 hours of philosophy.

PHIL4000 - Philosophical Issues

Credits: 1-3

Dual Listed PHIL 5000.

Prerequisite: consent of instructor.

PHIL4020 - Plato

Credits: 3

Detailed examination of selected dialogues of Plato.

Dual Listed PHIL 5020.

Prerequisite: PHIL 3120.

PHIL4030 - Aristotle

Credits: 3

Detailed examination of selected works of Aristotle.

Dual Listed PHIL 5030.
Prerequisite: PHIL 3120.

PHIL4040 - Kant

Credits: 3

An examination of one or more aspects of the work of Immanuel Kant, conducted either from the perspective of the history of philosophy.

Prerequisite: 6 hours of philosophy.

PHIL4110 - Figures in Contemporary Philosophy

Credits: 3-6

Max Credit (Max. 6)

An advanced study of the work of one, or several related, contemporary philosophers.

Prerequisite: 12 hours of philosophy including PHIL 3100 or PHIL 3110.

PHIL4120 - Philosophy and the 20th Century

Credits: 3

Part three of the history of philosophy sequence. Covers the third great age of philosophy. Studies the main ways in which philosophy has been done since 1900. Topics normally include logic and philosophy, Wittgenstein, logical positivism and current trends.

Dual Listed PHIL 5120.
Former Course Number [4100]

Prerequisite: 6 hours of philosophy.

PHIL4130 - Figures in Modern and 19th Century Philosophy

Credits: 3

A detailed examination of one or more of the figures in modern or 19th century philosophy.

Dual Listed PHIL 5130.
Prerequisite: 6 hours of philosophy.

PHIL4140 - Topics in Philosophy of Science

Credits: 3

Max Credit (Max. 6)

Encompasses selected topics in philosophy of science.

Dual Listed PHIL 5140.

Prerequisite: 6 hours of philosophy.

PHIL4190 - Philosophy of Language

Credits: 3-6

Max Credit (Max. 6)

An advanced study of the work of one, or several related, contemporary philosophers.

Dual Listed PHIL 5190.

Prerequisite: 6 hours of philosophy.

PHIL4300 - Topics in Ethics

Credits: 3-6

Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 5300.

Prerequisite: 6 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3

Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.

Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

PHIL4420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 4420/MATH 4420.

Dual Listed PHIL 5420.

Prerequisite: PHIL 3420 or equivalent.

PHIL4440 - Topics in Philosophy of the Mind

Credits: 3-6
Max Credit (Max. 6)

An advanced study of problems in the philosophy of mind such as the concept of human action; intention, choice, reasons and causes in the explanation of human action, mental states and brain states, and artificial intelligence.

Dual Listed PHIL 5440.
Prerequisite: 6 hours of philosophy.

PHIL4510 - Theory of Knowledge

Credits: 3
Studies such problems as knowledge and belief, skepticism, perception and knowledge, memory, truth.

Dual Listed PHIL 5510.
Prerequisite: 6 hours of philosophy.

PHIL4560 - Metaphysics

Credits: 3
Examines approaches to metaphysics. Discusses problems such as causality, individuation.

Dual Listed PHIL 5560.
Prerequisite: 6 hours of philosophy.

PHIL4975 - Independent Study

Credits: 1
Max Credit 6

Primarily for juniors and seniors who can benefit from independent study of topics in philosophy not covered in course offerings. Guidance provided by faculty member in the appropriate field.

Restricted undergraduate standing

Prerequisite: 9 hours of philosophy and consent of instructor

PHIL5000 - Philosophical Issues

Credits: 1-3
Max Credit (Max. 6)

Dual Listed PHIL 4000.
Prerequisite: graduate status and consent of instructor.

PHIL5020 - Plato

Credits: 3

Detailed examination of selected dialogues of Plato.

Dual Listed PHIL 4020.

Prerequisite: graduate standing.

PHIL5030 - Aristotle

Credits: 3

Detailed examination of selected works of Aristotle.

Dual Listed PHIL 4030.

Prerequisite: graduate standing.

PHIL5040 - Kant

Credits: 3

An examination of one or more aspects of the work of Immanuel Kant, conducted either from the perspective of the history of philosophy, or predominantly as a critical study.

Dual Listed PHIL 4040.

Prerequisite: graduate standing.

PHIL5120 - Philosophy and the Twentieth Century

Credits: 3

Part three of the history of philosophy sequence. Covers the third great age of philosophy. Studies the main ways in which philosophy has been done since 1900. Topics normally include logic and philosophy, Wittgenstein, logical positivism and current trends.

Dual Listed PHIL 4120.

Prerequisite: graduate standing.

PHIL5130 - Figures in Modern and 19th Century Philosophy

Credits: 3

A detailed examination of one or more of the figures in modern or 19th century philosophy.

Dual Listed PHIL 4130.

Former Course Number [5100]

Prerequisite: graduate standing or consent of instructor.

PHIL5140 - Topics in Philosophy of Science

Credits: 3-6
Max Credit (Max. 6)

Encompasses selected topics in philosophy of science.

Dual Listed PHIL 4140.

Prerequisite: graduate standing.

PHIL5190 - Philosophy of Language

Credits: 3-6
Max Credit (Max. 6)

An advanced study of the work of one, or several related, contemporary philosophers.

Dual Listed PHIL 4190.

Prerequisite: graduate standing.

PHIL5300 - Topics in Ethics

Credits: 3-6
Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 4300.

Prerequisite: graduate standing.

PHIL5340 - Issues in Environmental Ethics

Credits: 3
Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 4340.

Prerequisite: graduate standing.

PHIL5420 - Advanced Logic

Credits: 3
Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 5420/MATH 5420.

Dual Listed PHIL 4420.

Prerequisite: graduate standing.

PHIL5440 - Topics in the Philosophy Of Mind

Credits: 3-6
Max Credit (Max. 6)

An advanced study of problems in the philosophy of mind such as the concept of human action; intention; choice; reasons and causes in the explanation of human action; mental states and brain states; and artificial intelligence.

Dual Listed PHIL 4440.

Prerequisite: graduate standing.

PHIL5510 - Theory of Knowledge

Credits: 3
Studies such problems as knowledge and belief, skepticism, perception and knowledge, memory, truth and justification of induction.

Dual Listed PHIL 4510.

Prerequisite: graduate standing.

PHIL5550 - Independent Study

Credits: 1-6
Max Credit (Max. 6)

A study of a topic selected in consultation with the instructor.

Prerequisite: graduate standing.

PHIL5560 - Metaphysics

Credits: 3
Examines approaches to metaphysics. Discusses problems such as causality, individuation and distinction between particulars and universals.

Dual Listed PHIL 4560.

Prerequisite: graduate standing.

PHIL5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

PHIL5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PHIL5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: advanced degree candidacy.

PHIL5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

PHIL5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

PHIL5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Physical Education Activity

PEAC1001 - Physical Activity and Your Health

Credits: 1

Designed to help students gain an understanding of the impact physical activity or inactivity has on their health. Students gain the knowledge, skills, and experience that enable them to make informed decisions about their own health as it relates to their quality of life and longevity.

USP 2003-2014 Code U3P

A&S College Core 2015 NOTE: All students must enroll in a PEAC 1001 activity as part of the PEAC 1001 experience.

PEAC2000 - Wellness: Physical, Nutrition, and Lifestyle Concepts

Credits: 1-3

Max Credit (Max. 9)

Designed to present information on topics including (but not limited to): nutrition, mobility and injury prevention, sleep and stress management, sport psychology, ethics in sport and human performance, and methods of fitness. Also includes a physical activity component.

Physics

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

PHYS1090 - The Fundamentals of the Physical Universe

Credits: 4

Applies fundamental principles of chemistry and physics to real life situations. Primarily for elementary education majors.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

PHYS1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: PHYS 1110.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2250 - Thermodynamic Systems in Energy Science

Credits: 4

Introduces the principles of thermodynamics and their application to energy science. Intended for students majoring in Energy Resource Science.

USP 2003-2014 Code U3SP

Prerequisite: PHYS 1210, grade of C or higher in MATH 2205.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2870 - Special Topics in:

Credits: 1-4
Max Credit (Max. 4)

Presents various subjects not available in regularly scheduled courses.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: consent of instructor.

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

PHYS3640 - Modern Electronics and Experimental Techniques

Credits: 4

Introduced to analog and digital circuits/devices and computer interfacing with laboratory equipment and experiments. Includes computer programming, the analysis of experimental data, and report writing. Apply the skills developed in this class to interface with and control representative instrumentation used in experimental physics laboratories.

Prerequisite: PHYS 2320.

PHYS3650 - Advanced Lab in Modern Physics and Electronics

Credits: 4

Presents fundamentals of modern optics, modern and quantum physics, E&M/electronics, and thermodynamics in a project oriented interactive undergraduate laboratory with a focus on professional grade lab report writing that qualifies as WB USP. Students learn professional data handling, error theory, and data analysis.

USP 2015 Code U5C3

Prerequisite: WA and PHYS 2310 or PHYS 2320.

PHYS4000 - Applied Laser Science

Credits: 3

Covers basic operational principles of lasers and their many applications in science and industry.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: PHYS 2310 or equivalent; PHYS 4310.

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4220 - Classical Mechanics II

Credits: 4

Follows PHYS 4210. Presents classical mechanics at an intermediate to advanced level. Includes detailed treatment of Lagrangian and Hamiltonian Mechanics, rigid-body motion, small oscillations and introduction to relativity.

Dual Listed PHYS 5220.

Prerequisite: PHYS 4210.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 4210.

PHYS4340 - Semiconductor Materials and Devices

Credits: 3

Physical properties of semiconductor materials and devices, including crystal lattices and energy bands, carrier generation, transport, and recombination. PN, metal-semiconductor, and heterojunction operation. Field Effect Transistors, including Metal Oxide Semiconductor (MOSFET), Junction (JFET), Metal Semiconductor (MESFET), and High Electron Mobility (HEMT) transistors. Bipolar Junction (BJT) and Heterojunction (HBT) Transistor operation.

Cross Listed EE 4340.

Prerequisite: PHYS 1220 or PHYS 1320.

PHYS4350 - Advanced Quantum Mechanics

Credits: 3

Covers advanced topics in quantum mechanics, including angular momentum, quantum states in three dimension, hydrogen atomic structure, electron spin, Pauli matrices, time-dependent and independent perturbation methods, Born approximation, formal scattering theory, etc. .

When Offered (Normally offered spring semester)

Prerequisite: PHYS 4210, PHYS 4310, PHYS 4420 and MATH 4440.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4420 - Electricity and Magnetism II

Credits: 3

Follows PHYS 4410 and continues intermediate discussion of electricity and magnetism. Covers magnetostatics, magnetoquasistatics, alternating currents, electromagnetic waves, transmission lines and antennae.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 4410.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

PHYS4710 - Solid-State Physics

Credits: 3

Surveys theory and application of solid state physics using quantum theory. Emphasizes relation between theory and experiment. Discusses areas of present research activity.

Prerequisite: PHYS 4310 and PHYS 4510.

PHYS4720 - Solid State Electronic Devices

Credits: 3

This course aims to develop basic semiconductor physics concepts, so students can better understand current and future solid state electronic devices and technology.

Prerequisite: PHYS 4210, PHYS 4310, and PHYS 4420.

PHYS4830 - Mathematical and Computational Physics I

Credits: 3

First semester of a two-semester sequence. Provides a comprehensive overview of mathematical physics and numerous analytical mathematical techniques applied to physics problems. Topics include: numerical computations and visualizations, differential and integral vector analysis, linear algebra, infinite series, complex variables, partial differential equations, ordinary differential equations, integral transforms and equations, and calculus of variations.

Prerequisite: PHYS 2310 or PHYS 2320 and MATH 2210, MATH 2250, MATH 2310.

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

PHYS4860 - Independent Study in:

Credits: 1-6

Encompasses independent study to advanced problems which may involve either library and/or laboratory research.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: PHYS 2310.

PHYS4870 - Special Topics in:

Credits: 1-6

Presents various subjects not available in regularly scheduled courses.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: PHYS 2310 and consent of instructor.

PHYS4970 - Senior Research/Internship

Credits: 1-3

Max Credit (Max. 4)

Requires a practical research experience or internship from the student up to 4 credits under the advisement of a faculty member. This requirement for graduation should lead to a professional publication or document written by the student. The credit requirements may be spread over several semesters.

PHYS5110 - Methods of Theoretical Physics I

Credits: 4

First semester of a two-semester sequence which introduces mathematical techniques used in graduate physics courses. The content may be adjusted to meet the needs of the students. This course is required for M. S. and Ph. D. students.

Prerequisite: PHYS 4310, PHYS 4410, MATH 4440 or equivalent.

PHYS5120 - Methods of Theoretical Physics II

Credits: 4

Designed to follow PHYS 5110 and will introduce further mathematical techniques used in graduate physics courses. Required for M. S. and Ph. D. students.

Prerequisite: PHYS 5110.

PHYS5130 - Ultrafast Science and Spectroscopy

Credits: 4

This graduate course introduces major themes, topics, and techniques in modern ultrafast science.

Prerequisite: PHYS 4350 (or equivalent) and PHYS 4420 (or equivalent).

PHYS5210 - Classical Mechanics

Credits: 4

Advanced classical dynamics beginning with classical Lagrangian and Hamiltonian formalism, covering relativistic Lagrangian formulation, canonical transformations, Hamilton-Jacobi theory, and small oscillations. A required course for Ph. D. students.

Prerequisite: PHYS 4220, MATH 4440 or equivalent, and concurrent registration in PHYS 5110.

PHYS5220 - Classical Mechanics II

Credits: 4

Presents classical mechanics at an intermediate to advanced level and is designed to follow PHYS 4210. Includes a detailed treatment of Lagrangian and Hamiltonian mechanics. Rigid-body motion, small oscillations, and an introduction to relativity.

Dual Listed PHYS 4220.

Prerequisite: PHYS 4210.

PHYS5230 - Advanced Classical Mechanics

Credits: 4

The developments of the 1970s and 1980s, including a major expansion in our understanding of chaotic motion in many areas of science, will be brought together in a coherent framework. A strong computational component will be associated with many of the problems studied.

Prerequisite: PHYS 4210 and PHYS 5220 or equivalent.

PHYS5310 - Quantum Theory I

Credits: 4

First semester of a two-semester sequence which presents quantum mechanics on a professional level. Includes topics such as infinite dimensional vector spaces, postulates of quantum mechanics, exactly soluble bound systems, and angular momentum. Required for M. S. and Ph. D. students.

Prerequisite: PHYS 4220, PHYS 4310, MATH 4440 or equivalent, concurrent registration in PHYS 5110.

PHYS5320 - Quantum Theory II

Credits: 4

Designed to follow PHYS 5310 and will present topics such as scattering by a potential, addition of angular momentum, stationary and time dependent perturbation, identical particles. It is required for M. S. and Ph. D. students.

Prerequisite: PHYS 5310 and concurrent registration in PHYS 5120.

PHYS5410 - Electromagnetic Theory I

Credits: 4

The first semester of a two-semester sequence which presents electromagnetic theory on a professional level. The classical analytic solutions of the equations of motion are discussed and expressed as quadratures over the Green functions with attention to effect of boundary conditions. It presents topics such as algebra and calculus of vectors in configuration space, electrostatics, potential theory, and steady currents. Required for M. S. and Ph. D. students.

Prerequisite: PHYS 4420, PHYS 5110, MATH 4440 or equivalent.

PHYS5420 - Electromagnetic Theory II

Credits: 4

Designed to follow PHYS 5410 and will present topics such as magnetostatics, magnetoquasistatics, time dependent electromagnetic theory, physical optics with a vector field, and radiation from antennae. Required for Ph. D. students.

Prerequisite: PHYS 5410.

PHYS5510 - Statistical Mechanics

Credits: 4

An introduction to statistical mechanics and the many-body problem, including quantum statistics. Required for Ph. D. students.

Prerequisite: PHYS 5210, PHYS 5320, PHYS 5410.

PHYS5610 - Atomic and Molecular Spectroscopy

Credits: 3

A quantum mechanical treatment of atomic and molecular structure, transition probabilities, selection rules, and the Zeeman and Stark effects.

Prerequisite: PHYS 5320.

PHYS5620 - Atomic Physics

Credits: 4

This course will cover atomic phenomena with a focus on atomic transitions and an introduction to particle physics.

Prerequisite: PHYS 4310 or equivalent, PHYS 5410 or equivalent.

PHYS5720 - Advanced Solid State Physics

Credits: 3

A course in modern topics and theoretical technique relevant to condensed matter.

Prerequisite: PHYS 4710 or equivalent, PHYS 5510.

PHYS5730 - Condensed Matter Magnetism

Credits: 4

Designed to give graduate students instruction in the fundamental principles of magnetism, the important properties of magnetic materials and their applications. Required for the physics track of the PhD program.

Prerequisite: PHYS 4310, PHYS 4410, PHYS 4510 or equivalent.

PHYS5740 - Transport Properties of Solids

Credits: 4

Instruction in the basic quantum theories of electron and phonon transport, interactions among the carriers and with impurities, and important transport phenomena in various systems. Required for the physics track students in the PhD program.

Prerequisite: PHYS 4310, PHYS 4410, PHYS 4510 or equivalent.

PHYS5750 - Optical Properties of Solids

Credits: 4

Covers advanced topics of optical properties of solids, including free carrier contribution to their optical properties, interband transitions, absorption of light in solids, luminescence and photoconductivity, electron spectroscopy and surface science, light emitting diodes, etc.

Prerequisite: PHYS 4310, PHYS 4410, PHYS 4510 or equivalent.

PHYS5770 - Nanotechnology: Nanophysics and Nanosystems

Credits: 4

Introduction to nanoscale fabrication techniques including lithography, pattern transfer, thin film deposition etc. Electronic transport in mesoscopic systems. Electrical properties of nanoscale devices including self-assembled monolayers, carbon nanotubes, and semiconductor nanowires. Noise properties of nanostructures.

Prerequisite: PHYS 4310 or equivalent.

PHYS5810 - Nuclear and Elementary Particle Physics

Credits: 3

An advanced course in nuclear and elementary particle interactions, with emphasis on current development.

Prerequisite: PHYS 5350.

PHYS5820 - Plasma Physics

Credits: 4

Introduction to plasma physics is exhibited through the analysis of numerous ionized environments (fusion systems, stellar surfaces, and the ionosphere). Fluid approximations (MHD), as well as a kinetic theory formulation (including the Vlasov equation) of plasma physics will be employed. Damping, instabilities, and nonlinear plasmas will be explored.

Prerequisite: PHYS 4210 and PHYS 4420.

PHYS5830 - Physics of Solar Cells

Credits: 4

Covers problems of energy economy, photon physics, physics of semiconductors, conversion of chemical energy into electrical energy, basic structure of solar cells, quantum-dot-semiconductor solar cells, limitations of energy conversions in solar cells, and strategies for higher efficiency.

Prerequisite: PHYS 5720.

PHYS5840 - Experimental Methods and Low Temperature

Credits: 4

Introduction to experimental methods in condensed matter physics and phenomena at low temperatures. The fields of solid properties at low temperatures, the generation and measurement of low temperatures, the generation of high magnetic fields in laboratory magnets, and basic vacuum technology are covered.

Prerequisite: graduate standing.

PHYS5860 - Independent Study

Credits: 1-4
Max Credit (Max. 24)

Designed to provide opportunities for self-study and special projects under supervision of individual professors.

Restricted Restricted to graduate students.

Prerequisite: PHYS 4860 or equivalent.

PHYS5870 - Special Topics In Physics

Credits: 1-4
Max Credit (Max. 20)

Intended to accommodate various subjects not offered as regular courses.

Prerequisite: graduate standing.

PHYS5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

PHYS5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PHYS5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PHYS5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

PHYS5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

PHYS5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

PHYS5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Plant Sciences

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

PLNT1150 - Pesticide Safety and Application

Credits: 1

Introduces various types and safe methods of pesticides application. Subsequent to completion, students may take the certification test administered by the Wyoming Department of Agriculture.

Cross Listed ENTO 1150.
Former Course Number [CROP 1150]

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)
USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Prerequisite: PLNT 1000 or LIFE 1010

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)
USP 2003-2014 Code U3SB
Prerequisite: PLNT 1000 or LIFE 1010.

PLNT2200 - Field Crop Production

Credits: 3

Provides students with a fundamental understanding of production cropping systems. Students will gain basic knowledge of major food crops, tillage systems, crop rotations, fertilization, irrigation, crop development, pest management, and other topics related to field crops.

When Offered (Normally offered spring semester of even-numbered years)
Prerequisite: PLNT 1000 or concurrent enrollment

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations,

reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

PLNT3036 - Grape Production

Credits: 3

Introduces students to the science of viticulture. Topics include grapevine origin and distribution, taxonomy, morphology and physiology, soil and climatic requirements, vineyard establishment, grapevine nutrition, cultural practices, harvesting and post-harvest management. Successful completion will enhance students' knowledge and understanding on grape production and management.

Former Course Number [AECL 3036]

Prerequisite: PLNT 2025

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT3300 - Horticultural Plant Propagation

Credits: 3

Emphasis on sexual and asexual propagation of various plants including herbaceous and woody crops. Seed

propagation discussions include anatomy, physiology, dormancy, and enhancing seed viability and germination. Asexual propagation discussions center on anatomy and physiology of cuttings, adventitious root formation, budding, grafting, and tissue culture.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 2025

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

PLNT4180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 5180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

PLNT4190 - Herbs, Spices and Medicinal Plants

Credits: 3

Includes the history and importance of herbs, spices, and medicinals; collection of these plants in the wild; botany; chemistry; greenhouse and field production; organic production; harvesting; drying; postharvest operations; legal aspects; and products.

Dual Listed PLNT 5190

Prerequisite: 8 hours LIFE and/or CHEM

PLNT4200 - Greenhouse Design and Management

Credits: 3

Emphasis on greenhouse structural and functional design concepts of economy, efficiency and energy conservation. Primary emphasis is on the limitations and advantages of greenhouses in the Rocky Mountain region, including alternative energy concepts. The management and operational concerns associated with private, commercial, educational and public greenhouses will be included.

Dual Listed PLNT 5200

Prerequisite: PLNT 2025 and a USP Q course

PLNT4220 - Crop Yield Physiology

Credits: 3

Physiological processes underlying crop growth and development. The effect of crop management practices on physiology and yield will also be discussed.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 1000, CHEM 1000

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

PLNT4700 - Forage Crop Science

Credits: 3

The course focuses on major aspects of forage crop production and biology. Cultural practices, adaptation, sustainable agriculture and alternative use, seed production, harvest, livestock utilization and storage of forages. This course will have in-depth emphasis on characteristics of important grasses and legumes and utilization of forages for livestock production.

Dual Listed PLNT 5700

Former Course Number [CROP 2200, 3200; PLNT 3200]

PLNT4790 - Topics:

Credits: 1-4

Max Credit (Max. 10)

Independent study.

Dual Listed PLNT 5790

Former Course Number [CROP 4700, 4790]

Prerequisite: Senior standing

PLNT4820 - Plant Sciences Seminar

Credits: 1

Max Credit 1

Discussion in production, physiology, breeding and weed science. Undergraduates in PLNT 4820 will attend graduate seminar PLNT 5820 and participate in discussions of the current topics.

Dual Listed PLNT 5820

Prerequisite: Senior standing, PLNT 1000.

PLNT4900 - Undergraduate Teaching Practicum

Credits: 1-2

Max Credit (Max. 4)

Supervised participation of undergraduates in the teaching of laboratory sections offered by the Department of Plant Sciences. Provides opportunity for students to gain teaching experience in agroecology, horticulture, or life science.

Prerequisite: PLNT 1000 and junior or senior standing

PLNT4920 - Research Apprenticeship

Credits: 1-2
Max Credit (Max. 4)

Laboratory and/or field research apprenticeship. Emphasizes individual student-faculty interactions on current topics in plant sciences.

Former Course Number [CROP 4600]

Prerequisite: Junior standing and PLNT 1000, STAT 2050.

PLNT4930 - Internship in Plant Sciences

Credits: 1-3
Max Credit (Max. 6)

Provides students with realistic views of crop science, entomology or soil science through practical, as well as work-related, experiences. Provides positive educational experience to supplement formal academic course work.

Former Course Number [CROP/ENTO/SOIL 4903]

Prerequisite: Sophomore standing or higher; 2.50 GPA

PLNT4960 - Plant Sciences Field Studies

Credits: 2
Various facets of the agroecosystem are covered by visits to agricultural research stations, agri-businesses, private farms, national monuments, historical sites and Federal Parks. Students are exposed to ongoing sustainable research projects and innovative sustainable farming operations where a variety of cropping systems are utilized. Students are usually exposed to archaeological remains of ancient American Indian farming systems. An 8-day trip.

When Offered (Offered as needed)
Former Course Number [PLPA 4000]

Prerequisite: PLNT 1000

PLNT4975 - Problems in Plant Sciences

Credits: 1-2
Max Credit (Max. 2)

Provides an opportunity for students to conduct supervised research on specific topics of interest and importance in crop breeding, genetics, physiology, pathology, ecology and pest management.

Prerequisite: Junior/Senior standing with at least 10 hours of Plant Production and Protection core requirements.

PLNT4990 - Plant Sciences Capstone

Credits: 3

Capstone course for final integration of courses required for the Plant Production and Protection degree. Provides overall synthesis of plant sciences academic subjects following completion of a prescribed senior experience course, PLNT 4920 or PLNT 4930.

When Offered (Offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code UC3

PLNT5000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 4000

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: PLNT 3220

PLNT5020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 4020

Prerequisite: 8 hours of Life Sciences

PLNT5050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 4050

Prerequisite: LIFE 2023 or equivalent

PLNT5070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 4070

Prerequisite: PLNT 1000, LIFE 1010

PLNT5120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 4120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT5180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 4180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

PLNT5190 - Herbs, Spices and Medicinal Plants

Credits: 3

Includes the history and importance of herbs, spices, and medicinals; collection of these plants in the wild; botany; chemistry; greenhouse and field production; organic production; harvesting; drying; postharvest operations; legal aspects; and products.

Dual Listed PLNT 4190

Prerequisite: 8 hours LIFE and/or CHEM

PLNT5200 - Greenhouse Design and Management

Credits: 3

Emphasis on greenhouse structural and functional design concepts of economy, efficiency and energy conservation. Primary emphasis is on the limitations and advantages of greenhouses in the Rocky Mountain region, including alternative energy concepts. The management and operational concerns associated with private, commercial, educational and public greenhouses will be included.

Dual Listed PLNT 4200

Prerequisite: PLNT 2025 and a USP Q course

PLNT5400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 5400

Dual Listed PLNT 4400

Prerequisite: LIFE 3400

PLNT5410 - Advanced Crop Physiology and Management

Credits: 3

Review and interpretation of current crop management and physiology literature.

Prerequisite: 6 hours of biochemistry or plant physiology

PLNT5470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 4470

Prerequisite: 8 hours of plant biology

PLNT5500 - Clinical Plant Pathology

Credits: 2

Designed to give students practical experience in disease diagnosis. Students are exposed to a variety of current techniques used in the diagnosis and control of plant problems caused by abiotic and biotic factors. Primary emphasis is on the identification of biotic agents, including fungi, bacteria, nematodes and viruses. Students will gain experience and insight in the practical aspects of plant pathology.

Prerequisite: PLNT 4000

PLNT5600 - Research in Crops

Credits: 1-4

Max Credit (Max. 10)

Investigation of research problems to include a written and oral presentation of results.

Prerequisite: Basic training in the field of research selected

PLNT5700 - Forage Crop Science

Credits: 3

The course focuses on major aspects of forage crop production and biology. Cultural practices, adaptation, sustainable agriculture and alternative use, seed production, harvest, livestock utilization and storage of forages. This course will have in-depth emphasis on characteristics of important grasses and legumes and utilization of forages for livestock production.

Dual Listed PLNT 4700

PLNT5720 - Plant Disease Problems

Credits: 1-3

Max Credit (Max. 10)

Biology, epidemiology, and control of specific crop, field and forage diseases.

Prerequisite: PLNT 3220

PLNT5790 - Topics:

Credits: 1-4

Max Credit (Max. 10)

Independent study

Dual Listed PLNT 4790

Prerequisite: graduate standing.

PLNT5820 - Graduate Seminar

Credits: 1

Max Credit (Max. 6)

Discussion in production, physiology, breeding and weed science.

Prerequisite: Basic training in plant sciences

PLNT5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: Graduate standing

PLNT5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: Advanced degree candidacy

PLNT5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: Advanced degree candidacy

PLNT5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: Enrollment in a graduate degree program

PLNT5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: Enrollment in a graduate degree program

Political Science

POLS1000 - American and Wyoming Government

Credits: 3
Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

POLS1100 - Wyoming Government

Credits: 1

Introduction to the Constitution and governmental process of Wyoming. Intended for students who have earned credit for American Government at an out-of-state college or by Advance Placement but have not fulfilled the Wyoming Constitution requirement of University Studies. Cannot be taken if the student has already taken POLS 1000.

USP 2003-2014 Code [(none)<>V]

POLS1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

POLS1111 - Issues in Political Science

Credits: 1-3

Max Credit (Max. 3)

Introduces students to Political Science through a study of a contemporary issue or problem from the perspectives of the various subfields.

USP 2003-2014 Code U3I, U3L

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

POLS1250 - Introduction to Comparative Government

Credits: 3

How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.

A&S College Core 2015 ASG

POLS2000 - Current Issues in American Government

Credits: 3

Examines current political topics in the U. S. Focuses on key public policy problems, policy-making process and the final policy choice. Students must keep abreast of political events on daily basis and apply basic concepts in American government to current affairs.

USP 2003-2014 Code U3CS

Prerequisite: POLS 1000.

POLS2070 - Politics of State and Local Government

Credits: 3

Studies politics, organizations, structures and processes of American state and local governments.

Prerequisite: POLS 1000.

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS2290 - Governments and Politics of Latin America

Credits: 3

Studies chief cultural and historical factors influencing Latin American political process. Surveys major institutions and political patterns of the region.

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

POLS2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

POLS2410 - Introduction to Public Administration

Credits: 3

Deals with executive branches of governments in the U. S. : national, state and local. Considers organizational, political and policy-making aspects of each. Discusses administration in other forms of government, such as interstate compacts and regional agreements.

Prerequisite: POLS 1000.

POLS2420 - Women and Politics

Credits: 3

Describes and compares status and political activity of women in America with those of women and men in other societies in order to explore causes, methods and results of political involvement by women.

Cross Listed GWST 2420.

Prerequisite: POLS 1000.

POLS2430 - Parties, Interest Groups and Elections

Credits: 3

Studies nature and functions of political organizations in American democracy. Discusses origins and evolution of American parties, causes of interest group development, political socialization, political participation and voting behavior, as well as activities of interest groups within American society and political system. Emphasizes current trends regarding role of parties versus interest groups.

USP 2003-2014 Code U3CS

Prerequisite: POLS 1000.

POLS2450 - Politics and Media

Credits: 3

Examines the media's coverage of current events, governmental institutions and electoral campaigns. Discusses effect of media on individuals' opinions and behavior.

Prerequisite: POLS 1000.

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

POLS2490 - Topics In:

Credits: 1-3

Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/HIST 3050.

Prerequisite: WB or COM2.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

POLS3200 - Comparative Political Cultures

Credits: 3

Histories and experiences of various societies have shaped their values, norms, beliefs, expectations, and attitudes. This class explores how the beliefs, values, and lifestyles of various societies shape peoples' views of their place in the politics of the state and of the state's place in their daily lives.

Cross Listed POLS 3200.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/ INST 1250 or permission of instructor.

POLS3220 - Government and Politics of Russia and FSU

Credits: 3

Examines the political, economic and identity transitions of Russia and other states of the former Soviet Union during the post-communist era. Explores how current challenges relate to past Soviet practices.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3300 - Model United Nations

Credits: 1-3

Max Credit (Max. 6)

Focuses on the United Nations (UN) system and multilateral diplomacy to prepare students to participate in a Model UN simulation. Students learn to evaluate the UN system, learn strategies to address international problems, and develop skills to effectively represent a country in a role-playing exercise.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3520 - Voting and Participation in America

Credits: 3

Examines the ways citizens participate in government, including campaigning, donating money, and voting. Topics include mobilization by parties and campaigns, social and demographic differences in participation, explanations of voting behavior, civic responsibility, and the role of participation in a democracy.

Prerequisite: POLS 1000.

POLS3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed COJO 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

POLS3610 - Classics in Environmental Thought

Credits: 3

Surveys classic texts in environmental thought from the nineteenth century through the present.

Prerequisite: POLS 1000.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS3680 - Introduction to Empirical Political Analysis

Credits: 3

Introduces students to concepts, approaches and methodologies for empirical analysis of political problems. Students gain practical experience in communicating and presenting statistical analysis of political data generated through surveys and other research techniques.

USP 2015 Code U5C2

Former Course Number [2020]

Prerequisite: POLS 1000 and STAT 2050 or STAT 2070, or permission of instructor.

POLS4013 - Political Geography

Credits: 3

Geographic space is subdivided into political units to aid human interaction and to facilitate political processes. Examines the spatial organization of political space and its effects upon political processes at varying geographic scales ranging from the local to international.

Cross Listed GEOG 4013.

Dual Listed POLS 5013.

Prerequisite: Completion of USP H requirement.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS4090 - Anglo-American Jurisprudence

Credits: 3

Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 5090.

Prerequisite: 9 hours of political science or philosophy, including POLS 1000.

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

POLS4160 - Legal Philosophy

Credits: 3

This course examines the philosophies that undergird the law, considering both ancient and modern legal thought. Throughout the course, both historical and contemporary examples will be used to illustrate the salient differences between philosophical approaches, to better articulate our understanding of the law.

Dual Listed POLS 5160.

Prerequisite: POLS 1000.

POLS4215 - European Union

Credits: 3

Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed INST 4215.

Dual Listed POLS 5215.

Former Course Number [4220]

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4230 - Governments and Politics of Asia

Credits: 3

Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 5230.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4255 - Politics of Developing Nations

Credits: 3

An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed INST 4255.

Dual Listed POLS 5255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200/INST 1200 or POLS 1250/INST 1250 or POLS 2310/INST 2310, or permission of instructor.

POLS4260 - Democratization and Regime Change

Credits: 3

Examines the theoretical/empirical research on causes of democratic transition and consolidation, including new waves of democratization and prospects for democratization in other contexts. Focus is given to a variety of theoretical/methodological perspectives such as the structural, strategic, social/cultural, institutional, and economic approaches.

Cross Listed INST 4260.

Dual Listed POLS 5260.

Prerequisite: 9 hours of political science or international studies, including POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS4290 - Inter-American Relations

Credits: 3

Surveys inter-American system and idea of hemispheric unity. Analyzes major issues confronting inter-American community.

Cross Listed INST 4290.

Dual Listed POLS 5290.

Prerequisite: 9 hours of political science, including POLS 1200/ INST 1200, or POLS 1250/INST 1250, or POLS 2310/ INST 2310, or permission of instructor.

POLS4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed INST 4330.

Dual Listed POLS 5330.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 5350.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4360 - International Peace and Conflict

Credits: 3

Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed INST 4360.

Dual Listed POLS 5360.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4375 - Transitional Justice

Credits: 3

Mechanisms provide accountability for gross human rights violations and acts of mass atrocity within nations. Case studies are used to examine types of transitional justice interventions; tensions between demands of justice at local, national, and international levels; and transitional justice's role in post-conflict peace-building and reconciliation.

Cross Listed INST 4375.

Dual Listed POLS 5375.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed INST 4385.

Dual Listed POLS 5385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

POLS4420 - Seminar in Public Administration

Credits: 3
Max Credit (Max. 6)

Includes reading and research in selected public administration topics.

Dual Listed POLS 5420.

Prerequisite: POLS 1000 and consent of instructor.

POLS4430 - United States Presidency

Credits: 3

Analyzes office of president, its roles, development, relationships with other governmental agencies and problems in the contemporary world.

Dual Listed POLS 5430.

Prerequisite: POLS 1000.

POLS4435 - Presidential Elections

Credits: 3

Examines the process of electing the U. S. president. Topics include the roles of presidential primaries, caucuses, and conventions; campaign strategies; media coverage; citizen participation; the electoral college; and reforms.

Dual Listed POLS 5435.

Prerequisite: POLS 1000.

POLS4445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 4445.

Dual Listed POLS 5445.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4465 - Survey of the Nonprofit Sector

Credits: 3

This foundational course is designed to give students of diverse backgrounds a common framework for understanding the nonprofit sector in the United States and globally. Students in this course will identify and interpret key theories, issues, and challenges in the nonprofit world and will consider the implications for practice.

Dual Listed POLS 5465.

Prerequisite: COM2.

POLS4475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 4475.

Dual Listed POLS 5475.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

POLS4520 - Public Opinion

Credits: 3

Deals with natures of a public in democracy and means of forming and manipulating public opinion. Emphasizes role of public opinion as essential ingredient of the policy-making process in popular government.

Dual Listed POLS 5520.

Prerequisite: POLS 1000.

POLS4530 - U.S. Congress

Credits: 3

Analyzes aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 5530.

Prerequisite: POLS 1000.

POLS4550 - Internship in Government

Credits: 1-6

Integrates practical political experience with academic knowledge. Students are expected to participate in specifically

assigned duties and observe broader activities of the sponsoring organization; then, reflect upon this participation and observation in the form of written assignments. Internship credit can be earned for work in political campaigns, Wyoming Legislature or government services.

Prerequisite: 9 hours of political science.

POLS4555 - Political Ecology

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST/GEOG 4555 & POLS 5555

Dual Listed INST/GEOG 4555 & POLS 5555

Prerequisite: 9 hours of international studies or social science coursework.

POLS4560 - Washington Semester Program

Credits: 15

Provides students with paid internships in Washington, D. C. , in either congressional offices or federal agencies. Selection into the program is very competitive and is made the semester prior to service.

Prerequisite: POLS 1000 and 6 additional hours of political science courses.

POLS4600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Cross Listed CRMJ 4600.

Dual Listed POLS 5600.

When Offered (Normally offered every other year)

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS4630 - Gender & Politics

Credits: 3

Max Credit 3

Using theoretical perspectives of pluralism, elitism, and intersectionality, this course examines how sex and gender operate in U.S. political processes, including elections, parties, interest groups, and social movements. Specific focus will be on women in politics and analyses of power dynamics in shaping marginalized identities: sex/gender, race and ethnicity, sexual orientation, class, and ability.

Cross Listed POLS 4630

Prerequisite: GWST/ENGL 1080 , GWST 2000 , or POLS 1000 ; at least 9 combined credit hours in POLS or GWST; and junior standing.

POLS4640 - Political Philosophy: Ancient and Medieval

Credits: 3

Surveys political philosophy from Classical Greek period to Machiavelli.

Dual Listed POLS 5640.

Prerequisite: POLS 2460, or POLS 3600, or consent of the instructor.

POLS4650 - Political Philosophy: Modern

Credits: 3

Surveys political philosophy from Machiavelli through the 19th century.

Dual Listed POLS 5650.

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS4660 - Political Philosophy: Contemporary

Credits: 3

Examines central developments in political philosophy that guide action in today's world.

Dual Listed POLS 5660.

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS4685 - Program Evaluation and Policy Analysis

Credits: 3

Explores techniques for analyzing and evaluating public policy choices and impacts.

Dual Listed POLS 5685.

Prerequisite: STAT 2050, STAT 2070 or equivalent and an introductory research methods course in a social science or related discipline.

POLS4700 - Readings in Political Science

Credits: 1-3

Outlines special programs of readings in government and politics to meet needs of individual students.

Prerequisite: 9 hours of political science.

POLS4705 - Terrorism

Credits: 3

Examines the concept, causes, incidence, types, consequences of, and responses to terrorism. Highlights the distinction between domestic and international terrorism and expands on the latter within the framework of the global environment.

Cross Listed CRMJ 4705, INST 4705, and SOC 4705.

Prerequisite: 9 hours in CRMJ, INST, POLS, or SOC coursework.

POLS4710 - Topics in

Credits: 1-3

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

POLS4720 - Workshop in Practical Politics

Credits: 1-3

Familiarizes or strengthens participants in techniques of political effectiveness. Includes political organization, campaigning and persuasion. Guest speakers include public officials and experts in the field of practical politics.

Prerequisite: 9 hours of political science.

POLS4810 - Seminar in Political Philosophy

Credits: 3

Max Credit (Max. 6)

Seminar in Political Philosophy; Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 5810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

POLS4850 - Seminar in American Politics and Institutions

Credits: 3
Max Credit (Max. 6)

Includes reading and research on selected U. S. government and politics problems.

Dual Listed POLS 5850.
USP 2003-2014 Code U3WC
USP 2015 Code U5C3
Prerequisite: 9 hours of political science including POLS 1000 and consent of instructor.

POLS4870 - Seminar in International Relations

Credits: 3
Max Credit (Max. 6)

Encompasses reading and research in international law and politics.

Dual Listed POLS 5870.
USP 2015 Code U5C3
Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4890 - Seminar in Comparative Government and Politics

Credits: 3
Max Credit (Max. 6)

Researches selected topics in comparative government and politics.

Dual Listed POLS 5890.
USP 2003-2014 Code U3G, U3WC
USP 2015 Code U5C3
Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5000 - Survey of Public Administration

Credits: 3
Designed to introduce the beginning graduate student to the study and practice of public administration at all levels of government. Attention is also directed to specific functions and processes such as intergovernmental relations, budgeting, personnel, and regulation.

Prerequisite: graduate status and consent of instructor.

POLS5013 - Political Geography

Credits: 3
Geographic space is subdivided into political units to aid human interaction and to facilitate political processes. Examines the spatial organization of political space and its effects upon political processes at varying geographic scales ranging from the local to international.

Cross Listed GEOG 5013.

Dual Listed Dual list with POLS 4013.

Prerequisite: graduate standing

POLS5051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

POLS5060 - American Intergovernmental Relations

Credits: 3

Theory and practice of American federalism.

Prerequisite: POLS 5000.

POLS5080 - Organizational Development

Credits: 3

Exposed to psychological concepts as they apply to organizations. Topics include organizational culture, motivations affecting a person's behavior in the workplace, personal interactions within organizations, and resolution of personal conflicts within the workplace.

Prerequisite: POLS 5000.

POLS5090 - Anglo-American Jurisprudence

Credits: 3

Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 4090.

Prerequisite: POLS 1000.

POLS5100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 4100.

Prerequisite: POLS 1000.

POLS5110 - Constitutional Law: Civil Liberties and Civil Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Dual Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

POLS5160 - Legal Philosophy

Credits: 3

This course examines the philosophies that undergird the law, considering both ancient and modern legal thought. Throughout the course, both historical and contemporary examples will be used to illustrate the salient differences between philosophical approaches, to better articulate our understanding of the law.

Dual Listed POLS 4160.

Prerequisite: graduate standing.

POLS5210 - Seminar in Human Security

Credits: 3-6

Max Credit (Max. 6)

A broad interdisciplinary approach to the study of human security within the field of international studies and global politics in order to explore the theories and processes that explain past and emerging patterns of behavior in the international system, as well as key aspects of local to global policymaking.

Dual Listed INST 5210.

POLS5215 - European Union

Credits: 3

Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed INST 5215.

Dual Listed POLS 4215.

Former Course Number [5220]

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5230 - Governments and Politics Of Asia

Credits: 3

Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 4230.

Prerequisite: POLS 1000. POLS 3100 recommended.

POLS5255 - Politics of Developing Nations

Credits: 3

An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed INST 5255.

Dual Listed POLS 4255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200/INST 1200 or POLS 1250/INST 1250 or POLS 2310/INST 2310, or permission of instructor.

POLS5260 - Democratization and Regime Change

Credits: 3

Examines the theoretical/empirical research on causes of democratic transition and consolidation, including new waves of democratization and prospects for democratization in other contexts. Focus is given to a variety of theoretical/methodological perspectives such as the structural, strategic, social/cultural, institutional, and economic approaches.

Cross Listed INST 5260.

Dual Listed POLS 4260.

Prerequisite: 9 hours of political science or international studies, including POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS5290 - Inter-American Relations

Credits: 3

Surveys inter-American system and idea of hemispheric unity. Analyzes major issues confronting inter-American community.

Dual Listed POLS 4290.

Prerequisite: 9 hours of political science, including POLS 1200 /INST 1200, or POLS 1250/INST 1250, or POLS 2310/INST 2310, or permission of instructor.

POLS5330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors along with analysis of policy options.

Cross Listed INST 5330.

Dual Listed POLS 4330.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5340 - International Organizations

Credits: 3

Encompasses development of world organizations such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Dual Listed POLS 4340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 4350.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5360 - International Peace and Conflict

Credits: 3

Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed INST 5360.

Dual Listed POLS 4360.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5375 - Transitional Justice

Credits: 3

Mechanisms provide accountability for gross human rights violations and acts of mass atrocity within nations. Case studies are used to examine types of transitional justice interventions; tensions between demands of justice at local, national, and international levels; and transitional justice's role in post-conflict peace-building and reconciliation.

Cross Listed INST 5375.

Dual Listed POLS 4375.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed INST 5385.

Dual Listed POLS 4385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

POLS5400 - Public Personnel Management

Credits: 3

Designed to integrate information about the political environment of personnel administration with problem solving exercises in such specific areas as job analysis, affirmative action, and flextime. A number of topics including the evolution of the civil service, the rights and responsibilities of governmental employees, the functions of public personnel management, and collective bargaining processes are also covered.

Prerequisite: POLS 5000.

POLS5410 - Administrative Behavior and Theory of Organization

Credits: 3

An advanced course in the theory of organization and the workings of public agencies.

Prerequisite: POLS 5000.

POLS5420 - Seminar In Public Administration

Credits: 3

Max Credit (Max. 6)

A reading and research course in selected topics in public administration.

Dual Listed POLS 4420.

Prerequisite: POLS 1000 and consent of instructor.

POLS5430 - United States Presidency

Credits: 3

Analyzes the office of the president, its roles, development, relationships with other governmental agencies, and problems in the contemporary world.

Dual Listed POLS 4430.

Prerequisite: POLS 1000.

POLS5435 - Presidential Elections

Credits: 3

Examines the process of electing the U. S. president. Topics include the roles of presidential primaries, caucuses, and conventions; campaign strategies; media coverage; citizen participation; the electoral college; and reforms.

Dual Listed POLS 4435.

Prerequisite: POLS 1000.

POLS5440 - Principles and Processes of Government Budgeting

Credits: 3

Analyzes the principles, processes and politics of the budgetary process in the U. S. It examines the various theories of budgetary decision-making, the politics of budgeting and budgetary reforms.

Prerequisite: POLS 5000 and graduate standing.

POLS5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 5445.

Dual Listed POLS 4445.

Prerequisite: 9 hours of international studies or social science coursework

POLS5450 - Administrative Regulation

Credits: 3

Significant points of contact between government and business are stressed. Government activities designed to regulate and aid such economic interests as business, labor, agriculture, and consumers are dealt with at length.

Prerequisite: POLS 5000.

POLS5455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism,

climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 5455.

Dual Listed POLS 4455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS5460 - Public Administration and Law

Credits: 3

Focuses on various facets of the relationship between American public administration and law. Emphasis is placed on the emerging body of administrative law as a context for jurisprudential reasoning in administrative decision making.

Prerequisite: POLS 5000.

POLS5465 - Survey of the Nonprofit Sector

Credits: 3

This foundational course is designed to give students of diverse backgrounds a common framework for understanding the nonprofit sector in the United States and globally. Students in this course will identify and interpret key theories, issues, and challenges in the nonprofit world and will consider the implications for practice.

Dual Listed POLS 4465.

Prerequisite: graduate standing.

POLS5475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 5475.

Dual Listed POLS 4475.

Prerequisite: graduate standing.

POLS5480 - Ethics In Government

Credits: 3

The student is introduced to the ethical nature and dilemmas of public administration in American constitutional government. Such topics are addressed as source of ethical obligation, role of loyalty, application of moral philosophy, constitutional theory and ethical obligation, relation of theory and practice, and methods of ethical reflection.

Prerequisite: POLS 5000.

POLS5500 - Internship in Public Administration

Credits: 1-6
Max Credit (Max. 6)

Educationally-oriented assignments for work in selected public agencies, with tutorial types of supervision.

Prerequisite: consent of instructor.

POLS5510 - Public Policy and Program Management

Credits: 3
An overview of governmental policy making processes in the U. S and the uses of applied policy analysis.

Prerequisite: POLS 5000.

POLS5520 - Public Opinion

Credits: 3
Deals with natures of a public in a democracy and means of forming and manipulating public opinion. Emphasizes the role of public opinion as an essential ingredient of the policy-making process in popular government.

Dual Listed POLS 4520.
Prerequisite: POLS 1000.

POLS5530 - USCongress

Credits: 3
Analyze aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 4430
Prerequisite: POLS 1000.

POLS5540 - Public Policy Perspectives

Credits: 3
Acquaints students with the underlying structure and dynamics of public policy formulation, implementation, and evaluation at the state, local, and federal levels. Drawing on a number of analytic approaches, the course seeks to understand this complex political phenomenon in the context of the institutions that drive it.

Prerequisite: graduate standing.

POLS5555 - Political Ecology

Credits: 3
Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help

us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST 5555 & INST/POLS/GEOG 4555

Prerequisite: 9 hours of international studies or social science coursework.

POLS5560 - Public Administration in Literature and Film

Credits: 3

Examines the ways novelists and directors have viewed public administration, the accuracy of portrayals, how views have changed, how novelists and directors have helped create and disparage the rise of the administrative state, and types of administrative arrangements favored.

Prerequisite: POLS 5000.

POLS5570 - Graduate Readings

Credits: 1-3

Max Credit (Max. 9)

Special programs of readings of government and politics will be outlined to meet needs of individual students.

Prerequisite: graduate standing or consent of instructor.

POLS5600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Dual Listed POLS 4600.

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS5640 - Political Philosophy: Ancient and Medieval

Credits: 3

Surveys political philosophy from Classical Greek period to Machiavelli.

Dual Listed POLS 4640.

Prerequisite: POLS 2460, or POLS 3600, or consent of the instructor.

POLS5650 - Political Philosophy: Modern

Credits: 3

Surveys political philosophy from Machiavelli through the 19th century.

Dual Listed POLS 4650.

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS5660 - Political Philosophy: Contemporary

Credits: 3

Examines central developments in political philosophy that guide action in today's world.

Dual Listed POLS 4660.

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS5680 - Research Methods for Political Science

Credits: 3

Introduction to methodology of empirical analysis appropriate for political science and public policy, including introduction to the philosophy of science, research designs, hypothesis formation, measurement, and data collection.

Prerequisite: STAT 2050, STAT 2070, STAT 5070 or equivalent.

POLS5681 - Methods of Political Analysis

Credits: 3

Introduction to methods of analysis focusing on understanding the strengths and weaknesses of each method and practical issues arising during the analysis stage of research. Covers quantitative analysis through multiple regression, case study analysis, and archival/ historical analysis.

Prerequisite: STAT 2050, STAT 2070, STAT 5070 or equivalent.

POLS5684 - Empirical Analysis for Public Administration

Credits: 3

Designed for students in public administration to train them to make decisions based on empirical evidence in policy and management. Course draws concepts from system analysis, management science, operations research, and social science methodology to provide an understanding of various policy analysis and program management techniques across many applications.

Prerequisite: POLS 5000.

POLS5685 - Program Evaluation and Policy Analysis

Credits: 3

Explores techniques for analyzing and evaluating public policy choices and impacts.

Dual Listed POLS 4685.

Prerequisite: STAT 5070 or equivalent and an introductory research methods course in social science or related discipline.

POLS5690 - Capstone in Public Management

Credits: 3

Integrates theories and concepts introduced in core and option-core courses, and emphasizes students' application of them to various administrative settings.

Prerequisite: completion of all other core and option core requirements in the MPA Program.

POLS5710 - Topics In Political Science

Credits: 1-3

Max Credit (Max. 9)

Intended to accommodate various specialized subjects not offered as regular courses.

Prerequisite: graduate standing.

POLS5810 - Seminar in Political Philosophy

Credits: 3

Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 4810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS5840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 4840.

POLS5850 - Seminar in American Politics and Institutions

Credits: 3

Includes reading and research on selected U. S. government and politics problems.

Dual Listed POLS 4850.

Prerequisite: 9 hours of political science including POLS 1000 and consent of instructor.

POLS5870 - Seminar in International Relations

Credits: 3

Encompasses reading and research in international law and politics.

Dual Listed POLS 4870.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5890 - Seminar in Comparative Government and Politics

Credits: 3

Researches selected topics in comparative government and politics.

Dual Listed POLS 4890.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Students are expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

POLS5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

POLS5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

POLS5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

POLS5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

POLS5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Professional Sales

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

SELL4310 - Advanced Selling

Credits: 3

This course provides students in-depth study of advanced sales concepts including relationship management, problem solving, negotiation, and proposal writing. It also explores the use of data-based decision making and the use of selling technologies. Students will learn how to use data to sell to both resellers and manufacturers.

Prerequisite: SELL 3310 and junior class standing.

SELL4320 - Sales Force Strategies

Credits: 3

This class will examine the linkages among management of the sales function, personal selling activities, and the marketing area. Students will gain an understanding of the role of the sales force in achieving of the firm's marketing, customer relationship, and revenue objectives.

Prerequisite: SELL 3310 and junior class standing.

SELL4330 - Sales Seminar

Credits: 3

This course provides students in-depth study of advanced, and cutting edge sales and sales management concepts presenting by top talent in industry. While topic can vary, this seminar teams students with industry experts to explore state-of-the-art thinking in technical sales, sales management, sales training, compensation, and team selling.

Prerequisite: SELL 3310 and junior class standing.

SELL4900 - Independent Study in Professional Selling

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Professional Selling not included in other structured Professional Selling courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

SELL4910 - Topics in Professional Selling

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

Professional Studies

PRST5070 - Introduction to College Teaching

Credits: 3

This course is designed to provide students with an understanding of instructional theory and experiences in applying teaching and assessment methods relevant to the role of an educator in higher education. Linking theories, perspectives, and principles of effective teaching and learning to practice in higher education is a priority of the course. Practicing and experiencing "hands-on" activities will be prime formats of the class.

Prerequisite: graduate standing.

PRST5610 - Introduction to Doctoral Studies

Credits: 3

Introduce incoming doctoral students to the fundamentals of doctoral study for the Ph. D. degree. Includes developing

an understanding of higher education, the organization and purposes of doctoral programs, and the exploration of the roles of teaching, research, and service at the university.

Prerequisite: Admission to the program.

PRST5880 - Special Problems

Credits: 1-9

Provides a broad perspective through selected reading material. Wherever possible the student collects and used original information from a practical work situation. All work is done independently under the direction of a faculty member. A minimum of three conferences are held as necessary to assure successful completion of the project.

Prerequisite: consent of instructor and school director, and graduate standing.

PRST5890 - Directed Professional Study

Credits: 1-9

Similar to PRST 5880. Provides additional opportunity for students to pursue advanced graduate work through independent research. Projects are done under the direction of a graduate faculty member.

Prerequisite: graduate standing.

PRST5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 9)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

PRST5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 99)

Prerequisite: advanced degree candidacy.

PRST5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 99)

Prerequisite: advanced degree candidacy

PRST5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 99)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrolled in a graduate degree program.

PRST5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 99)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrolled in a graduate level degree program.

PRST5990 - Internship

Credits: 1-12
Max Credit (Max. 99)

Prerequisite: graduate standing.

Psychology

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

PSYC1101 - First-Year Seminar

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

USP 2015 Code U5FY

Prerequisite: 9 hours of international studies or social science coursework.

PSYC2000 - Research Psychological Methods

Credits: 4

Introduces some of the methods of investigating psychological questions. Exposure to various research strategies ranging from observational to experimental, using representative laboratory exercises, lectures, readings, films and demonstrations. Requires written and oral reports. May be used to satisfy department's written and oral communication requirement for majors. Laboratory two hours per week.

USP 2003-2014 Code U3WB

Prerequisite: A grade of C or better in PSYC 1000, WA or COM1, STAT 2050 or STAT 2070.

PSYC2080 - Biological Psychology

Credits: 3

Introduces biological bases of behavior. Includes ethology and comparative behavior, psychobiological development, physiological and sensory mechanisms of behavior, and evolution and behavioral genetics. Presents basic structural and functional properties of the nervous system.

When Offered (Normally offered fall semester)

Prerequisite: A grade of C or better in PSYC 1000 and general biology.

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC2300 - Developmental Psychology

Credits: 3

Introduces psychological development, including age-related changes in thinking, emotion, and behavior. Major theories, methodologies, and empirical discoveries are surveyed in an exploration of developments beginning with conception, with emphasis on social, affective, and cognitive developments in childhood and infancy and their implications for policy and practice.

When Offered (Normally offered spring semester)

Prerequisite: A grade of C or better in PSYC 1000.

PSYC2340 - Abnormal Psychology

Credits: 3

Provides a general overview of abnormal behavior, emphasizing types, etiology and treatment methods.

When Offered (Normally offered spring semester)
Former Course Number [4340]

Prerequisite: A grade of C or better in PSYC 1000.

PSYC2380 - Social Psychology

Credits: 3

Examines how peoples' thoughts, feelings, and behaviors are influenced by the presence of others. Course will cover a broad range of theories and research in social psychology.

When Offered (Normally offered fall semester)
Former Course Number [4755]

Prerequisite: A grade of C or better in PSYC 1000.

PSYC3120 - Cognitive Psychology

Credits: 3

Deals with higher mental processes that are primarily unique to human beings from theoretical and research orientations. Emphasizes interrelationships between various cognitive processes and continuity of those processes with perceptual and non-cognitive activities. Discusses how information is processed and remembered.

When Offered (Normally offered spring semester)
Former Course Number [4120]

Prerequisite: A grade of C or better in 6 hours of psychology including PSYC 1000.

PSYC3150 - Moral Development

Credits: 3

Students explore the vast psychological literature on moral development in affect, cognition and behavior from infancy to adulthood. Topics covered include major developmental theories, research methodologies, current scientific knowledge and its relationship to issues of cultural diversity, social policy and education.

Prerequisite: A grade of C or better in PSYC 1000, junior/ senior standing or consent of the instructor.

PSYC3250 - Health Psychology

Credits: 3

Provides overview of growing partnership between psychology and health care, including history of psychology in health care; theoretical foundations of health and illness; intervention and research techniques; stress and high risk behaviors (e. g. , substance abuse, eating behaviors, AIDS); psychology's contribution to improving outcomes and quality of life in chronic and life-threatening behaviors.

Cross Listed NURS 3250.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC3300 - Psychology of Gender

Credits: 3

In this course, we will examine a variety of psychological theories and research on the experiences and behaviors of men and women. We will study attitudes about gender, theories of gender development, and research about similarities and differences between men and women.

Cross Listed GWST 3300.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC3400 - Community Resources for Older Adults

Credits: 3

The purpose of this course is to raise student awareness of the needs of older adults in the community and to evaluate the continuum of long-term care resources available, service gaps, program models, and funding mechanisms. Community-based learning is required.

Prerequisite: FCSC 2110 or PSYC 1000

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

PSYC4070 - Motivation

Credits: 3

Covers classic and contemporary theories and research concerning motivation and the pursuit of goals. Discusses the study of motivation from a variety of perspectives, including biological, environmental, and psychological. Considers the role of emotion in motivational processes.

Prerequisite: C or better in 6 hours in psychology.

PSYC4080 - Physiological Psychology

Credits: 4

Examines physiological mechanisms of behavior, strongly emphasizing neural and hormonal processes. Includes fundamentals of neuroanatomy and evolution of the nervous system, basic neurophysiology, sensory and motor processes, as well as the physiology of emotion, motivation, learning and memory. Lecture three hours per week. Laboratory two hours per week.

USP 2003-2014 Code U3SB

Prerequisite: A grade of C or better in 6 hours of psychology and LIFE 1000, LIFE 1003, or LIFE 1010 or an introductory zoology course.

PSYC4150 - Cognitive Development

Credits: 3

Examines cognitive development from infancy through adolescence. Explores, through lecture, discussion and projects, major theories and current empirical research on cognitive development, as well as implications for social and educational policies concerning children.

Prerequisite: A grade of C or better in 9 hours of psychology, including child psychology course.

PSYC4200 - Sensation and Perception

Credits: 3

Examines behavioral and physiological processes involved in sensation and perception. Discusses each of the sensory systems, emphasizing their physiology and role in perceptual processing.

Prerequisite: C or better in 6 hours in psychology.

PSYC4250 - Psychological Aspects of Chronic Illness

Credits: 3

Investigates the impact of chronic physical illnesses on diagnosed children and adults, their families, and society. Emphasizes effects of illnesses on psychological adaptation and quality of life. Should be of particular interest to helping professionals and health care workers.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 3250.

PSYC4300 - Adolescent Development

Credits: 3

Examines the developmental changes that occur during adolescence. Considers physical and physiological growth; intellectual, cognitive, academic and vocational development, changes in attitudes, interests and activities; and development of interpersonal relationships.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4310 - Developmental Psychopathology

Credits: 3

Provides basic understanding of developmental psychopathology. Examines characteristics, etiology, assessment and treatment of psychological disorders in children including autism, mental retardation, anxiety, depression, attention, learning, and conduct problems.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or FCSC 2121 or EDST 2450.

PSYC4320 - Intellectual Disability

Credits: 3

Acquaints students with all aspects of intellectual disability including assessment, diagnosis and classification, etiology, and associated health and mental health difficulties. Prevention, educational and psychological intervention, family adaptation, and community involvement are also addressed.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 4300 or FCSC 2121 or EDST 2450.

PSYC4350 - Psychology of Adulthood

Credits: 3

Examines theories and research on psychological development from early adulthood to the end of life, with special emphasis on positive development, successful aging, and methodological issues in the study of adult development.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4370 - Criminal Psychopathology

Credits: 3

Provides an overview of current theories and empirical evidence concerning relationship between psychological disorder and criminal behavior. Examines various clinical syndromes and their role in biological, social and psychological genesis of crime, as well as the concept of criminal responsibility.

Cross Listed CRMJ 4370.

Prerequisite: C or better in 6 hours in psychology.

PSYC4380 - Death and Dying

Credits: 3

Designed to provide a comprehensive overview of the field of thanatology. Death is considered from both an individual and sociocultural perspective. Aims to provide solid ground in research, methods, and theory of end-of-life issues and to encourage contemplation of personal and professional applications of death studies.

Prerequisite: A grade of C or better in PSYC 1000 and junior/ senior standing.

PSYC4390 - Personality Science

Credits: 3

Examines the contemporary science in personality psychology, with a focus on the genetic, biological, social, cognitive, and affective variables which interact to influence individual differences and personality coherence.

Former Course Number [3390]

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 2340 or PSYC 2380.

PSYC4400 - Principles of Psychological Testing

Credits: 3

Encompasses basic concepts, principles and procedures of psychological testing, with a lecture, discussion, laboratory project approach. Emphasizes nature and uses of test reliability, validity, norms and transformations, selecting and evaluating tests, test interpretation models and professional ethics in test use. Lecture three hours per week.

Prerequisite: A grade of C or better in 6 hours of psychology and STAT 2050 or STAT 2070.

PSYC4500 - Introduction to Clinical Psychology

Credits: 3

Provides students with general introduction to clinical psychology as a subarea of psychology. Deals with the search for, and applications of, psychological principles and methods aimed at assessing and explaining unique or special problems of the individual, group or family, assisting client(s) to function more meaningfully and effectively, and helping to prevent future problems.

Prerequisite: A grade of C or better in PSYC 2340.

PSYC4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed CRMJ 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

PSYC4740 - Advanced Social Psychology

Credits: 3

Concentrates on critical assessment of interpersonal behavior. Students are expected to become familiar with data gathering, analysis and reporting procedures commonly used in contemporary social psychology.

USP 2003-2014 Code U3WC

Prerequisite: A grade of C or better in PSYC 2000 and PSYC 2380.

PSYC4760 - Child Maltreatment

Credits: 3

Lecture and seminar. Examines the phenomenon of child abuse and neglect. Includes an overview of attitudes towards and legal definitions of child maltreatment. Explores parental factors, contextual influences and developmental

consequences of maltreatment. Relies heavily on current research in child abuse and neglect. Emphasizes policy implications.

Cross Listed CRMJ 4760.

Prerequisite: C or better in 6 hours in psychology.

PSYC4820 - Psychology of Human Sexuality

Credits: 3

A clinical-personality orientation to psychological factors in the development and expression of human sexuality. Focuses on the individual: interactions of physiological factors with developmental influences and personality patterns that produce feelings, thoughts and behaviors associated with human sexuality.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or FCSC 2121 or EDST 2450.

PSYC4830 - Senior Thesis

Credits: 3

Senior research project under faculty guidance and supervision. Faculty sponsorship must be obtained prior to registration.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, majors only, 24 hours in psychology, and consent of instructor.

PSYC4850 - Field Work in Psychology

Credits: 1-3

Provides opportunities to experience applied aspects of psychology in external settings through volunteering, teaching, and related activities. Type and location of experience and requirements for earning credit and for grading are determined with a sponsoring faculty person in the psychology department. An acceptable paper based on work completed may also be required. No credit is available for field work prior to registration for this course.

Prerequisite: consent of instructor required in advance.

PSYC4855 - Undergraduate Research in Psychology

Credits: 1-3

Max Credit (Max. 6)

Provides new opportunities to assist in aspects of conducting basic and applied psychological research with a sponsoring faculty person in the psychology department. Specific research activities and requirements for earning credit and for grading are determined with a sponsoring psychology faculty person. An acceptable paper based on work completed may also be required. No credit is available for research conducted prior to registration for this course.

Prerequisite: consent of instructor required in advance.

PSYC4860 - Seminar

Credits: 1-6

Course consists of extended and in-depth discussions of particular topics in psychology. Topics vary semester to semester. Class format may include lecture, group discussion, and group activities. Reading assignments will draw heavily from scientific literature and may include journal articles, textbooks, or book chapter.

Prerequisite: 9 hours in psychology.

PSYC4960 - Service-Learning in Psychology

Credits: 3

Experience applied aspects of psychology in real world settings through volunteering. Recent research and other materials preparing students for their service will be discussed in class. After the volunteering experience, the students will prepare an academic paper integrating their practical experience with research and theory learned in class.

Prerequisite: PSYC 1000 and consent of instructor required in advance.

PSYC4970 - Aging Minor Internship

Credits: 1-6

This course provides students in the Aging Studies Minor the opportunity to experience applied aspects of aging studies in a community setting. Prior to registration the student must work with the minor advisor and instructor to identify the internship setting and complete all required paperwork.

Prerequisite: Completion of all other degree requirements

PSYC5060 - Statistical Methods In Psychology

Credits: 3

General statistical analyses and their application to psychology. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 2020, STAT 3050, STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: 1 course in statistics (all introductory courses except 2000).

PSYC5095 - Statistical Computation In Psychology

Credits: 1-3

Max Credit (Max. 12)

Supervised problem-solving practice in statistical analysis is provided with regard to topics corresponding to those covered in a concurrent statistical analysis course. Statistical analysis topics vary.

Prerequisite: graduate standing and instructor consent.

PSYC5120 - Neuropsychology of Human Behavior

Credits: 3

Brain mechanisms involved in the expression and control of human behavior will be studied. Findings from classical neuropsychological studies and more recent clinical research investigations will be used in deriving explanations for the structural and physiological basis of normal and abnormal psychological processes.

Prerequisite: 9 hours in psychology.

PSYC5140 - Personality Science

Credits: 3

Examines contemporary scientific research and theory in personality. Surveys the biological, cognitive, affective, social, and interpersonal determinants of personality function with individual differences. A theoretical framework highlights the dynamic transactions between individuals and the sociocultural environment over the life course.

Prerequisite: graduate standing in clinical or experimental psychology.

PSYC5180 - Advanced Developmental Psychology

Credits: 3

Provides a graduate-level overview of development psychology, including current theories, issues, and research in both cognitive development and social development.

Prerequisite: graduate standing.

PSYC5210 - Advanced Physiological Psychology

Credits: 3

Examines the physiological bases of behavior beginning with a treatment of basic neuroanatomy, neurophysiology, and pharmacology. Discussion then proceeds to the physiological correlates of various behavioral states including sleep arousal, sensory processes, motor control, motivational systems, emotions, learning and memory.

Prerequisite: 30 hours in psychology including PSYC 4080.

PSYC5230 - Advanced Cognitive Psychology

Credits: 3

Provides the graduate student with an understanding of theoretical and experimental approaches to the study of human cognitive processing. There is an emphasis on critical evaluation of current research in the area.

Prerequisite: 30 hours in psychology including PSYC 3120.

PSYC5240 - Cognitive Psychology Seminar

Credits: 3

Max Credit (Max. 12)

Graduate level seminar in cognitive psychology, the topic of which will vary from semester to semester. Emphasis is on providing students with an in-depth analysis of some specific areas of cognitive psychology.

Prerequisite: graduate standing.

PSYC5270 - Behaviorism

Credits: 3

Acquaints the graduate student with behaviorist philosophy, the experimental analysis of behavior, and the application of behavioral technology to experimental, educational, and clinical problems.

Prerequisite: 30 hours in psychology.

PSYC5300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include multivariate regression, canonical correlation, discriminate analysis, factor analysis and multidimension scaling. A wide range of computer assistance is incorporated.

Cross Listed STAT 5300.

Prerequisite: STAT 5050.

PSYC5340 - Introduction To Clinical Supervision

Credits: 1-4

Max Credit (Max. 4)

Provides an introduction to the supervision of psychotherapy for advanced doctoral students by having them observe a therapy case in the Psychology Clinic with assigned first year doctoral students and then give instruction as to therapeutic techniques used by the therapist and to client dynamics.

Prerequisite: admission to the doctoral program in clinical psychology and consent of instructor.

PSYC5370 - Graduate Seminar in Forensic Psychology

Credits: 3

To provide graduate level training in forensic psychology for students pursuing careers in psychology, counseling and criminal justice.

Prerequisite: 16 hours in psychology or consent of instructor.

PSYC5375 - Psychology/Law Proseminar

Credits: 1-10
Max Credit (Max. 10)

The Psychology Law Proseminar exposes students to various areas of psycholegal research. Topics will vary each semester and students will be expected to be actively engaged in the proseminar activities. Students will be exposed to theoretical and applied research that has relevance to legal settings.

Prerequisite: graduate standing in Psychology and permission of instructor.

PSYC5380 - Theories and Techniques of Psychotherapy

Credits: 3
A course for entering clinical doctoral students. Major current psychotherapies are reviewed in terms of theoretical assumptions and related techniques. Required of first-year students in the program.

Prerequisite: admission to doctoral program in clinical psychology.

PSYC5400 - Cog-Achievement

Credits: 3
Max Credit 3

First semester of a three semester practicum course in psychological assessment at the doctoral level. During the semesters, extensive examination is made regarding the standardization, relevant application, and significant limitations of assessment techniques. A thorough grounding in interpretation, and communication of the results of psychological evaluation both in writing and in consultation with referral sources. Normally taken during the first year of the doctoral program.

Restricted restricted to doctoral students in clinical psychology

Prerequisite: restricted to doctoral students in clinical psychology.

PSYC5410 - Assessment: Theory & Personality

Credits: 3
Second semester of a full-year practicum course in psychological assessment at the doctoral level.

Restricted restricted to doctoral students in clinical psychology

Prerequisite: PSYC 5400.

PSYC5425 - Diagnostic Interviewing

Credits: 1

Students review research on diagnostic interviews, practice basic interviewing skills and learn to administer the Structured Clinical Interview for DSM-IV (SCID-I) using training tapes, class discussion and role-play exercises. As time permits, other interviews used to assess personality disorders and specific diagnostic categories will be reviewed.

Prerequisite: admission to the doctoral program in clinical psychology.

PSYC5430 - Clinical Neuropsychological Assessment

Credits: 3

Present the clinical psychologist in training with an introduction to the clinical application of neuropsychological principles and various tools. Includes the administration and interpretation of neuropsychological instruments and batteries, as well as the integration of more traditional assessment techniques with neuropsychological testing.

Prerequisite: admission to the clinical doctoral psychology program, PSYC 5400, PSYC 5410, and PSYC 5120.

PSYC5450 - Clinical Practicum

Credits: 1-4

Max Credit (Max. 8)

Beginning clinical practicum course providing doctoral students in clinical psychology with supervised experience in individual psychotherapy. Psychodynamic, client-centered, and behavioral techniques are employed. Cases and theoretical issues discussed in weekly seminar. Individual supervision of students by clinical faculty.

Prerequisite: admission to doctoral program in clinical psychology and consent of instructor.

PSYC5460 - Advanced Clinical Practicum

Credits: 1-12

Max Credit (Max. 12)

Advanced clinical practicum course for students beyond their second year in the doctoral program in clinical psychology. Provides additional supervised experience in individual, family, child, and group therapy, as well as in psychological assessment. Experiences include case conceptualization, case management, and provision of direct services.

Prerequisite: admission to doctoral program in clinical psychology, PSYC 5450, and consent of instructor.

PSYC5470 - Evidence-based Treatments

Credits: 3

Max Credit 3

Students become familiar with the efficacy and effectiveness of important state-of-the-art treatments with a focus on treatments of mood and anxiety disorders. Course goals include gaining a critical understanding of the issues involved in identifying psychological treatments that work.

Restricted restricted to doctoral students in clinical psychology

Prerequisite: PSYC 5380; PSYC 5510.

PSYC5500 - Developmental Psychopathology

Credits: 3

Max Credit 3

Students will obtain research-based knowledge in developmental psychopathology via lectures, discussions, and student presentations. This course will cover disorders that usually begin in childhood and how these disorders manifest across the lifespan. The course will also cover disorders that begin later and how these disorders manifest in children and adolescents.

Restricted restricted to doctoral students in clinical psychology

PSYC5510 - Adult Psychopathology

Credits: 3

Students will obtain research-based knowledge of both descriptive and explanatory adult psychopathology. In addition to learning how adult mental disorders present, students will acquire a framework for understanding the multiple variables that interact over the lifespan to influence adult psychopathology.

PSYC5520 - Advanced Research Methods

Credits: 3

Introduction to problems and issues in research methodology. Ongoing research directed by various faculty are used as paradigms for conceptualization of research problems. Students critically evaluate projects presented and begin planning for research leading to theses and dissertations.

Prerequisite: graduate status in psychology.

PSYC5530 - Professional Issues and Ethics

Credits: 3

Max Credit (Max. 6)

This course primarily emphasizes ethical considerations and principles guiding the practice of psychology. Additionally, career development issues such as internship, postdoctoral fellowships, licensure and grant writing are addressed. This course also promotes and explores the foundational importance of informing clinical practice with empirical evidence.

Prerequisite: graduate standing in psychology.

PSYC5550 - Clinical Seminar

Credits: 1-3
Max Credit (Max. 18)

Graduate level seminar in clinical psychology, the topic of which will vary from semester to semester. Emphasis is on providing students with an in-depth analysis of some specific area of clinical psychology.

Prerequisite: admission to the doctoral program in clinical psychology.

PSYC5580 - Advanced Social Cognition

Credits: 3
Provides an overview of the cognitive processes involved in social behaviour, including perception, judgment, memory, and evaluation.

Prerequisite: graduate standing or permission of instructor.

PSYC5630 - Clinical Supervised Practicum I

Credits: 2
The first semester of a one year practicum in clinical supervision for doctoral students in clinical psychology. Students supervise at least one 2nd or 3rd year clinical doctoral student, attend supervision team meetings, and may conduct group supervision and/or see clients as determined by team leader.

Prerequisite: enrollment in doctoral program in clinical psychology.

PSYC5640 - Practicum in Clinical Supervision II

Credits: 2
The second semester of a one year practicum in clinical supervision for doctoral students in clinical psychology. Students supervise at least one 2nd or 3rd year clinical doctoral student, attend supervision team meetings, and may conduct group supervision and/or see clients as determined by team leader.

Prerequisite: enrollment in doctoral program in clinical psychology.

PSYC5650 - Social and Affective Psychology

Credits: 3
Designed to give the student a thorough understanding of the theories and methodologies of contemporary Social and Affective Psychology

Prerequisite: None

PSYC5720 - Advanced Social Development

Credits: 3
Provides a graduate-level introduction to theory and empirical research on social development. Topics include

emotional development, attachment, socialization, moral development, aggression, and social context.

Prerequisite: graduate standing.

PSYC5740 - Internship in Clinical Psychology

Credits: 1

Max Credit (Max. 3)

Full-year, 40 hours per week assignment to a mental health or related agency having an established internship program. This placement must be approved by the Department of Psychology and include: (a) adequate supervision of the intern and (b) didactic and other educational experiences that supplement practicum work. Registration for fall, spring, and summer terms is required.

Prerequisite: Completion of preliminary examination and dissertation proposal, department approval.

PSYC5760 - Graduate Seminar

Credits: 1-10

Max Credit (Max. 18)

Topic varies from semester to semester. Emphasis is upon the preparation of reports on special topics in psychology and the presentation and discussion of these reports in the seminar situation.

Prerequisite: 6 hours in psychology and consent of instructor.

PSYC5765 - Teaching of Psychology

Credits: 1-3

Max Credit (Max. 3)

Course is designed to prepare future faculty in psychology for a career in teaching. Topics covered include developing lectures and assignments, assessing students and providing feedback, using technology, and fostering skill development in students. Course emphasizes evidence-based teaching.

Prerequisite: restricted to graduate students in psychology.

PSYC5775 - Developmental Psychology Seminar

Credits: 1-3

Max Credit (Max. 18)

Graduate level seminar in developmental psychology, the topic of which will vary from semester to semester. Emphasis is on providing student with an in-depth analysis of some specific area of developmental psychology.

Prerequisite: consent of instructor.

PSYC5780 - Advanced Cognitive Development

Credits: 3

Provides a comprehensive account of current views of cognitive development. Emphasis is given to alternative theoretical explanations for findings from empirical research.

Prerequisite: graduate standing.

PSYC5785 - Social Psychology Seminar

Credits: 1-3

Max Credit (Max. 18)

Graduate level seminar in social psychology, the topic of which will vary from semester to semester. Emphasis is on providing students with an in-depth analysis of some specific area of social psychology.

Prerequisite: permission of instructor.

PSYC5786 - Indep. Study Advanced Quant.

Credits: 1-3

Max Credit 3

This course is designed for graduate students in psychology whose educational goals include advanced study in specific quantitative methods that go beyond those covered in required or other regularly available coursework.

Prerequisite: Completion of PSYC 5060 with B or better

PSYC5787 - Indep. Study Special Psych Top

Credits: 1-3

Max Credit 3

This course is designed for graduate students in psychology whose educational goals include advanced study in specific psychological topics that cannot be accommodated by other available scheduled courses.

Restricted Graduate student status in psychology

PSYC5790 - Clerkship in Clinical Psychology

Credits: 1-3

Max Credit (Max. 9)

Provides practical clinical and administrative experience in institutional and community settings. Experience includes psychological assessment, group and individual therapy activities, participation in clinical and administrative staff conferences, consultation to various departments and agencies within the institutional setting and in the community, training of professionals in psychological concepts and techniques, and participation in research. Experiences are

located in various community, county, and state agencies primarily in the Rocky Mountain region. Successful completion of three clerkships is a required part of the doctoral program in clinical psychology.

Prerequisite: enrollment in doctoral program in clinical psychology and assignment by department.

PSYC5800 - Research in General Psychology

Credits: 1-8
Max Credit (Max 24)

Prerequisite: consent of the instructor and graduate standing in the department.

PSYC5810 - Research in Psychology and Law

Credits: 1-8
Max Credit (Max. 24)

Prerequisite: consent of the instructor and graduate standing in the department.

PSYC5820 - Research in Social Psychology

Credits: 1-8
Max Credit (Max. 24)

Prerequisite: consent of instructor and graduate standing in the department.

PSYC5830 - Research in Clinical Psychology

Credits: 1-8
Max Credit (Max. 24)

Prerequisite: consent of the instructor and graduate standing in the department.

PSYC5840 - Research in Developmental Psychology

Credits: 1-8
Max Credit (Max. 24)

Prerequisite: consent of the instructor and graduate standing in the department.

PSYC5850 - Research Cognitive Psychology

Credits: 1-8
Max Credit (Max. 24)

Prerequisite: consent of the instructor and graduate standing in the department.

PSYC5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PSYC5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

PSYC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

PSYC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

PSYC5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

PSYC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Rangeland Ecology and Watershed Management

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Prerequisite: LIFE 2022 or LIFE 2023.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM3390 - Range Judging

Credits: 2

Judging rangelands based on soil, plant and animal resources and applying science-based information to make management decisions. Participation in a field trip and UW SRM judging teams is required including Plant Team and URME. This course is intended for members of the SRM competitive Teams.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000, REWM 2400 and REWM 3020, as well as the Team Coach permission.

REWM3500 - Rangeland Plant Ecophysiology

Credits: 3

Examines plant physiological processes that have application to ecological and land management issues. Topics include carbon assimilation, water relations, mineral nutrition as applied to plant distributions, plant and system responses to grazing, as well as plant tolerance of extreme conditions including drought, excessive temperatures and changes in climate.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 2022 or LIFE 2023.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of public and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Students prepare public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 5103.

When Offered (Normally offered spring semester)

Former Course Number [3103]

Prerequisite: C or better in REWM 2000 and CS course.

REWM4150 - Behavior Modification for Production of Grazing Herbivores

Credits: 3

Strategies for manipulation of behavior and management of the grazing herbivore will be developed from scientific and practical information. Designed to equip the student to manage for animal and natural resource production.

Dual Listed REWM 5150.

When Offered (Normally offered spring semester)

Former Course Number [3150]

Prerequisite: C or better in REWM 2000 and REWM 3020 or ANSC 3100.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 5300.

When Offered (Normally offered spring semester)

Former Course Number [3320]

Prerequisite: REWM 2500 or LIFE 2023.

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4340 - Reclamation Techniques Field Trip

Credits: 2

Provides increased comprehension of current land reclamation problems and solutions by means of a field trip to sites in region where land reclamation is occurring.

When Offered (Normally offered fall semester)

Prerequisite: REWM 4200.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

REWM4500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 5500.

Prerequisite: REWM 4285.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4540 - Problems

Credits: 1-4

Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

REWM4550 - Internship in:

Credits: 1

Max Credit (Max. 4)

Supervised field experience in range management or disturbed land reclamation. No more than 4 credits.

Prerequisite: basic course work in subject selected and consent of instructor.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

REWM4600 - Drone-Based Remote Sensing

Credits: 3

This class teaches the basics of remote sensing applications in environmental sciences with a focus on unmanned aerial vehicles (UAVs, aka "drones"). Students will receive training in drone operation, data collection and analysis, and will be prepared to take the FAA Remote Pilot Certification.

Prerequisite: MATH 1400 or higher

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM4750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration ecology for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 5750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM4810 - Experiments in Restoration

Credits: 2

Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 5810.

Prerequisite: STAT 2050 or equivalent.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

REWM4990 - Undergraduate Teaching Practicum

Credits: 1

Max Credit (Max. 2)

Teaching experience in classroom or laboratory assisting faculty instructor.

When Offered (Offered based on sufficient demand and resources)

REWM5000 - Range Resource Management

Credits: 3

Basic concepts and theories of rangeland resource management, trends in rangeland classification, grazing management and improvement practices.

Prerequisite: graduate classification in agriculture or related natural resource subject matter areas.

REWM5100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 4100.

REWM5103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Preparation of public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 4103.

Prerequisite: REWM 2000 and CS course.

REWM5150 - Behavior Modification for Production of Grazing Herbivores

Credits: 3

Strategies for manipulation of behavior and management of the grazing herbivore are developed from scientific and practical information. Designed to equip the student to manage for animal and natural resource production.

Dual Listed REWM 4150.

Prerequisite: REWM 2000 and ANSC/REWM 3020 or ANSC 3100.

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

REWM5300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 4300.

Prerequisite: REWM 2500 or LIFE 2023.

REWM5400 - Community Ecology

Credits: 3

Community ecology is the study of interactions within and among groups of species. This course focuses on (1) the major classical concepts and theories in community ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

Cross Listed ECOL 5400.

Prerequisite: LIFE 3410 or equivalent.

REWM5440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 4440.

Prerequisite: graduate standing.

REWM5500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 4500.

Prerequisite: REWM 5285.

REWM5520 - Ecology and Management of Grasslands

Credits: 3

Ecological nature, management strategies, and management problems of North American and world grassland ecosystems.

Prerequisite: REWM 4300, REWM 5300 and BOT 4700.

REWM5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed ECOL 5580.

Dual Listed REWM 4580.

REWM5610 - Quantitative Modeling in Landscape Ecology

Credits: 3

Emphasis on quantitative, spatial analysis of landscapes and application of these quantitative tools to making sound management decisions. Work with real data, acquire high-level quantitative skills, develop problem-solving skills, and discuss management application of model results. Analysis will encompass abiotic, biotic (plant and animal), and human use of ecological systems in a spatial context.

Cross Listed ECOL 5610.

Prerequisite: upper division stats course (e. g. , STAT 4015 or STAT 4025) and graduate standing.

REWM5640 - Investigation

Credits: 1-4

Max Credit (Max. 10)

Research on specialized problems in range management. Investigations offered in the following areas of range management, habitat management, business management, range improvements and monitoring, watershed management, extension and international development.

Prerequisite: graduate standing.

REWM5680 - Landscape Genetics

Credits: 3-4

Provides a unique opportunity for interdisciplinary training and international collaboration uniting some of the most active landscape genetics groups in North America and Europe. A key objective of landscape genetics is to study how landscape modification and habitat fragmentation affect organism dispersal and gene flow across the landscape. Meeting this and other landscape genetic objectives requires highly interdisciplinary specialized skills making intensive use of technical population genetic skills and spatial analysis tools (spatial statistics, GIS tools and remote sensing). To bring these diverse topics and skills together effectively, we are using a distributed model of teaching. Population genetics, spatial analysis/ statistics, and previous experience in Rare all extremely useful but not required.

Cross Listed ECOL 5680.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

REWM5750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 4750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM5810 - Experiments in Restoration

Credits: 2

Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 4810.

Former Course Number [5800]

Prerequisite: graduate standing.

REWM5830 - Wildlife Habitat Ecology

Credits: 2

For students in wildlife and rangeland ecology emphasizing the relationships between wildlife populations and their habitats. Concepts forming the basis of wildlife habitat ecology including habitat and niche, habitat metrics, resource selection, habitat-relationships modeling, and habitat restoration and management.

Prerequisite: Graduate-level course in statistics and graduate standing or instructor consent.

REWM5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

REWM5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

REWM5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

REWM5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

REWM5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Religious Studies

RELI1000 - Introduction to Religion

Credits: 3

Introduces world religions and shared characteristics. Draws on various academic approaches to religion study, emphasizing similarities and differences among wide variety of religions.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

RELI1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

RELI2030 - Violence and Resistance

Study Indigenous and contemporary theories of violence and resistance through the lens of religious violence. Revisit key landmarks of resistance leading up to current Indigenous and environmental activism. Develop multi-media presentation.

USP 2015 Code U5C2
Prerequisite: COM1

RELI2040 - Religions of the Middle East: Judaism, Christianity and Islam

Credits: 3

Analyzes origins and early years of three major religions that arose in the Middle East: Judaism, Christianity and Islam. Looks at historical development, political and cultural context, and structure of each religion.

USP 2003-2014 Code U3CH, U3G
A&S College Core 2015 ASG

RELI2050 - Religions of Asia

Credits: 3

Introduces students to the religions of Asia. Primary focus on Hinduism and Buddhism, but also addresses several smaller religions. Emphasis on beliefs, sacred texts and tales, practices, ethics and worship, as well as historical development and contemporary issues.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

RELI2070 - Gender and Religion

Credits: 3

Aims at understanding how religion constructs and reinforces gender roles in religion and society. Looks at traditional gender roles in Christianity and the transformation they have undergone in the past century or so.

Cross Listed GWST 2070.

RELI2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed HIST 2080.
USP 2003-2014 Code U3CH

RELI2110 - Introduction to the Old Testament

Credits: 3

Introduces students to the books of the Old Testament and people whose way of life they describe. Pays particular attention to religion of the Israelites, their history and culture. Focuses on different historical circumstances in which the books were written.

USP 2003-2014 Code U3CH
USP 2015 Code U5H
A&S College Core 2015 ASG
Former Course Number [1010]

RELI2150 - New Testament Survey

Credits: 3

Introduces the academic study of the New Testament. Concentrates on the analysis of Jesus, Paul and other New Testament figures by studying the textual evidence within its historical, religious and cultural contexts. Key foci also include the composition of the New Testament's books and the theological development of early Christianity.

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI2175 - The Life and Teaching of Jesus

Credits: 3

Explores life and teachings of Jesus within religious, cultural and political context of first-century Palestine. Studies Jewish, Greek and Roman influences on Palestine; then, examines effect of those influences on the gospels (both canonical and non-canonical).

RELI2200 - Contemporary American Religion

Credits: 3

The U. S. is home to more world religions and to more versions of those religions than any other nation on the planet. This course examines how the U. S. has shaped these religions and the impact these religions have had in turn on U. S. society and culture.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5C2

A&S College Core 2015 ASD

RELI2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed HIST 2225.

USP 2015 Code U5H

RELI2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed HIST 2250.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

RELI2252 - American Religious History II (1865- 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed HIST 2252.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

RELI2315 - History of Non-Western Religions

Credits: 3

Max Credit 9

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed HIST 2315.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

Cross Listed HIST 2320.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

RELI2330 - Islam in the Modern World

Credits: 3

How does Islam interact with Modernity? This course extends beyond the news to study contemporary trends and movements among the world's Muslims. Includes a general introduction to the history and religion of Islam, and discusses contemporary Islamic topics, reflecting current issues, instructor research and student choices.

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI2410 - Varieties of Non-Belief in the Western World

Credits: 3

A broad, chronological survey of different types of non-belief, primarily from the Renaissance onwards. It examines critiques by philosophers, politicians, poets, and novelists aiming to understand their objections to religion and analyzing how these objections shaped the modern religious landscape and the way we understand religion itself.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

RELI2450 - Traditional African Religion

Credits: 3

Surveys traditional African religions, both ancient and contemporary.

Cross Listed AAST 2450.

USP 2003-2014 Code U3CH,U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

RELI2500 - Special Topics in Religion

Credits: 1-3

Max Credit (Max. 6)

Permits occasional investigation of different subjects in academic study of religion.

RELI3090 - Middle East and Israel in Film

Credits: 3

Focus on film representations of Israel, the Arab world, Turkey and Iran. Studies religion and society, common human aspirations, modalities of social and other conflicts through screening of feature and short films and discusses issues raised by historical, political, social, cultural and religious tensions and considerations in this region.

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: WA or COM1.

RELI3110 - Bible and Archaeology

Credits: 3

An archaeological survey illuminating the historical, theological, and cultural landscape of ancient Near East and the Mediterranean world. Examines how archaeology contributes to the understanding of the peoples, texts and religious movements of the Old Testament/Hebrew Bible and the New Testament.

Prerequisite: RELI 1000 or RELI 2110 or RELI 2150 or ANTH 1300 or ANTH 1450.

RELI3200 - Religion and American Culture

Credits: 3

Explores the role of religion in the history of American culture. It considers how developments in American religious history have reflected larger trends in American society, and how those developments have in turn helped shape American society and culture.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASD,ASG

Prerequisite: one lower-level course in religious studies, American history, or American studies.

RELI3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed HIST 3220.

USP 2003-2014 Code [G< >(none)]

Prerequisite: 6 hours or HIST, RELI, or INST.

RELI3225 - Apocalypse: The History of the End

Credits: 3

The apocalyptic End of Time has become the subject of much speculation, especially since the beginning of the new millennium. Analyzes such speculation as a religious phenomenon in both ancient and modern religions, and attempts to understand its social, cultural and personal impacts.

Prerequisite: junior standing.

RELI3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000, RELI 2225/HIST 2225, or HIST 2113.

RELI3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500

Cross Listed HIST 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

RELI3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: HIST 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

RELI3245 - Christianity Since Darwin

Credits: 3

Christianity has faced many challenges since the mid-nineteenth century, including the thought of Darwin, Marx and Freud, to name a few. Christianity has faced those challenges in various ways and its practitioners continue to re-examine its understandings of a vastly changed and continually changing world.

USP 2015 Code U5C2

Prerequisite: COM1, and RELI 1000 or RELI 2225/HIST 2225 or HIST 1120 or consent of instructor.

RELI3260 - African Spirits in the New World

Credits: 3

Begins with Yoruba roots in Africa and travels with the African Diaspora focusing on spirit possession in Haitian Vodou, Cuban Santeria, Jamaican Revival Zion, Jamaican Rastafarianism, Brazilian Candomblé, and "Black Church" in the United States using ethnography and postcolonial theory of religious studies.

Cross Listed AAST 3260.

USP 2003-2014 Code U3CH,U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: AAST 1000 or any AAST 2000 level course or RELI 1000.

RELI3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed PHIL 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

RELI3340 - Mysticism, Yoga, and Enlightenment in the East

Credits: 3

Explores Hindu and Buddhist concepts of enlightenment and the means for reaching them through mysticism and yoga. Study the texts and beliefs and their translation into practice.

Prerequisite: WB and CH.

RELI3350 - Religion and Globalization in India

Credits: 3

Learn about religious pluralism in India. In particular, how globalization has impacted the ways people from many different religions, caste, class, and educational backgrounds, ethnicities, and regions experience and practice their religions in 21st century India.

Prerequisite: RELI 1000 or RELI 2050.

RELI3400 - Religion in the American West

Credits: 3

Considers the religious history of the American West from Pre-Columbian times to the present, paying special attention to the ways the West affects religious belief and practice. Themes of contact and conflict will be particularly important in our study, as will the changing perceptions of the West.

USP 2003-2014 Code U3CH,U3D

A&S College Core 2015 ASD

Prerequisite: USP WB course.

RELI4000 - Theories of Religion

Credits: 3

Investigates different theories proposed to explain religion and methods used to investigate them. Pays primary attention to influential thinkers and theorists of the past century.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: RELI 1000, and 12 additional hours in Religious Studies, at least 6 of which must be at the 3000-level or above, junior standing.

RELI4090 - Film and Religion

Credits: 3

Movies use religion to convey messages; they debate religious issues and use religion to debate non-religious issues. This course analyzes how film makers use religion and religious themes to transform religions into advocates for social issues and to shape religion's role in society. Popular films drawn from many genres.

Cross Listed ENGL 4090.

Prerequisite: 6 hours of 2000-level or higher literature courses or religion courses.

RELI4100 - African American Religious Culture

Credits: 3

This mid-level writing-intensive seminar is a comparative study of African American religious celebration, primarily in the context of Afro-Christianity, but touching on Islam, Candomblé, "Voodoo," Santeria, and Rastafarianism.

Cross Listed AAST 4100.

USP 2003-2014 Code U3D,U3WC

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: WB and one of the following: AAST 1000 or any AAST 2000-level course or RELI 1000.

RELI4113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what might be called heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed HIST 4113.

Prerequisite: 9 hours of HIST or RELI.

RELI4160 - Moses, Jesus, and Muhammad

Credits: 3

Examines the biographies of Moses, Jesus and Muhammad found in works of history, in sacred literature, in hagiography, ritual and popular culture. Demonstrates strategies used to recover their historical personalities and how they are portrayed in multiple religious traditions, offering insights into how each have shaped our world.

USP 2003-2014 Code U3CH

Prerequisite: RELI 1000 or junior standing.

RELI4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed HIST 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

RELI4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed HIST 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

RELI4190 - Women and the Bible

Credits: 3

Explores depictions, roles and statuses of women found in the Bible, both Old and New Testaments. Introduces ways biblical portraits of women have been used in recent centuries to develop theologies of, by and for women.

Prerequisite: junior standing or permission of instructor.

RELI4260 - Judaism in the Modern World

Credits: 3

Studies Jews and Judaism from pre-modern period to present. Traces migration of Jews from Europe to the USA and Israel, while examining radical changes that transform the religion.

Prerequisite: junior standing.

RELI4310 - Seminar in Asian Religions

Credits: 3

Max Credit (Max. 9)

Students will be introduced to a number of indigenous and analytical frameworks and interdisciplinary theories and methods in the examination of a specialized topic in the study of Asian religions. Specific focus of the course varies by semester.

Prerequisite: RELI 2050 or junior standing.

RELI4335 - Women and Islam

Credits: 3

Examines women's lives in Islamic societies from the seventh century to the present in the Middle East and throughout the world. Themes include women's position in Islamic law, society and culture, Western images of Muslim women, veiling and Islamist movements, theoretical readings on power, gender and agency.

Cross Listed HIST 4335 and GWST 4335.

Prerequisite: 9 hours of HIST, WMST, INST, or RELI.

RELI4500 - Special Topics in Religious Studies

Credits: 1-3

Max Credit (Max. 12)

Presents from semester to semester a variety of important topics in the academic study of religion.

Prerequisite: RELI 1000.

RELI4635 - Religious Studies Departmental Honors

Credits: 0

Satisfactory completion of this course indicates that Religious Studies Departmental Honors have been conferred on the student.

Prerequisite: Consent of Religious Studies thesis chairperson; demonstration of competency in a foreign language equivalent to a fourth-semester college level or concurrent enrollment in a fourth-semester foreign language course.

RELI4900 - Independent Study in Religion

Credits: 1-3

Max Credit (Max. 6)

Primarily for juniors and seniors who can benefit from independent study of topics in religious studies not covered in course offerings. Guidance provided by faculty member in the appropriate field.

Prerequisite: 9 hours in religious studies and consent of instructor.

RELI4930 - Thesis

Credits: 0-6

Max Credit (Max. 9)

Directed research and writing supervision of Religious Studies thesis chairperson. Results in production of Religious Studies thesis.

Prerequisite: Successful completion of or concurrent enrollment in RELI 4000, advanced undergraduate status in good academic standing, consent of Religious Studies thesis chairperson and department chair.

RELI4960 - International Field Course

Credits: 1-6

Max Credit (Max. 12)

This course takes students away from campus to locations outside the United States to study religion on site in its geographic and cultural context. Destination and specific content varies, but the course always requires attention to the connections between world events and local experiences.

A&S College Core 2015 ASG

Prerequisite: Junior standing; WA or COM1; other prerequisites as determined by the instructor.

RELI4961 - Domestic Field Course

Credits: 1-6
Max Credit (Max. 12)

This course takes students away from campus to other locations in the United States to study religion on site in its geographic and cultural context. Destination and specific content varies, but the course always requires attention to the religious, racial, ethnic, and cultural diversity of religion in the United States.

A&S College Core 2015 ASD
Prerequisite: Junior standing, WA or COM1.

Renewable Resources

RNEW1000 - Wyoming Wildlands: Science and Stewardship

Credits: 3
Introduces students to the breadth of Wyoming natural resources and ecosystems. In this class we investigate the science and management of the Wyoming landscape. Students are introduced to the rangelands, wildlife, forests, watersheds, and disturbed lands of Wyoming with an emphasis on understanding the ecology and natural history of the region. Throughout the course, students are exposed to how the extensive ecosystems of the West are managed by public and private groups and how human decisions change the landscape.

USP 2015 Code U5PN

RNEW2100 - Forest Management

Credits: 3
Principles of forest management. Topics include the laws affecting forest management, methods of harvesting wood from forests, fire and insect management, the effects of disturbances on stream flow and nutrient cycling, and the challenges of developing management plans for forests.

Cross Listed ENR 2100.
Prerequisite: LIFE 1101 or LIFE 1010.

RNEW3000 - Tropical Ecology

Credits: 3
Examines the characteristics of tropical ecosystems, how they evolved, their value to humans, their present status, and current issues relating to biodiversity, deforestation, extinction, and conservation.

Prerequisite: LIFE 1101 or LIFE 1010.

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3
Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

RNEW4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, PLNT 4400, RNEW 5400, PLNT 5400

Dual Listed RNEW 5400.

Prerequisite: LIFE 3400.

RNEW4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed BOT 4775.

Prerequisite: LIFE 3400.

RNEW4800 - Undergraduate Research

Credits: 1-3

Max Credit (Max. 18)

Undergraduate student research can be an important component in the intellectual and professional development of future scientists and land managers. Undergraduate students working with a faculty member in a research capacity can register for up to 3 credit hours per semester. The student and faculty member will identify an academic outcome that is associated with their research effort, such as a research paper, oral presentation, or poster session at an appropriate venue. Instructor's permission required.

RNEW4990 - Topics in:

Credits: 1-4

Max Credit (Max. 8)

Special topics pertaining to renewable natural resource management. Intended to accommodate instruction in various specialized subjects not offered on a regular basis. Students may enroll in more than one section of this course provided topics are different.

Dual Listed RNEW 5990.

Prerequisite: consent of the instructor to pursue study of the topic.

RNEW5200 - Spatial Analysis of Watersheds and Ecosystems

Credits: 3

Covers topics related to analysis of spatial and temporal processes at watershed and ecosystem scales using Geographic Information Systems (GIS). Topics include land classification and suitability analysis interpolation techniques, terrain analysis, model integration, and visualization. Sources of potential error and ramifications are examined.

Prerequisite: GEOG 4210 or equivalent.

RNEW5400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness as well as management strategies for invasive plant species.

Cross Listed PLNT 5400.

Dual Listed RNEW 4400.

Prerequisite: LIFE 3400.

RNEW5500 - Stable Isotope Ecology

Credits: 3

Application of stable isotope measurements to organismal and systems ecology. Lectures address the theory underlying the use of stable isotopes at natural abundance levels as tracers and integrators of important physiological and ecological processes. Laboratory exercises provide hands on experience with stable isotope ratio measurements.

Prerequisite: graduate classification in a natural science or agriculture discipline.

RNEW5540 - Shrubland Ecology

Credits: 3

Ecology of shrub-dominated lands and shrub species in grasslands. Location, importance and environmental constraints of shrub distributions. Topics include herbivory, woody plant invasions, competitive interactions, monitoring and population dynamics. Emphasizes familiarity with scientific literature.

Prerequisite: RNEW 3000, BOT 4700.

RNEW5545 - Shrub Ecology Trip

Credits: 2

Field study in North American shrublands of western US ecosystems. Participants learn from researchers, managers, field activities, required readings and written assignments. Participants will be camping and a fee is required.

Prerequisite: RNEW 5540.

RNEW5990 - Topics In Renewable Resources

Credits: 1-4
Max Credit (Max. 8)

Special topics pertaining to renewable natural resource management. Intended to accommodate instruction in various specialized subjects not offered on a regular basis. Students may enroll in more than one section of this course provided topics are different.

Dual Listed RNEW 4990.

Secondary Education

EDSE1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

EDSE3010 - Contemporary Philosophies in Technical Education

Credits: 1-3
Max Credit (Max. 3)

Provides industrial education students with a sound contemporary philosophy for curriculum development and instructional planning. Emphasis is placed on current programs, philosophies, history, youth group development and advisery committee activities.

When Offered (Offered through UW/CC)
Former Course Number [EDIE 3010]

Prerequisite: 8 credit hours of education course work.

EDSE3020 - Facilities and Advisery Management

Credits: 2-4
Max Credit (Max. 4)

Students engage in identifying RFP applications and applies for grants that are geared toward the Career Technical classroom as well as the process of assembling and managing an advisory committee, a required component of all CTE programs. Prepares Career Technical Teachers for the non-teaching requirements associated within CTE programs

Prerequisite: Junior standing in Career Technical Education and completion of Com 1 level writing course.

EDSE3030 - Construction Technology

Credits: 3

Introduces students to the principles and practices of the construction industry, through a combination of classroom and laboratory experiences. In addition, this course outlines the construction content area as taught in the technical education classroom and emphasizes development of curricula materials.

When Offered (Offered through UW/CC)

Prerequisite: 12 hours of technical content courses from an approved list.

EDSE3040 - Energy and Power Technology

Credits: 3

A conceptual analysis and synthesis of energy requirements and sources, with emphasis on alternate energy systems. Analysis of energy conversion and the application of mechanical, fluid, thermal and electrical power systems.

When Offered (Offered through UW/CC)

Former Course Number [EDIE 3040]

Prerequisite: PHYS 1050 or PHYS 1110.

EDSE3050 - Communications Technology

Credits: 3

Designed to give students knowledge and experience in the major concepts of graphic communications, including: communication, design, image generation and production practices of modern industry. Also covers curricular and pedagogical concerns related to teaching communications technology at the secondary school level.

When Offered (Offered through UW/CC)

Former Course Number [EDIE 3050]

Prerequisite: 12 credit hours of technical content courses from an approved list.

EDSE3270 - Subject Matter Specific Methods I: Secondary English Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in English Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4270.

EDSE3271 - Subject Matter Specific Methods I: Secondary Mathematics Education

Credits: 3-6

Max Credit (Max. 6)

Introduction of content and pedagogy in Mathematics Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4271.

EDSE3272 - Subject Matter Specific Methods I: Art Education K-12

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Art Education K-12.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4272.

EDSE3273 - Subject Matter Specific Methods I: Secondary Social Studies Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Secondary Social Studies Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4273.

EDSE3275 - Subject Matter Specific Methods I: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Science Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4275.

EDSE3276 - Subject Matter Specific Methods I: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Modern Language Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4276.

EDSE3277 - Tech Ed Methods I: Intro

Credits: 3-6
Max Credit (Max. 6)

Subject Matter Specific Methods I: Secondary Career and Technical Education. 3 Cr Introduction of content and pedagogy in Career Technical Education.

Prerequisite: grade of C or better in EDST 3100; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4277.

EDSE3278 - Subject Matter Specific Methods I: Secondary Agriculture Education

Credits: 3-6
Max Credit (Max. 6)

Introduction of content and pedagogy in Agriculture Education.

USP 2003-2014 Code U3WC

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; concurrent enrollment in EDSE 4278.

EDSE3540 - Teaching Reading and Study Strategies in the Content Areas

Credits: 2-4

Provides students majoring in secondary education programs with a knowledge of reading factors as they relate to various disciplines. Content includes estimating students' reading ability, techniques for vocabulary development, questioning strategies, and developing reading related study skills.

Former Course Number [EDCI 3540]

Prerequisite: junior standing and minimum 12 hours in discipline area.

EDSE4070 - Educational Trends in (TOPIC)

Credits: 1-3
Max Credit (Max. 6)

Provides reading, discussion, research and appraisal of new methods, materials, equipment and experimental programs concerned with improvement of education as it pertains to areas of secondary education: agricultural, art, English, mathematics, middle school, modern language, science, and social studies education. The maximum allowable credit applies to the total offerings under this number.

Former Course Number [EDAS 4070, EDVE 4070]

Prerequisite: 6 hours of education.

EDSE4270 - Subject Matter Specific Methods II: Secondary English Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in English Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3270/EDCI 5250.

EDSE4271 - Subject Matter Specific Methods II: Secondary Mathematics Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Mathematics Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3271/EDCI 5250.

EDSE4272 - Subject Matter Specific Methods II: Art Education K-12

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Art Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3272/EDCI 5250.

EDSE4273 - Subject Matter Specific Methods II: Secondary Social Studies Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Social Studies Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative

GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3273/EDCI 5250.

EDSE4274 - Subject Matter Specific Methods II: Music Education K-12

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Music Education.

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3274/EDCI 5250.

EDSE4275 - Subject Matter Specific Methods II: Secondary Science Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Science Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3275/EDCI 5250.

EDSE4276 - Subject Matter Specific Methods II: Secondary Modern Language Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Modern Language Education.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3276/EDCI 5250.

EDSE4277 - Subject Matter Specific Methods II: Secondary Technology Education

Credits: 3-6
Max Credit (Max. 6)

Advanced content and pedagogy in Industrial Technology Education.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3277/EDCI 5250.

EDSE4278 - Subject Matter Specific Methods II: Secondary Agriculture Education

Credits: 3-6

Max Credit (Max. 6)

Advanced content and pedagogy in Agriculture Education.

USP 2015 Code U5C3

Prerequisite: grade of C or better in EDST 3100/EDCI 5550; Background check on file; 2.750 overall UW cumulative GPA; 2.500 in content GPA (grade of C or better in specific content courses required in major); concurrent enrollment in EDSE 3278/EDCI 5250.

EDSE4279 - Subject Matter Specific Methods II: Biological Science Methods for Agricultural Education Majors

Credits: 3

Provide meaningful learning in preparation for a professional career in a secondary school setting, teaching life science courses in addition to agriculture classes. Students will be engaged as active participants in discussions and hands-on science activities. The course is designed to offer experiences to enhance pedagogical content knowledge as well as skills to successfully make science education accessible for all students. Special attention will be given to creating a learning environment that fosters the development of inquiry skills and safety both in the classroom and field settings.

Prerequisite: Grade of C or better in EDST 3100, 2.750 minimum GPA in major content courses, grade C or better in specific content courses required in the Secondary Biology Endorsement.

EDSE4280 - Subject Matter Specific Methods: Computer Science

Credits: 2

Introduction of content and pedagogy in Computer Science Education. Includes pedagogy, pedagogical content knowledge, and contact curriculums for teaching computer science at secondary school levels. A variety of instructional procedures will be employed including group work, modeling, lab work, micro-teaching, and lecture/demonstration.

Prerequisite: COSC 3100 or concurrent enrollment and COSC 3020.

EDSE4500 - Residency in Teaching

Credits: 1-16

Max Credit (1-16; Max. 24 based on Transfer Student transcript evaluation)

Comprises the final professional academic semester of the teacher education program. A full-time residency, including a period of being intensively mentored and coached, a period of independent teaching and a period of team teaching.

Cross Listed EDEL 4500.

Former Course Number [EDUC 4500]

Prerequisite: 2.750 cumulative GPA, 2.500 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

EDSE4550 - Residency Applications and Synthesis

Credits: 3

The purpose of this course is for the student to demonstrate professional competency in planning for, implementing, assessing the success of, and reflecting upon a series of cohesive lessons for the secondary classroom through the assignments provided.

Prerequisite: Requires an active Student Teaching placement. And

A grade of "C" or better in EDSE 42XX (secondary content-appropriate methods course)

Corequisite: EDSE 4500

EDSE4900 - Best Practices Active Learning

Credits: 1

This course is a seminar aimed at discussing active learning in large-scale classrooms and best practices for engaging students. The target audience for this course are post-baccs, education majors, and undergraduates serving as learning assistants in large classrooms. Having some in-class teaching experience is advantageous but not necessary.

Dual Listed EDSE 5900.

Restricted Restricted to LAMP Scholar Learning Assistants and Supplemental Instructors (LeaRN Program).

EDSE4975 - Independent Study

Credits: 1-3

Max Credit (Max. 6)

Primarily for upper-division students who can benefit from independent study with minimal supervision. Given to allow interested students to pursue specific aspects of curriculum and instruction. EDEL 4975.

Cross Listed EDEL 4975.

Former Course Number [EDCI 4975]

Prerequisite: 12 hours of education courses and consent of instructor.

EDSE5900 - Best Practices Active Learning

Credits: 1

This course is a seminar aimed at discussing active learning in large-scale classrooms and best practices for engaging students. The target audience for this course are post-baccs, education majors, and undergraduates serving as learning

assistants in large classrooms. Having some in-class teaching experience is advantageous but not necessary.

Dual Listed EDSE 4900.

Restricted Restricted to LAMP Scholar Learning Assistants and Supplemental Instructors (LeaRN Program).

Science Education

ESCI5100 - Science Education Research Colloquium

Credits: 1

The overarching goal of this graduate course is for Ph. D. students to be exposed to the most recent research methods, results, and implications of research on science education.

Prerequisite: Graduate standing.

ESCI5200 - Contemporary Science Education Research

Credits: 3

Develop a deep understanding of, and become conversant in, the current trends in research methodology and contemporary scholarly literature in science education research.

Prerequisite: Graduate standing.

ESCI5250 - Cognition and Learning in Science and Math Education

Credits: 3

Develop a deep understanding of, and become conversant in, the current learning sciences literature of cognition and learning focusing on how students learn science and mathematics.

Prerequisite: Graduate standing.

ESCI5300 - Research in Science Education I

Credits: 3

Students develop a deep understanding of, and become conversant in, contemporary research methods in science education. This course focuses on identifying research questions based on gaps in the literature, designing strategies to collect quantitative and/or qualitative evidence, and conducting the first phases of data collections and analysis.

Prerequisite: Graduate standing.

ESCI5350 - Research in Science Education II

Credits: 3

Part two of the Research in Science Education sequence. Building on the research started in ESCI 5300, students finalize analysis, develop findings, conclusions and implications, and create a viable journal article manuscript.

Prerequisite: Graduate standing and ESCI 5300.

ESCI5600 - History and Philosophy of Science and Mathematics Education

Credits: 3

Focuses on key individuals, theories and events of the past century which have contributed to the formation of current views, ideas, theories, and practices in mathematics and science education.

Prerequisite: Graduate student status.

ESCI5610 - Informal Science Learning Environment

Credits: 3

This course examines the literature, issues and opportunities related to informal science education environments, such as museums, planetariums, and extracurricular K-12 organizations.

Prerequisite: Graduate standing.

ESCI5630 - Science Teacher Ed & K12 Professional Development

Credits: 3

Addresses philosophies, research, theories and current issues related to pre-service science teacher education and in-service science teacher professional development. This course fulfills core requirements in the Science Education PhD program option.

Prerequisite: Graduate student status.

Social Work

SOWK1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical, and cultural aspects of leadership, grassroots women's leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed GWST 1900.

USP 2003-2014 Code U3L,U3O

Prerequisite: one course in women's studies.

SOWK2000 - Introduction to Social Work

Credits: 3

Introduces social work and social welfare through an overview of the history, philosophy, ethics, values, methods, and

fields of practice to generalist social work.

Former Course Number [3000]

Prerequisite: Sophomore standing or higher and completion of USP-C2 with a grade of C or higher.

SOWK3530 - Human Behavior and the Social Environment I

Credits: 3

Covers theories and knowledge of human bio-psycho-social-spiritual development and social interactions within a systems framework. Introduces theories of individuals and families and their development. Paradigms of culture, marginalization and oppression are examined.

USP 2003-2014 Code U3CS

Prerequisite: admitted social work major status.

SOWK3540 - Human Behavior and Social Environment II

Credits: 3

Covers theories and knowledge of human bio-psycho-social-spiritual development and social interactions within a systems framework, with a focus on groups, communities, organizations and institutions.

USP 2003-2014 Code U3CS

Prerequisite: SOWK 3530 with a C or better and admitted social work major status.

SOWK3630 - Generalist Social Work Practice I, Individual and Families

Credits: 3

Introduces generalist social work practice at all systems' levels, with focus on individuals and families. It covers the nature of social work practice, theoretical perspectives, ethics and values, engagement, assessment, intervention and evaluation processes and skills.

Prerequisite: admitted social work major status.

SOWK3640 - Generalist Social Work Practice II, Groups

Credits: 3

Focuses on group work within the generalist social work perspective, covering theoretical perspectives, ethics and values, and problem-solving skills applied to task and treatment groups.

Prerequisite: SOWK 3630 and SOWK 3530 with a C or better and admitted major status.

SOWK3645 - Ethical Social Work Practice

Credits: 3

Focuses on the ethical principles that undergird the practice of social work, addresses how to practice ethically, and explores the process of ethical decision-making. Social work practice with various client systems will be considered, as well as practice in varied settings.

SOWK3650 - Generalist Social Work Practice III; Communities and Organizations

Credits: 3

Teaches engagement, assessment, intervention and evaluation with organizations, communities and institutions within the generalist social work perspective.

Prerequisite: SOWK 3630 with a C or better; SOWK 3540 pre or concurrent; admitted social work major status.

SOWK4020 - Disability Studies Theory and Practice

Credits: 3

Explores the interdisciplinary nature of disability studies theory and scholarship, including investigation of embodied knowledge, cultural meanings, and socio-political practices related to disability. Students will develop in-depth critical disability research papers and deliver accessible, professional presentations.

Cross Listed WIND 4020.

Dual Listed SOWK 5020

USP 2003-2014 Code U3CS

USP 2015 Code U5C3

Prerequisite: WIND 2100 or WB/COM2.

SOWK4060 - Diversity and Difference in Social Work Practice

Credits: 3

Practice class examines social works' roles and issues related to human diversity. Social work values and ethics and social and economic justice are explored throughout.

USP 2003-2014 Code U3D

Prerequisite: admitted social work major status.

SOWK4083 - Social Work and Health Care

Credits: 3

Max Credit 3

Identifies and addresses social work issues related to health, such as medical social work, public health, and health promotion.

Prerequisite: Any admitted BSW/MSW student; OR permission of instructor, junior standing, and completion of a USP-COM2 course. Priority given to admitted social work students.

SOWK4084 - Professional Social Work Practice: Alcohol and Other Drugs

Credits: 3

Examines alcohol and substance abuse and social work's role in varied practice settings. Issues explored include medical considerations in alcohol abuse, social and familial challenges, as well as social work values and ethics, and concern for populations-at-risk.

Dual Listed SOWK 5084.

Prerequisite: SOWK 3630 and Admitted Major status; a WB or COM2 course and junior standing for non-social work majors.

SOWK4480 - Introduction to Aging Services

Credits: 3

Surveys issues in aging and social work's role, status and function in the field of gerontology.

Prerequisite: SOWK 2000 or consent of instructor.

SOWK4550 - Child Welfare Services

Credits: 3

Examines issues of child and family welfare in the context of national, state, and local policy and practice. Social and economic justice are examined as they relate to interventions with children and families.

Dual Listed SOWK 5550.

Former Course Number [3550]

Prerequisite: SOWK 2000; SOWK 3530.

SOWK4560 - Social Work Research

Credits: 3

Max Credit 3

Introduces social work research and practice evaluation. Prepares students to use research in practice.

Restricted Include: SOWK students (= admitted majors), Exclude: Freshman & Sophomore class standing

Prerequisite: Admitted social work major status.

SOWK4570 - Research-Informed Practice

Credits: 3

Learn about and engage in methods of research applicable to their social work practice. Competence in methods such as single system design and program evaluation will be assessed in this course.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SOWK 4560 with a C or better and admitted social work major status.

SOWK4780 - Seminar: _____

Credits: 1-9

Max Credit (Max. 15)

Consideration of special topics of current interest in social work. May be repeated for a maximum of 15 hours credit when the seminar topic is different. Registration priority will be given to admitted social work students. Dual listed with SOWK 5800

Dual Listed SOWK 5800

Prerequisite: Any admitted BSW student; OR consent of instructor and junior standing with completion of a USP-COM 2 course.

SOWK4850 - Human Rights, Social Justice and Social Policy

Credits: 3

Examines human rights, social welfare policy, and social, political and economic justice, as well as systems that oppress and create injustice, both in the US and internationally. A focus of the course will be the analysis of social welfare policy as it affects social justice issues.

Restricted Include: BSW-SOWK major, Exclude: Freshman & Sophomore class standings

Prerequisite: SOWK 4060 and admitted social work major status

SOWK4881 - International Social Welfare and Social Development

Credits: 3

Examines the basic framework of social welfare analysis and social development programming in the international arena, employing a multinational comparative analysis approach to explore the wide array of responses to social need across the globe. Students employ multinational comparative analyses to an area of social concern.

Cross Listed INST 4881.

Dual Listed SOWK 5881

USP 2003-2014 Code U3G

Prerequisite: POLS 1000; ECON 1010 recommended.

SOWK4980 - Independent Study

Credits: 1-3

Max Credit (Max. 6)

Consideration of topics of current social work interest in consultation with a member of the faculty.

Prerequisite: advanced major status and consent of instructor.

SOWK4990 - Social Work Practicum

Credits: 5-10

Max Credit (Max. 10)

Represents the culmination of preparation for entry level generalist social work practice. Supervised practice in the knowledge, values and skills learned in the classroom.

Prerequisite: SOWK 3640, SOWK 3650 and application to the field program.

SOWK4991 - BSW Field Seminar I

Credits: 2

Develops and supports student integration of classroom and field practicum experiences in a final demonstration of competencies for the beginning practitioner. This course is taken in Fall, concurrent with SOWK 4990, Field Practicum.

Prerequisite: concurrent enrollment in SOWK 4990.

SOWK4992 - BSW Field Seminar II

Credits: 2

Develops and supports student integration of classroom and field practicum experiences in a final demonstration of competencies for the beginning practitioner.

Prerequisite: taken concurrently with SOWK 4990, Field Practicum.

SOWK5020 - Disability Studies Theory and Practice

Credits: 3

Explores the interdisciplinary nature of disability studies theory and scholarship, including investigation of embodied knowledge, cultural meanings, and socio-political practices related to disability. Students will develop in-depth critical disability research papers and deliver accessible, professional presentations.

Cross Listed WIND 5020.

Dual Listed SOWK 4020

USP 2015 Code U5C3

SOWK5081 - Assessment and the DSM

Credits: 3

Through a psychiatric social work lens students will become familiar with the process of conducting a diagnostic interview, writing psychiatric assessment including a mental status exam and formulating a diagnosis using the Diagnostic and Statistical Manual of Mental Disorders. This course assumes some knowledge of mental health and mental illness.

Prerequisite: graduate standing.

SOWK5084 - Professional Social Work Practice: Alcohol and Other Drugs

Credits: 3

Examines alcohol and substance abuse and social work's role in varied practice settings. Issues explored include medical considerations in alcohol abuse, social and familial challenges, as well as social work values and ethics, and concern for populations-at-risk.

Dual Listed SOWK 4084.

Prerequisite: SOWK 3630 and Admitted Major status; a WB or COM2 course and junior standing for non-social work majors.

SOWK5100 - Principles and Philosophy of Social Work

Credits: 3

Explores the history, traditions, ethics, purpose, philosophy, and knowledge base of the social work profession. Introduces the 10 core competencies of the MSW curriculum and the generalist social work perspective in rural settings using the problem-solving approach.

Prerequisite: admission into the MSW program.

SOWK5115 - Social Welfare Policy: Human Rights and Social Justice

Credits: 3

Examines human rights and social and economic justice from a social work perspective, as well as systems that oppress and create injustice in the US and internationally.

Prerequisite: admission to the MSW program.

SOWK5120 - MSW Foundation Field Seminar I

Credits: 1

Develops and supports student integration of classroom and field practicum experiences in a seminar-style discussion of core competencies for the foundation year MSW student.

Prerequisite: taken concurrently with SOWK 5450.

SOWK5121 - MSW Foundation Field Seminar II

Credits: 1

Develops and supports student integration of classroom and field practicum experiences in the 2nd seminar-style discussion course of core competence for the foundation year MSW student.

Prerequisite: taken concurrently with SOWK 5460.

SOWK5200 - Human Beh & Soc Environmt I

Credits: 3

Max Credit 3

A theoretical examination of human behavior and the social environment, focusing on individuals, families and small groups in the context of human life cycle development. Emphasizes issues of human diversity and social and economic justice in the context of the environment.

Prerequisite: SOWK 5100 and admission into the MSW program.

SOWK5210 - Human Behavior and the Social Environment II

Credits: 3

A theoretical examination of human behavior in the social environment, focusing on groups, communities, organizations and institutions. Emphasizes issues of human diversity and social economic justice.

Prerequisite: SOWK 5200.

SOWK5300 - SW Generalist Practice I

Credits: 3

Immerses beginning students into critical social work theory and social justice practice from a strengths-based perspective, emphasizing diversity/ethics/values/knowledge relative to clients and human service setting in a frontier state, emphasizing a system's framework. Requires beginning mastery of engagement, assessment, intervention, and evaluation.

Prerequisite: Admission into the MSW program.

SOWK5310 - Generalist Social Work Practice II

Credits: 3

Applies social work skills, values and knowledge to the engagement, assessment, intervention and evaluation processes with groups, organizations and communities. Emphasis on ethics and diversity in practice.

Prerequisite: admission into the MSW program; must have completed SOWK 5300.

SOWK5400 - Social Work Generalist Research Methods

Credits: 3

Covers design, implementation and interpretation of research in social work practice settings. Presents methods of program evaluation and practice research at all system levels using both quantitative and qualitative research methodologies.

Prerequisite: admission into the MSW program.

SOWK5450 - Field Practicum I

Credits: 3

Provides the opportunity for students to learn through experience the skills of entry-level generalist social work practice. The course consists of supervised practice, in a community service agency, of social work knowledge, values and skills learned in the classroom.

Prerequisite: Students must have completed, or be concurrently enrolled in, SOWK 5100, SOWK 5200, SOWK 5300, and SOWK 5400.

SOWK5495 - Social Work Research and Analysis

Credits: 3

Designed for MSW advanced standing students to address research methods and analysis in the context of the generalist problemsolving approach.

Prerequisite: admission to the MSW advanced standing program; concurrent enrollment in SOWK 5499.

SOWK5499 - Advanced Generalist Social Justice Practice

Credits: 3

Initiates professional development from BSW practitioner to MSW intergrated advanced generalist practitioner. Course covers theory and practice from a strengths-based perspective, ethics, and values, social justice practice with emphasis on engagement, assessment, intervention, and evaluation. Focus on theory-informed, evidence-based practice models.

Prerequisite: Admission to the MSW advanced standing program.

SOWK5500 - Advanced Policy: Advocacy and Social Action

Credits: 3

Advanced generalist course builds on foundation and advanced year courses to prepare students to conduct comparative and advanced policy analysis and develop practice/ advocacy components. Emphasis is given to policy practice issues that address economic and social justice, diversity, populations at risk, and ethics and values.

Prerequisite: SOWK 5310 and SOWK 5115 or advanced standing.

SOWK5550 - Child Welfare Services

Credits: 3

Examines issues of child and family welfare in the context of national, state, and local policy and practice. Social and economic justice are examined as they relate to interventions with children and families.

Dual Listed SOWK 4550.

Prerequisite: admission to advanced standing or SOWK 5100 and SOWK 5200.

SOWK5600 - Advanced Generalist Practice

Credits: 3

Advanced applications of generalist problem-solving theories and skills in working with individuals and groups in the context of their environment. Issues of ethics, rural practice, diversity, and evaluations of practice addressed throughout the course.

Prerequisite: SOWK 5300 and SOWK 5310 or advanced standing.

SOWK5700 - Advanced Theories and Practice with Children and Families

Credits: 3

Advanced applications of generalist problem-solving theories and skills in working with children and families in the context of their environment. Issues of ethics, rural practice, diversity, and evaluations of practice addressed throughout the course.

Prerequisite: SOWK 5300 and SOWK 5310 or advanced standing.

SOWK5705 - Generalist Practice III: Group

Credits: 3

This course builds on students' generalist practice knowledge by enhancing their conceptual base and practice skills of social group work, encompassing the continuum from treatment to task oriented groups. The course content highlights the strengths oriented values of social group work and its potential for mutual aid and empowerment.

Prerequisite: SOWK 5300 and SOWK 5310 or advanced standing.

SOWK5720 - Leadership Prac in Comm & Orgs

Credits: 3

This course emphasizes advanced understanding and application of models of rural community practice, for promotion of just practice among diverse client systems. Methods and principles of leadership, supervision, and administration in human service organizations are addressed. Special attention is given to adapting models based on ethical considerations and cultural relevance.

Prerequisite: SOWK 5300 , SOWK 5310

SOWK5750 - Applied Research: Practice Evaluation

Credits: 3

This research-informed practice course focuses on the theory and use of small system design and program evaluation to evaluate one's social work practice.

Prerequisite: SOWK 5400.

SOWK5755 - Practice Evaluation

Credits: 1-12
Max Credit (Max. 12)

Complete a non-thesis Plan B practice evaluation paper of quality, working with a committee structure. Must complete a minimum of two credit hours of 5755.

Prerequisite: SOWK 5750; or advanced standing status and SOWK 5495.

SOWK5795 - Rural Health Care Seminar

Credits: 3
Examines social work and rural health and medical care for individuals, families and larger systems through policy, practice, and research. Includes a focus on the health and health care of older adults.

Prerequisite: consent of instructor, graduate standing, participation in WYO HealthCARE Inter-disciplinary rural training grant.

SOWK5800 - Advanced Seminar in Social Work

Credits: 1-3
Max Credit (Max. 15)

Consideration of special topics of current interest in social work. May be repeated for a maximum of 15 hours credit when the seminar topic is different. Registration priority will be given to admitted social work students. Dual listed with SOWK 4780

Dual Listed SOWK 4780
Restricted Include: SOWK-MSW majors, Exclude: undergraduate students

Prerequisite: Any admitted MSW student; OR consent of instructor and graduate standing

SOWK5810 - Working with Children and Families in the Schools

Credits: 3
Enhances knowledge, skills, and values of the generalist social worker serving children of diverse backgrounds and their families in the school and its environment, preparing the social worker for a leadership role in a rural school setting.

Prerequisite: graduate standing.

SOWK5820 - School Social Work

Credits: 1
Builds on the skills developed in SOWK 5810, advancing the knowledge, values and skills necessary for school social

work. Students integrate observations of school social work settings with theory and practice, and personal evaluation, within this seminar. Public school law and policy are highlighted.

Prerequisite: successful completion of SOWK 5810.

SOWK5850 - Advanced Field Practicum

Credits: 2-10

Max Credit (Max. 10)

Provides advanced generalist social work practice experience in a community human service organization. Emphasizes core competencies and advanced generalist practice behaviors in social work ethics, values, theory, skills, practice and research in relation to social work with individuals, groups, families, organizations, and communities.

Prerequisite:

SOWK5855 - MSW Advanced Field Seminar I

Credits: 1

Supports the advanced year MSW student's experience in the field practicum. This course is taken concurrently with SOWK 5850.

Prerequisite: taken concurrently with SOWK 5850.

SOWK5856 - MSW Advanced Field Seminar II

Credits: 1-8

Max Credit (Max. 8)

Supports the advanced year MSW student's experience in the field practicum. To be taken concurrently with SOWK 5850, spring semester.

Prerequisite: SOWK 5855; concurrent with SOWK 5850.

SOWK5881 - International Social Welfare and Social Development

Credits: 3

Examines the basic framework of social welfare analysis and social development programming in the international arena, employing a multinational comparative analysis approach to explore the wide array of responses to social need across the globe. Students employ multinational comparative analyses to an area of social concern.

Cross Listed INST 5881.

Dual Listed SOWK 4881

Prerequisite: POLS 1000; ECON 1010 recommended.

SOWK5887 - American Indian Health

Credits: 3

Studies the impact of federal policy on development of American Indian Health programs and the current status of American Indian health.

Prerequisite: admission into graduate program.

SOWK5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SOWK5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SOWK5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Scholarly research that contributes to the social work profession and applied social science fields. Student designs and carries out original research under the supervision of a social work faculty member. Thesis research is done as an individual research project.

Prerequisite: enrollment in a graduate degree program.

SOWK5975 - Independent Study

Credits: 1-3

Max Credit (Max. 3)

In-depth exploration of a social work topic in consultation with a social work faculty member.

Prerequisite: consent of instructor.

Sociology

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and

theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1100 - Social Problems and Issues

Credits: 3

Explores various approaches to defining and identifying social problems and applies basic sociological concepts and methods to analysis of selected social problems and issues.

USP 2003-2014 Code U3I,U3L

SOC1350 - American Indians in Contemporary Society

Credits: 3

Survey lecture course. Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture are explored.

Cross Listed NAIS 1350.

USP 2003-2014 Code U3CS,U3D

A&S College Core 2015 ASD

SOC2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, STAT 2070, STAT 4220, STAT 5520.

Cross Listed STAT 2070.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Former Course Number [2000]

Prerequisite: MATH 1000, MATH 1400 or equivalent.

SOC2350 - Race and Ethnic Relations

Credits: 3

Examines social relations among majority and minority groups by devoting particular attention to race and ethnic relations in the U. S. Encompasses sociological approach to this topic, which emphasizes power structures, economic relationships and cultural traditions historically and today. Devotes attention to social psychological issues, such as prejudice, and social structural issues, such as class inequality.

USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: SOC 1000.

SOC2400 - Criminology

Credits: 3

Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed CRMJ 2400.

Former Course Number [3300]

Prerequisite: SOC 1000.

SOC2682 - Research Methods in SOC

Credits: 3

Max Credit 3

Introduces students to fundamental issues associated with the application of scientific methods to social science problems. Students examine research designs involving ethnographic, archival, historical, and quantitative methods and how they relate to social science issues.

Cross Listed CRMJ 2685

Restricted Criminal Justice or Sociology majors and minors

Prerequisite: CRMJ 1001 OR SOC 1000

SOC2685 - Research Methods

Credits: 3

Max Credit 3

Introduces students to fundamental issues associated with the application of scientific methods to social science problems. Students examine research designs involving ethnographic, archival, historical, and quantitative methods and how they relate to social science issues.

Cross Listed CRMJ 2685

Restricted Criminal Justice or Sociology majors and minors

Prerequisite: CRMJ 1001 OR SOC 1000

SOC3000 - Social Change

Credits: 3

Studies causes, processes and consequences of structural transformations in historical and comparative perspective. Reviews and assesses forces that account for sociological changes. Explores social change globally as well as in the U. S.

Cross Listed INST 3000.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG
Former Course Number [2100]

Prerequisite: SOC 1000 and junior standing.

SOC3100 - Chinese Society

Credits: 3

Reviews origins and consequences of Chinese revolution in comparative and cultural perspectives. Discusses influence of historical traditions and social structure on individual lives and behavioral patterns.

Cross Listed INST 3100.
USP 2003-2014 Code U3G
Prerequisite: SOC 1000.

SOC3110 - Self and Society

Credits: 3

Considers social behavior at the micro level, emphasizing the influence of society on the individual's thoughts, emotions and behaviors. Topics such as the development of the self over the life course, the self in social interaction, and the role of attitudes and emotions in social interaction are discussed.

Former Course Number [2110]

Prerequisite: SOC 1000 or PSYC 1000.

SOC3140 - Sociology of the Family

Credits: 3

Two major themes of the course are change experienced by the family institution and the centrality of the family in America today. Subjects that are covered include: A brief history of the family in the U. S. , kinship, family structure, mate-selection, marriage, divorce and socialization.

Former Course Number [4100, 4140]

Prerequisite: SOC 1000.

SOC3150 - Collective Behavior and Social Movements

Credits: 3

Analyzes and explains fads, fashions, rumors, riots and mass behavior in light of theoretical frameworks. Studies social movements including blacks, women, labor, religions and students.

Prerequisite: SOC 1000.

SOC3200 - Sociology of Religion

Credits: 3

Introduces various ways sociologists interpret religion. Explores the nature of relationships between religion and society.

Prerequisite: SOC 1000.

SOC3250 - Juvenile Delinquency

Credits: 3

Considers the nature of delinquency, including an analysis of treatment methods and the juvenile justice system.

Cross Listed CRMJ 3250.

Prerequisite: CRMJ 2400/SOC 2400.

SOC3400 - Deviant Behavior

Credits: 3

Examines theory and research relevant to understanding deviant behavior in general and specific types of individual and subcultural deviancy.

Cross Listed CRMJ 3400.

Former Course Number [4200]

Prerequisite: SOC 1000.

SOC3500 - Sociology of Gender

Credits: 3

Explores gender through a cultural and structural approach. The cultural approach emphasizes the variability in social expectations for men and women across time and place; the structural approach analyzes the effect of social institutions such as family, government, education, and the economy of gender.

A&S College Core 2015 ASD

Prerequisite: SOC 1000.

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

SOC3605 - Sociology of Education

Credits: 3

An introductory overview of the principal areas of inquiry in the field. Students learn relevant theories and concepts, principal methodological approaches as well as important current issues in education. Comparative analysis may focus on historical comparisons, national/ global comparisons, U. S. regional, and/or variant educational systems at the local level.

Prerequisite: SOC 1000.

SOC3640 - Social Inequality

Credits: 3

Focuses on the structure and consequences of unequal access to political, economic and social benefits in U. S. society and the world. This course critically examines institutional arrangements that perpetuate and are supported by inequality and stratification, as well as patterns of social mobility.

A&S College Core 2015 ASD

Former Course Number [4000, 4050]

Prerequisite: SOC 1000.

SOC3880 - Political Sociology

Credits: 3

Study of political theory, political organization, political mobilization, the state, nation-building, national identity, post-nationalism, the relationship between the state and markets, historic formation of the nation-state, and the changing role of the state in a global context.

Prerequisite: SOC 1000.

SOC3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed INST 3910.

A&S College Core 2015 ASG
Former Course Number 4110

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

SOC4020 - Sociology of Work

Credits: 3

Examines social organization of work-especially in response to change in technology, demands for equal opportunity, size and goals of firms and desires for meaningful work. Historically and comparatively analyzes work-life experiences shaping of labor markets and role of collective action. Explores impact of the labor process on distribution of society's material and symbolic rewards.

Dual Listed SOC 5020.

Former Course Number [4560]

Prerequisite: SOC 1000, MGT 2100 or ECON 1010.

SOC4160 - Sociology of Aging

Credits: 3

The process of aging from the individual to the societal level is the focus of the course. Consequences of this process such as the increase in the number of elderly, retirement and health are examined from the major social institutions, the relationships between these institutions and American society as a whole.

Dual Listed SOC 5160.

Former Course Number [4150]

Prerequisite: 6 hours of sociology (including SOC 1000) and at least junior standing.

SOC4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an

analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed CRMJ 4350.

Dual Listed SOC 5350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

SOC4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed INST 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 3000.

SOC4440 - Deviance and Social Control

Credits: 3

In-depth examination of theory and research on the social construction and social control of deviance.

Dual Listed SOC 5440.

Prerequisite: 9 hours of SOC courses and upper division standing.

SOC4500 - Sociology of Organizations

Credits: 3

Complex organizations have been described as the dominant feature of modern societies. Organized on the basis of bureaucratic modes of administration, they dominate contemporary societal institutions, such as the economy, the polity, education, religion, and the military. This course investigates basic structures and processes of all types of complex organizations.

Prerequisite: 6 hours of SOC including SOC 1000 and junior/senior or graduate student standing.

SOC4650 - Urban Sociology

Credits: 3

Considers growth of metropolis and its impact upon modern life.

Dual Listed SOC 5650.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3WC

Prerequisite: SOC 1000 and junior standing.

SOC4705 - Terrorism

Credits: 3

Examines the concept, causes, incidence, types, consequences of, and responses to terrorism. Highlights the distinction between domestic and international terrorism and expands on the latter within the framework of the global environment.

Cross Listed CRMJ 4705, INST 4705, and POLS 4705.

Prerequisite: 9 hours in CRMJ, INST, POLS, or SOC coursework.

SOC4715 - Sociological Theory

Credits: 3

Examines the emergence and development of sociological theory in the writings of thinkers such as Marx, Durkheim, and Weber. Explores continuities and discontinuities between the classical period of sociological theory and contemporary schools such as functionalism, conflict theory, neo-Marxian theories, symbolic interactionism, phenomenology, and rational choice/exchange theory.

Dual Listed SOC 5715.

Former Course Number [3700, 3900]

Prerequisite: 9 credit hours of sociology, including SOC 1000.

SOC4750 - Sociology Internship

Credits: 1-12

Integrates practical experience with academic knowledge. Students participate in specifically assigned duties and observe broader activities of the sponsoring organization, and reflect upon these experiences through written assignments.

Former Course Number 4970 **Restricted** Junior Standing

Prerequisite: 2.5 cumulative GPA, completion of at least 6 upper division hours in SOC courses and consent of instructor. Registration for more than 6 hours requires permission of the Department Head.

SOC4805 - Global Population Issues

Credits: 3

Considers population structure and demographic transition, with applications to topics such as global population growth, population aging, health, family, migration, urbanization, environment.

Dual Listed SOC 5805.

A&S College Core 2015 ASG

Prerequisite: SOC 1000 and SOC/STAT 2070 or equivalent.

SOC4850 - Conference

Credits: 1-6

Considers topics of current sociological interest in consultation with a faculty member.

Prerequisite: senior standing and 15 hours of sociology.

SOC4890 - Special Topics in

Credits: 1-3

Accommodates seminar series and/or course offering by visiting faculty whose subject matter is not included in other courses.

Prerequisite: junior standing and consent of department.

SOC4900 - Seminar

Credits: 3-6

Considers special topics of current sociological interest. May be repeated for maximum of 6 hours credit when topic of seminar is different.

Prerequisite: consent of instructor.

SOC5000 - Advanced Sociological Theory

Credits: 3

A consideration of the nature of theory and the major theoretical perspectives in sociology.

Prerequisite: SOC 3900 or equivalent.

SOC5020 - Sociology of Work

Credits: 3

Examines social organization of work-especially in response to change in technology, demands for equal opportunity, size and goals of firms and desires for meaningful work. Historically and comparatively analyzes work-life experiences shaping of labor markets and role of collective action. Explores impact of the labor process on distribution of society's material and symbolic rewards.

Dual Listed SOC 4020.

Prerequisite: SOC 1000, MGT 2100 or ECON 1010.

SOC5050 - Social Inequality

Credits: 3

Focuses on the structure and consequences of unequal access to political, economic and social benefits in the U. S. and the world. Critically examines institutional arrangements that perpetuate and are supported by inequality and stratification, as well as patterns of social mobility.

Former Course Number [4000]

SOC5070 - Statistical Methods for the Social Sciences

Credits: 3

General statistical analyses and their application to the social sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs are utilized. Credit cannot be earned in more than one of the following courses: STAT 2110, STAT 3050, STAT 5050, 5060, STAT 5070, STAT 5080.

Cross Listed STAT 5070.

Prerequisite: one course in statistics (all introductory courses except STAT 2000).

SOC5100 - Advanced Social Research Methods

Credits: 3

In-depth survey of research concepts and methods with emphasis on application that culminates in the designing and execution of a research project by the student.

Prerequisite: SOC 5070 or equivalent.

SOC5140 - The Family

Credits: 3

Two major themes of the course are change experienced by the family institution and the centrality of the family in America today. Subjects that are covered include: A brief history of the family in the United States, kinship, family structure, mate-selection, marriage, divorce, and socialization.

Dual Listed SOC 4140.

Prerequisite: 6 hours in sociology including SOC 1000 and at least junior standing.

SOC5160 - Sociology of Aging

Credits: 3

The process of aging from the individual to the societal level is the focus of the course. Consequences of this process such as the increase in the number of elderly, retirement and health are examined for the major social institutions, the relationships between these institutions and American society as a whole.

Dual Listed SOC 4160.

Prerequisite: 6 hours of sociology including SOC 1000 and at least junior standing.

SOC5200 - Conference

Credits: 1-8

Max Credit (Max. 8)

Consideration of topics of current sociological interest in consultation with a member of the faculty.

Prerequisite: consent of instructor.

SOC5250 - Seminar

Credits: 3

Max Credit (Max. 12)

Consideration of topics of sociological interest in the content of a graduate seminar. Cannot be dual-listed with any course below the 5000 level. May be repeated for credit when the topic of the seminar is different.

Prerequisite: consent of instructor.

SOC5350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed CRMJ 4350.

Dual Listed SOC 4350.

SOC5440 - Deviance and Social Control

Credits: 3

In-depth examination of theory and research on the social construction and social control of deviance.

Dual Listed SOC 4440.

Prerequisite: graduate standing.

SOC5540 - Stratification and Inequality

Credits: 3

In-depth survey of sociological theory and research on substantive issues such as social class structure, racial/ethnic relations, and gender stratification.

Prerequisite: graduate standing.

SOC5650 - Urban Sociology

Credits: 3

Considers growth of metropolis and its impact on modern life.

Dual Listed SOC 4650.

Prerequisite: SOC 1000 or equivalent.

SOC5715 - Sociological Theory

Credits: 3

Examines the emergence and development of sociological theory in the writings of thinkers such as Marx, Durkheim, and Weber. Explores continuities and discontinuities between the classical period of sociological theory and contemporary schools such as functionalism, conflict theory, neo-Marxian theories, symbolic interactionism, phenomenology, and rational choice/exchange theory.

Dual Listed SOC 4715.

Former Course Number [3700]

Prerequisite: 9 credit hours of sociology, including SOC 1000.

SOC5805 - Global Population Issues

Credits: 3

Considers population structure and demographic transition, with applications to topics such as global population growth, population aging, health, family, migration, urbanization, environment.

Dual Listed SOC 4805.

Prerequisite: SOC 1000 and SOC 2070/STAT 2070 or equivalent.

SOC5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SOC5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 12)

Prerequisite: advanced degree candidacy.

SOC5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

The course is designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: Credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: graduate standing.

SOC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

SOC5990 - Internship

Credits: 1-12

Max Credit (Max. 24)

Prerequisite: graduate standing.

Soil Science

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

SOIL3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration, and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed PLNT 3000.

Prerequisite: MATH 1400, SOIL 2010.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

SOIL4550 - Child Welfare Services

Credits: 3

Examines issues of child and family welfare in the context of national, state, and local policy and practice. Social and economic justice are examined as they relate to interventions with children and families.

Dual Listed SOWK 5550.

Former Course Number [3550]

Prerequisite: SOWK 2000; SOWK 3530.

SOIL4565 - Research: Soil Science

Credits: 1-4

Max Credit (Max. 6)

Library, laboratory, and/or green-house investigations on select research topics. Graduate students will be required to give a presentation to the soil science group on their final product/ report.

Dual Listed SOIL 5565.

Prerequisite: basic training in soil science research.

SOIL4780 - Seminar:

Credits: 1-9

Consideration of special topics of current interest in social work. May be repeated for a maximum of 15 hours credit when the seminar topic is different.

Prerequisite: advanced major status; or consent of instructor and junior standing for non-social work majors.

SOIL4980 - Independent Study

Credits: 1-3

Consideration of topics of current social work interest in consultation with a member of the faculty.

Prerequisite: advanced major status and consent of instructor.

SOIL5105 - Soil Physics Laboratory

Credits: 2

Students learn methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution, saturated and unsaturated conductivity, soil water potential, and solute breakthrough curve.

Dual Listed SOIL 4105.
Prerequisite: SOIL 2010.

SOIL5110 - Modeling Water and Chemical Transport in Vaso Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.
Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

SOIL5140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture, and forestry.

Cross Listed MICR 5140.
Dual Listed SOIL 4140.
Prerequisite: SOIL 2010

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.
Prerequisite: SOIL 2010 and LIFE 2020.

SOIL5160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical and biological aspects of soils which impact fertilizer fate, uptake and plant growth.

Dual Listed SOIL 4160.
Prerequisite: SOIL 2010.

SOIL5540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540/SOIL 4540.

Dual Listed MOLB 5540/ECOL 5540.

Prerequisite: MOLB 2210.

SOIL5565 - Research in Soil Science

Credits: 1-4

Max Credit (Max. 6)

Library, laboratory, and/or greenhouse investigations on select research topics. Graduate students will be required to give a presentation to the soil science group on their final product/ report.

Dual Listed SOIL 4465.

Prerequisite: Basic training in soil science research. SOIL 5565 reserved for graduate students.

SOIL5590 - Special Topics in Soil Science

Credits: 1-3

Max Credit (Max. 6)

Special topics in soil science. Offered as an individual or small group basis as appropriate. Intended to accommodate various specialized subjects not offered on a regular basis. Students may enroll in more than one section of this course.

Dual Listed SOIL 4590.

Prerequisite: consent of instructor.

SOIL5755 - Practice Evaluation

Credits: 1-12

Max Credit (Max. 12)

Complete a non-thesis Plan B practice evaluation paper of quality, working with a committee structure. Must complete a minimum of two credit hours of 5755.

Prerequisite: SOWK 5750; or advanced standing status and SOWK 5495.

SOIL5795 - Rural Health Care Seminar

Credits: 3

Examines social work and rural health and medical care for individuals, families and larger systems through policy, practice, and research. Includes a focus on the health and health care of older adults.

Prerequisite: consent of instructor, graduate standing, participation in WYO HealthCARE Inter-disciplinary rural training grant.

SOIL5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

SOIL5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SOIL5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SOIL5959 - Enrichment Studies

Credits: 1-3

Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

SOIL5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Scholarly research that contributes to the social work profession and applied social science fields. Student designs and

carries out original research under the supervision of a social work faculty member. Thesis research is done as an individual research project.

Prerequisite: enrollment in a graduate degree program.

SOIL5975 - Independent Study

Credits: 1-3
Max Credit (Max. 3)

In-depth exploration of a social work topic in consultation with a social work faculty member.

Prerequisite: consent of instructor.

SOIL5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Spanish

SPAN1010 - First Year Spanish I

Credits: 4
Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

SPAN1020 - First Year Spanish II

Credits: 4
Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: SPAN 1010 or two years of high school Spanish.

SPAN1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

SPAN2030 - Second Year Spanish I

Credits: 4

Encompasses reading, grammar review, compositions and conversation.

USP 2015 Code U5H

Prerequisite: SPAN 1020 or three years of high school Spanish.

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN2140 - Introduction to Reading

Credits: 3

This course introduces a varied selection of readings and other cultural media in an immersive, intensive language class. Through the study of short stories, media articles, films, etc. , students learn cultural aspects of the Spanish-speaking world and are able to practice and improve their communicative abilities.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2030 or equivalent.

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

SPAN3060 - Third Year Spanish II

Credits: 3

Intensively reviews grammar and composition-skill development. Also emphasizes specialized lexicons, written and oral translation, as well as conversational fluency.

A&S College Core 2015 ASD

Prerequisite: SPAN 3050.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed LTST 3080.

USP 2015 Code U5H

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

SPAN3100 - Survey of Spanish Literature

Credits: 3

Studies Spanish literature from the Middle Ages to the end of the 17th century.

Prerequisite: SPAN 2140 or equivalent. SPAN 3140 strongly recommended.

SPAN3110 - Survey of Contemporary Spanish Literature

Credits: 3

Studies Spanish literature from the 18th to the 21st century. SPAN 3110 is a continuation of SPAN 3100, which studies Spanish literature from the Middle Ages to the end of the 17th century. In order to take 3110, students do not need to take SPAN 3100. SPAN 3140 strongly recommended.

Prerequisite: SPAN 2140 or equivalent.

SPAN3120 - Survey of Spanish American Literature

Credits: 3

Surveys Spanish American literature from colonial period to the present.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or equivalent.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course is focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3200 - Spanish Culture and Civilization

Credits: 3

Studies the evolution of Spanish culture through its main artistic, sociological and intellectual expressions.

Prerequisite: SPAN 2040, SPAN 2140.

SPAN3220 - Spanish-American Cultures in Context

Credits: 3

Introduction to the Spanish-speaking cultures of Latin America and the United States through a historical overview and a focus on contemporary politics and culture.

Prerequisite: SPAN 2040 or SPAN 2140 or consent of instructor.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3

Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

SPAN3990 - Independent Study

Credits: 1-4

Encompasses books or periodicals of special interest to the student, selected in consultation with a staff member. Includes independent reading and reports.

Prerequisite: SPAN 2030.

SPAN4070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 5070.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectical variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4095 - Advanced Translation

Credits: 3

Max Credit (Max. 6)

A practical approach to translating techniques and elements of oral interpretation.

Prerequisite: SPAN 3060.

SPAN4125 - Spanish-Language Literatures of the Americas

Credits: 3

Max Credit (Max. 9)

Examines Spanish American literature from a wide variety of perspectives: geographical regions (e. g. Caribbean, Andean, greater Mexico), theme (e. g. revolution, borders), period (e. g. Colonial, 19th century), or genre (e. g. poetry, theatre, film, non-fiction).

Prerequisite: SPAN 3050 or equivalent. SPAN 3120 highly recommended.

SPAN4130 - Masterpieces of Spanish Renaissance Literature

Credits: 3

Studies Spanish Renaissance, taking into consideration social, political, economic, religious, philosophical and aesthetic aspects of the culture as a context for and as reflected in the literature.

Dual Listed SPAN 5130.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN4140 - Masterpieces of Spanish Baroque Literature

Credits: 3

Studies Spanish Baroque, taking into consideration social, political, economic, religious, philosophical and aesthetic aspects of the culture as a context for and as reflected in the literature. Also covers relationship between Spanish Renaissance and Baroque.

Dual Listed SPAN 5140.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN4150 - Spanish Romanticism

Credits: 3

Comprehensively studies romantic movement in Spain. Includes close reading and commentary of texts by authors such as Espronceda, Rivas, Zorrilla, Becquer and de Castro.

Dual Listed SPAN 5150.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN4170 - Contemporary Spanish Prose

Credits: 3

Examines contemporary prose fiction of Spain. Studies authors who gained recognition before and after the 1936 Spanish Civil War.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN4180 - Advanced Cultural Studies in Hispanic Lit/Media

Credits: 3

Advanced analysis of Hispanic cultural phenomena. Focus on the Spanish-speaking cultures of Spain or the Spanish-speaking Americas or both. The Texts consulted vary according to instructor and may include the visual arts, such as film, paintings, and performance, academic theory, websites, and other fiction and non-fiction readings.

Dual Listed SPAN 5180.

Prerequisite: SPAN 2140 or equivalent and one 4000-level course.

SPAN4190 - 20th and 21st Century Spanish- American Texts

Credits: 3

Provides students the opportunity to study representative literary texts that reflect the tendencies and trends in 20th and 21st Century Spanish-language works of the Americas.

Dual Listed SPAN 5190.

Prerequisite: 6 hours of Spanish literature at 4000-level.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

SPAN4260 - The Realist Novel in Spain

Credits: 3

Studies major novelists of 19th century Spain from 1850 until Generation of '98.

Dual Listed SPAN 5260.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN4310 - Intro Hisp Ling

Credits: 3

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.)

Corequisite: Prerequisites: SPAN 3050 or equivalent proficiency.

SPAN4600 - Special Topics in Spanish

Credits: 1-6

Max Credit (Max. 12)

Presents a variety of significant literature, language, or cultural topics in Latin American, Peninsular, and other Spanish-speaking communities.

Prerequisite: SPAN 3030 or SPAN 3050.

SPAN4990 - Advanced Independent Study

Credits: 1-3

Encompasses special projects to meet needs of individual students, designed in consultation with instructor.

Prerequisite: SPAN 3030 or SPAN 3050.

SPAN5070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 4070.

Prerequisite: graduate standing.

SPAN5080 - Spanish Advanced Grammar

Credits: 3

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 4080.

Prerequisite: graduate standing.

SPAN5090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectal variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 4090.

Prerequisite: graduate standing.

SPAN5100 - Hispanic Thought

Credits: 3

intensive study of a topic, author, or philosophical movement. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature at 4000-5000 level.

SPAN5110 - Peninsular Spanish Literature

Credits: 1-3

Max Credit (Max. 9)

An intensive study of a topic or an author. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature at 4000-5000 level.

SPAN5120 - Spanish American Literature

Credits: 1-3

Max Credit (Max. 9)

An intensive study of a topic or an author. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature.

SPAN5130 - Masterpieces of Spanish Renaissance Literature

Credits: 3

A study of the Spanish Renaissance, taking into consideration social, political, economic, religious philosophical, and aesthetic aspects of the culture as a context for and as reflected in the literature.

Dual Listed SPAN 4130.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5140 - Masterpieces of Spanish Baroque Literature

Credits: 3

Studies of the Spanish Baroque, taking into consideration social, political, economic, religious, philosophical, and aesthetic aspects of the culture as a context for and as reflected in the literature. Also covers the relationship between the Spanish Renaissance and the Baroque.

Dual Listed SPAN 4140.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5150 - Spanish Romanticism

Credits: 3

A comprehensive study of the romantic movement in Spain. Close reading and commentary of texts by representative authors including Espronceda, Rivas, Zorilla, Becquer and de Castro.

Dual Listed SPAN 4150.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5160 - Graduate Readings

Credits: 1-5

Max Credit (Max. 6)

Prerequisite: graduate standing.

SPAN5170 - Special Problems

Credits: 1-2

Max Credit (Max. 6)

Prerequisite: graduate standing.

SPAN5180 - Advanced Cultural Studies in Hispanic Lit/Media

Credits: 3

Advanced analysis of Hispanic cultural phenomena. Focus on the Spanish-speaking cultures of Spain or the Spanish-speaking Americas or both. The Texts consulted vary according to instructor and may include the visual arts, such as film, paintings, and performance, academic theory, websites, and other fiction and non-fiction readings.

Dual Listed SPAN 4180.

Prerequisite: SPAN 2140 or equivalent and one 4000-level course.

SPAN5190 - 20th and 21st Century Spanish- American Texts

Credits: 3

Provides students the opportunity to study representative literary texts that reflect the tendencies and trends in 20th and 21st Century Spanish-language works of the Americas.

Dual Listed SPAN 4190.

Prerequisite: 6 hours of SPAN at the 4000-level.

SPAN5260 - The Realist Novel in Spain

Credits: 3

Studies of the major novelists of nineteenth century Spain from 1850 until the Generation of '98.

Dual Listed SPAN 4260.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5900 - Practicum in College Teaching

Credits: 3

Max Credit 3

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

SPAN5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SPAN5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SPAN5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

SPAN5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Special Education

EDEX2000 - Collaboration and Professional Relationships

Credits: 3

This course is designed to help students explore a range of collaboration and consultation strategies in the field of Special Education to enable them to successfully collaborate with a range of professionals, students, and families in a school setting. Course content will prepare prospective special education teachers with conflict resolution skills, the ability to effectively facilitate meetings, and increase their inter and intra-personal skills.

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

EDEX3071 - Understand st. w/High Inc Dis

Credits: 3

This course is designed to explore the causes, characteristics, and eligibility of high incidence disabilities in K-12 setting. Additionally, it examines the theoretical, research, and practical aspects of high incidence disabilities as they relate to the student, teacher, classroom, parents, paraprofessionals, and other school personnel and community agencies.

Restricted Elementary and Special Education Dual Majors

Prerequisite: 2.75 UW GPA minimum

EDEX3072 - Teaching st. w/High Inc Dis

Credits: 3

This course is designed to explore evidence-based practices, high leverage practices, research-based strategies and transition planning utilized to best serve students with high incidence disabilities in a variety of K-12 settings. Additionally, it explores inclusive strategies and the roles of stakeholders in supporting students with high incidence disabilities in the general education classroom.

Restricted Elementary and Special Education Dual Majors

Prerequisite: 2.75 UW GPA minimum Successful completion of EDEX 3071 (C or better)

EDEX3080 - Understand st. w/Low Inc Dis

Credits: 3

This course is designed to explore the causes, characteristics, and eligibility of low incidence disabilities in K-12 setting. Additionally, it examines the theoretical, research, and practical aspects of low incidence disabilities as they relate to the student, teacher, classroom, parents, paraprofessionals, and other school personnel and community agencies. Finally, this course explores assistive technology utilized to effectively support students with disabilities to access the whole school environment.

Restricted Elementary and Special Education Dual Majors

Prerequisite: 2.75 UW GPA minimum

EDEX3081 - Teaching St. w/Low Inc. Dis.

Credits: 3

This course is designed to explore evidence-based practices, high leverage practices, research-based strategies and transition planning utilized to best serve students with low incidence disabilities in a variety of K-12 settings. Additionally, it explores assistive technology, inclusive strategies and the roles of stakeholders in supporting students with low incidence disabilities in the general education classroom.

EDEX3110 - Behavioral Supports & Interv.

Credits: 3

Relates the theoretical, research, and practical strategies of behavior change models to students, teachers, parents, and paraprofessionals, in order to understand and remediate student behavior presenting challenges. This will include understandings of systematic Behavior Management plans, Functional Behavior Assessments, Behavior Intervention Plans, and school wide behavioral supports and interventions.

Restricted Elem. & Special Education Dual Major only

Prerequisite: 2.75 UW GPA and successful completion of EDEX 2484. Student must have earned a C or higher in this course.

EDEX4120 - Data Analysis/IEP Development

Credits: 3

This course is designed to convey the necessity of the Individualized Education Program (IEP), in regard to providing quality, compliant, and effective services to individuals with disabilities. Course participants will analyze assessment data to understand the academic and behavioral aspects of individual students with disabilities and to develop a comprehensive IEP to meet their unique needs. In addition, students will learn how to develop IEP's in collaboration with service providers, families, and other stakeholders.

Restricted Elem. & Special Education Dual Major only

Prerequisite: 2.75 UW GPA and successful completion of EDEX 2484. Student must have earned a C or higher in this course.

EDEX4355 - Assessment & St. W/Dis

Credits: 3

This course is designed to explore the use of various types of assessments and assessment tools to evaluate students for special education eligibility and to design individualized programming. Students will learn how to interpret assessment data to identify areas of strength and needs and to make data-based instructional decisions.

Restricted Elementary and Special Education Dual Majors only.

EDEX4500 - Residency Teaching Special Ed

Credits: 6

Max Credit 6

This course provides intensive field experiences and mentoring relationships to support student teachers as they transition to independent teaching in special education.

Prerequisite: Successful completion of the methods semester (4000 level classes) with grades of "C" or higher in all methods courses.

EDEX4720 - Law and Students with Disabilities

Credits: 3

Provides prospective special education teachers with an overview of important case and statutory law in special education. Supports prospective special education teachers in analyzing disability laws and the ways in which these impact practice.

EDEX5000 - Collaboration and Professional Interdisciplinary Relationships

Credits: 3

Represents an opportunity for students to examine and explore a range of consultant concepts in the field of Special Education.

Prerequisite: Admission to the program or consent of instructor.

EDEX5071 - Teaching Students with Mild and Moderate Disabilities

Credits: 3

Relates the theoretical, research, and practical aspects of mild-moderate disabilities to the student, teacher, classroom, parents, paraprofessionals, and other school personnel and community agencies, all in an effort to help understand and remediate student instructional and behavioral presenting problems.

Prerequisite: Admission to program or consent of instructor.

EDEX5080 - Teaching Students with Severe and Low Incidence Disabilities

Credits: 3

Designed to provide teachers with the repertoire of instructional, curricular, and behavior analytic skills needed to effectively serve students with severe and low-incidence disabilities. An emphasis on inclusive education and promoting access to the general curriculum will be stressed.

Prerequisite: Admission to program or consent of instructor.

EDEX5100 - Special Education Practicum I

Credits: 3

Designed to allow the student to practice skills and competencies reflected in the Council for Exceptional Children standards. The activities are designed to follow the Wyoming Teaching Standards for Special Education Certification.

Prerequisite: Admission to program or consent of the Instructor.

EDEX5110 - Positive Behavior Support and Management

Credits: 3

Relates the theoretical, research, and practical strategies of behavior change models to students, teachers, parents, and paraprofessionals, in order to understand and remediate student behavior presenting problems, to include the application of systematic Behavior Management plans, BIPs, FBAs, BSPs, and school wide PBIS.

Prerequisite: Admission to program or consent of instructor; EDEX 5071.

EDEX5120 - Academic Instruction in General Education for Students with Disabilities

Credits: 3

Offers teachers appropriate practices and procedures for accommodating children with disabilities in their general education classroom. The focus is on moving from academic and nonacademic assessments to appropriate teaching and learning in the general education classroom environment.

Prerequisite: Admission to program or consent of instructor.

EDEX5150 - Research Applications in the Classroom

Credits: 3

Methodology for conducting applied research projects in classroom settings will be discussed. A variety of "classroom-friendly" experimental designs will be examined. In particular, the value of single-subject research in evaluating educational programs and serving as a rigorous, experimentally sound methodology are discussed.

Prerequisite: Admission to program or consent of instructor.

EDEX5200 - Special Education Practicum II

Credits: 3

Designed to allow the student to practice skills and competencies reflected in the Council for Exceptional Children standards. The activities are designed to follow the Wyoming Teaching Standards for Special Education Certification.

Prerequisite: Admission to program or consent of instructor; EDEX 5100.

EDEX5250 - Assistive Technology and Transition

Credits: 2

Addresses assistive technology considerations for students with disabilities. Assessment, planning, selection, use, and evaluation of options will be emphasized.

Prerequisite: Admission to program or consent of instructor.

EDEX5260 - Transition Planning

Credits: 2

Examines the transition and post-high school options available for students with disabilities and in accordance with the requirements of the Individuals with Disabilities Education Act. Emphasis will be placed on assessment, planning, and evaluation of the transition components.

Prerequisite: Admission to program or consent of instructor.

EDEX5355 - Assessment

Credits: 3

Involves the history, ethics, data collection procedures, psychometric understanding, and interpretation of selected formal and informal psycho-educational tests; the relationship to a comprehensive evaluation and IDEA eligibility requirements; and the application of assessment results to the practical remediation of student instructional and behavioral presenting problems.

Prerequisite: Admission to program or consent of instructor.

EDEX5680 - Prescriptive Teaching Practicum

Credits: 1-8
Max Credit (Max. 8)

Graduate practicum/internship, the content of which involves supervised education experience in a special education classroom.

Prerequisite: graduate status and consent of instructor.

EDEX5720 - Special Education Law

Credits: 3
Provides prospective special education teachers and support personnel with overview of important case and statutory law in special education.

Prerequisite: Admission to program or consent of instructor.

EDEX5730 - Severe and Profound Handicaps

Credits: 3
Relates current research and practice to the systematic assessment, education and management of individuals who are severely and/or profoundly disabled.

Prerequisite: 3 semester hours of graduate course work in special education,

EDEX5870 - Seminar

Credits: 1-6
Max Credit (Max. 6)

Represents an opportunity for students to examine and explore advanced concepts of prescriptive teaching.

Prerequisite: consent of instructor and graduate standing.

EDEX5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 credit in this course may not be included in a graduate program of study for degree purposes.

Speech-Language Pathology

SPPA1010 - Introduction to Communication Disorders

Credits: 3

Introduces information regarding basics of speech and hearing. Discusses disorders of speech and hearing by defining the problem, etiology or theories of cause, classifications and controversies, evaluation techniques and therapies to correct the disorder.

USP 2003-2014 Code U3I,U3L

SPPA1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

SPPA2210 - Phonetics

Credits: 3

Articulatory and acoustic description of speech sound production. Introduction to the International Phonetic Alphabet and phonetic transcription.

Former Course Number [3210]

Prerequisite: SPPA 1010 or consent of instructor.

SPPA3160 - Speech and Language Development

Credits: 4

Deals with the development of speech sound production, phonology, semantics, syntax, morphology, discourse, and pragmatics for typically-developing children from infancy to adolescence. Includes prelinguistic and paralinguistic communication, the cognitive correlates of communication, and written language. Considers the effects of sociocultural context and multiple language acquisition. Application component provides weekly experience in language sample analysis.

Former Course Number [4160]

Prerequisite: SPPA 2210 or instructor permission.

SPPA3265 - Anatomy and Physiology of Speech, Swallowing and Hearing

Credits: 4

Introduces the student to the anatomy of the normal speech and hearing systems as well as the physiologic underpinnings of the speech (respiration, phonation, articulation), swallowing, and hearing (external, middle, and inner ear) systems. Theories of speech production and speech perception are presented.

Former Course Number [3400]

Prerequisite: KIN 2040 or consent of instructor.

SPPA4000 - Workshop in Speech Pathology/Audiology

Credits: 1-8

Varies with interests of student requests. Incorporates material relative to any area of speech and hearing.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: consent of instructor.

SPPA4070 - Deaf Studies

Credits: 3

Studies deaf culture and deaf history in the United States. Culture topics will include deaf community dynamics, humor, behavior, emotional and social interaction, besides issues involving deaf children as a linguistic minority. History will be discussed from the 1700s to the present in the U. S.

USP 2003-2014 Code U3CS,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: SPPA 2110.

SPPA4130 - Advanced ASL

Credits: 4

Third level of ASL comprehension and expression. Addresses increased fluency in ASL; register variation for different conversational participants; and specialized vocabulary, including sexuality and religion. Translation from English to ASL is addressed.

Prerequisite: SPPA 2120.

SPPA4140 - Undergraduate Teaching Assistant

Credits: 1

Max Credit (Max. 2)

Students assist instructor in major courses that they have successfully completed, including assisting with lab or practice sessions, providing individual student assistance, and participating in other student outreach activities on behalf of the Division. One semester credit hour requires 4 hours of work per week.

Prerequisite: consent of instructor/department and junior standing.

SPPA4150 - Aural Rehabilitation

Credits: 3

Examines basis for and characteristics of communication problems created by hearing loss and management procedures to facilitate communication and adjustment to hearing loss. Includes acoustic and visual properties of speech, amplification devices and hearing loss in school children.

Prerequisite: SPPA 4340 or consent of instructor.

SPPA4200 - Audiology Internship

Credits: 1-2

Max Credit (Max. 4)

Audiology internship in the UW Speech and Hearing Clinic to further the student's experience in an audiology clinic prior to their applying to an audiology graduate program.

Prerequisite: SPPA 4340 and consent of instructor.

SPPA4240 - Speech and Language Disorders Across the Lifespan

Credits: 3

The nature and causes of developmental and acquired speech and language disorders across the lifespan are examined. Principles of assessment and intervention are introduced.

Prerequisite: SPPA 3160 or consent of instructor.

SPPA4250 - Clinical Methods

Credits: 4

Introduction to clinical procedures, such as: collecting data, clinical writing and documentation, reviewing practice regulations, interviewing, and counseling. Students will obtain initial clinical experience (i. e. observation, simulation and/ or clinical assignment). Requirements (e. g. , background check, TB screen) must be met for involvement in the Speech & Hearing Clinic.

Prerequisite: SPPA 3265

SPPA4340 - Basic Audiology

Credits: 3

An introduction to audiology as a profession, with primary focus on screening and diagnostic methods for the clinical evaluation of hearing loss in children and adults.

When Offered (Normally offered spring semester)

Prerequisite: SPPA 3265 or concurrent enrollment.

SPPA4380 - Neurological Basis of Communication

Credits: 3

Studies details of human nervous system, including central and peripheral nervous systems, major motor and sensory pathways and special senses. Emphasizes neurology of various communication disorders.

Prerequisite: SPPA 3265 or consent of instructor.

SPPA4890 - Independent Study

Credits: 1-3

Max Credit (Max. 4)

An independent study will be developed by the instructor and undergraduate student. It will consist of activities such as: conducting a small research project, assisting in a research project, composing a systematic research review, participating in a clinical experience, or helping to develop a professional development or public awareness program.

Prerequisite: Consent of instructor.

SPPA5000 - Seminar in Communication Disorders

Credits: 1-8

Max Credit (Max. 8)

The participation in and discussion of special problems and/or research related to speech-language, pathology and audiology.

Prerequisite: B. S. degree and consent of instructor.

SPPA5020 - Phonological Assessment and Intervention

Credits: 3

Emphasis on normal phonetic and phonologic development, diagnosis and clinical management of articulatory and phonological disorders.

Prerequisite: SPPA 3210.

SPPA5030 - Clinical Practicum

Credits: 1-4

Max Credit (Max. 12)

Supervised clinical experience with speech, language, and hearing disordered children and adults under supervision of University of Wyoming Speech and Hearing Clinic faculty.

Prerequisite: matriculating graduate students only.

SPPA5100 - Motor Speech Disorders

Credits: 2

Evaluation and treatment of motor speech disorders. Topics will include characteristics of disordered speech associated with neurological impairments/diseases; methods for evaluating communication disorders associated with dysarthria, apraxia of speech, and other neurological and acquired conditions, and treatment approaches.

Prerequisite: SPPA 4380 or a course covering neuroanatomy/physiology of normal and disordered communication.

SPPA5110 - Craniofacial Disorders

Credits: 2

Studies communication disorders related to cleft lip and palate disorders and associated craniofacial sequences and syndromes. Assessment and treatment of these communication disorders is presented in the context of interdisciplinary management. Surgical and nonsurgical treatment procedures employed to manage speech problems associated with velopharyngeal insufficiency are included.

Prerequisite: SPPA 3265, SPPA 2210.

SPPA5120 - Stuttering

Credits: 2

Theories of etiology, symptoms of the problem, diagnosis and treatment of childhood non-fluency and various approaches to therapy for the adult stutterer.

Prerequisite: graduate level standing.

SPPA5130 - Adult Neurogenic Disorders

Credits: 4

This course will cover acquired neurogenic communication disorders. Topics include language disorders (focusing on Aphasia) as well as cognitive-communication disorders (i. e. , traumatic brain injury, Right Hemisphere Dysfunction, and Neurocognitive disorder). This graduate course provides 1) a basic understanding of the neuroanatomical/physiological basis and 2) instruction regarding evaluation and treatment methods.

Prerequisite: SPPA 4380.

SPPA5140 - EBP and Evaluation Procedures in Communication Disorders

Credits: 4

Focuses on research and evaluation procedures in speech-language pathology. Topics include evidence-based practice, evaluating research, an overview of models of disability across applied settings, assessment and evaluation processes including interviewing, understanding tool psychometrics, and using norm-based referenced tools, criterion-based measurements, and dynamic assessment.

Prerequisite: Acceptance to the University of Wyoming's graduate SLP program.

SPPA5210 - Augmentative and Alternative Communication

Credits: 2

Selection, design, and application of augmentive and alternative communication (AAC) systems to enhance communication, education, and quality of life for individuals with development and acquired disorders.

SPPA5220 - Voice Disorders

Credits: 3

Study of the etiology, assessment, and remediation of voice disorders. Includes a discussion of preventing disorders, maintaining a healthy voice, and normal changes in voice. Presentation of rehabilitation options for laryngectomized speaker.

Prerequisite: SPPA 3265.

SPPA5230 - Dysphagia

Credits: 3

Provides information regarding the anatomy and physiology of the adult and pediatric swallowing mechanisms, the diagnosis of dysphagia and feeding disorders using clinical and instrumental approaches, the medical diagnoses for which dysphagia is a common symptom, and methods that are commonly used to treat dysphagia and feeding disorders.

Prerequisite: SPPA 3265.

SPPA5270 - Educational Practicum

Credits: 1-12

Max Credit (Max. 12)

Under supervision, the student is given increased responsibility for performing speech and language assessments, hearing screenings, and treatment of children in an educational setting. Students will relate to other educational personnel and counsel teachers and families about communication disorders.

Prerequisite: completion of at least two semesters (including summer) of approved graduate coursework and clinical practicum (SPPA 5030); and approval of faculty.

SPPA5280 - Early Language Intervention

Credits: 3

Principles and techniques of language assessment and intervention for preschoolers, infants, and low-functioning individuals.

Prerequisite: SPPA 3160.

SPPA5290 - Medical Practicum

Credits: 1-12

Max Credit (Max. 12)

Under supervision, the student is given increased responsibility for performing speech and language assessments, hearing screenings and treatment of children and adults in a medical setting. Students relate to other medical and clinical personnel and counsel professionals and families about communication disorders.

Prerequisite: Completion of at least two semesters (including summer) of approved graduate coursework and clinical practicum; and approval of faculty.

SPPA5330 - School-Age Language Intervention

Credits: 3

Principles and techniques of language assessment and intervention for school-age children and adolescents with particular attention to service delivery issues in schools.

Prerequisite: SPPA 3160.

SPPA5380 - Professional Practice

Credits: 3

Max Credit (Max. 9)

Emphasizes issues related to professional practice of speech-language pathology, such as professional ethics, scope of practice, professional standards, and techniques of counseling clients. This course applies to speech-language pathologists working in either the medical or school setting. This course prepares the speech-language pathologist to collaborate with other professional in the workplace through discussion and activities of inter-professional practice and education (IPP and IPE).

Prerequisite: graduate standing in Communication Disorders and consent of instructor.

SPPA5500 - Topics in Communication Disorders

Credits: 1-8
Max Credit (Max. 9)

Provides a critical review of recent theories and developments in area of communication disorders. This is a continuing seminar course dealing with various advanced topics in communication disorders.

Prerequisite: graduate standing.

SPPA5750 - Research Methods in Speech Pathology and Audiology

Credits: 3
Emphasizes the application of scientific methodologies to areas of Speech-Language Pathology and Audiology. Topics to be covered include: introduction to writing research papers; reviewing and critiquing the literature; experimental designs; techniques in data analyses.

Prerequisite: STAT 2070 or equivalent; B. S. degree in speech pathology audiology; and acceptance into the graduate program.

SPPA5890 - Independent Study

Credits: 1-3
Max Credit (Max. 4)

Graduate-level independent study will be developed by the instructor and student. It will consist of activities such as: conducting a research project of a smaller scale than a thesis, assisting in a research project, composing a systematic research review, or developing a professional education or public awareness program.

Prerequisite: graduate standing.

SPPA5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Students are expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

SPPA5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SPPA5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

SPPA5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

SPPA5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

SPPA5961 - Graduate Projects

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have departmental approval.

SPPA5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Statistics

STAT1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY

STAT2000 - Statistics and the World

Credits: 3

Discusses statistical reasoning and methods as related to today's society. Emphasizes ideas rather than specific techniques. Focuses on real examples of the use (and misuse) of statistics. Includes sampling, experimentation, descriptive statistics, elementary probability and statistical inference.

USP 2003-2014 Code U3QB,U3Q

Prerequisite: grade of C or better in MATH 0921 or level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600 or concurrent enrollment in MATH 1080.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT2110 - Statistical Methods for Business and Management Science

Credits: 3

Provides majors in various departments of the College of Business with training in use of statistical analysis techniques as they apply to business problems. Credit cannot be earned in more than one of the following: STAT 2110, STAT 3050 and STAT 5050, STAT 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2010.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variables are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 5045.

Former Course Number [4040]

Prerequisite: STAT 2050 or equivalent

STAT4070 - Causal Models

Credits: 3

Applications of least-squares and iterative maximum-likelihood methods for drawing cause and effect conclusions from nonexperimental data. Topics include regression-based path analysis, reciprocal causation, confirmatory factor analysis, measurement error, and structural equation models with unmeasured (latent) variables.

Cross Listed SOC 4070.

Prerequisite: one of STAT 3050, STAT 4015, STAT 5050, 5060, STAT 5070, STAT 5080 or equivalent (regression methods).

STAT4115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analyses using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 5115

Dual Listed STAT 5115.

Former Course Number [4110]

Prerequisite: STAT 4015 /5015

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.

Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

STAT4220 - Basic Engineering Statistics

Credits: 3

Introduces probability models, properties of distributions, statistical inference and development of statistical models for physical and engineering sciences. Credit cannot be earned in more than one of the following courses: STAT 2010, STAT 2050, STAT 2070, 4220 and 5000.

Former Course Number [4020]

Prerequisite: MATH 2205, MATH 2355 or equivalent.

STAT4240 - Data Mining

Credits: 3

An introduction to statistical learning and data mining using techniques that have proven useful in recognizing patterns and making predictions. These techniques include both parametric and nonparametric models. Tools for computing and evaluating these techniques will also be studied.

Dual Listed STAT 5240.

Prerequisite: STAT 4015.

STAT4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed MATH 4255.

Dual Listed STAT 5255.

When Offered (Offered fall semester)

Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

STAT4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 4265.

Dual Listed STAT 5265.

Former Course Number [4260, 4010]

Prerequisite: STAT 4255/MATH 4255.

STAT4270 - Applied Bayesian Statistics

Credits: 3

This course introduces Bayesian data analysis in an applied context. We will learn about Bayesian statistics primarily in a regression model context, taken broadly. A conceptual understanding of popular Markov Chain Monte Carlo algorithms will be provided.

Dual Listed STAT 5270.

Prerequisite: STAT 4015 /5015

STAT4280 - Models for Hierarchical Data

Credits: 3

Provides an introduction to the modeling and analysis of correlated/hierarchical data from exponential family member distributions (i. e. presence/absence, count data, Gaussian data). Emphasis is on applications. Aimed to build off of a first course in regression analysis.

Dual Listed STAT 5280.

Prerequisite: STAT 4015.

STAT4300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminate analysis, factor analysis and multidimensional scaling. A wide range of computer assistance is incorporated.

Dual Listed STAT 5300.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment (sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 5350.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 5360.

Prerequisite: STAT 4015.

STAT4370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the

proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 5370.

Prerequisite: STAT 4015 and STAT 4025.

STAT4460 - Statistical Software

Credits: 1

Max Credit 1

An introduction to the various statistical software programs currently in use at the University of Wyoming. Topics will include the structure of each language, I/O, programming the basic statistical applications, and a comparison of the other languages.

Former Course Number [5480]

Prerequisite: STAT 2050

STAT4870 - Senior Thesis

Credits: 3

Encompasses senior thesis research project under faculty member guidance and supervision. Faculty sponsorship must be obtained prior to registration.

Prerequisite: 18 hours in statistics and senior standing.

STAT4880 - Problems in Statistics

Credits: 1-4

Encourages individual initiative on part of students who work on extending their knowledge through library research.

Former Course Number [4790]

Prerequisite: senior standing, 8 hours in statistics and consent of instructor.

STAT5015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 4015.

STAT5025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete block as time permits.

Dual Listed STAT 4025.

STAT5045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variable are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 4045.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

STAT5055 - Statistical Methods for the Biological Sciences II

Credits: 3

The statistical toolkit (regression and ANOVA-driven) of methods applicable to the biological and behavioral sciences will be extended to include multiple logistic regression, power and sample size considerations, and computer-intensive methods such as bootstrapping and randomization tests, which will considerably expand the repertoire of methods that a person could use.

Prerequisite: STAT 5050 or equivalent.

STAT5070 - Statistical Methods for the Social Sciences

Credits: 3

General statistical analyses and their application to the social sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 2110, STAT 3050, STAT 5050, 5060, 5070.

Cross Listed SOC 5070.

Prerequisite: one course in statistics (all introductory courses except STAT 2000).

STAT5080 - Statistical Methods for the Agricultural and Natural Resource Sciences

Credits: 3

Brief review of statistical principles. Use of SAS programming. Numerous analysis of variance techniques along with commonly-used experimental designs. Multiple mean comparison, linear contrasts, power of F test, simple linear regression, polynomial regression, analysis of covariance, and some categorical data techniques for students in the agriculture and natural resources sciences. Credit cannot be earned in more than one of the following courses: STAT 2110, STAT 3050, STAT 5050, 5060, STAT 5070, 5080.

Cross Listed ENTO 5080.

Prerequisite: STAT 2050 or equivalent.

STAT5115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analysis using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 4115

Dual Listed STAT 4115.

Prerequisite: STAT 4015 /5015

STAT5155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage samples. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 4155.

Prerequisite: STAT 2070 or equivalent.

STAT5185 - Analysis of Data

Credits: 3

Focuses on data collection, analysis, interpretation, and communication, using contexts relevant to everyday situations. Topics chosen integrate well with the concerns of middle-level teachers and connect with such curriculum areas as health, science, and social studies. This course is not a research methods course.

Cross Listed NASC 5180.

Prerequisite: graduate standing in either degree or non-degree seeking status, and acceptance into the Middle-level mathematics program.

STAT5210 - Advanced Regression

Credits: 3

Advanced methodologies, with particular focus on concepts and methods related to regression. Topics include generalized linear models, nonlinear regression, elementary linear model theory, and Data Science topics such as resampling inference, ridge regression and the lasso, and k-fold cross-validation.

Prerequisite: MATH 4265/STAT 4265/STAT 5265 and STAT 4015/STAT 5015. STAT 4025/STAT 5025 and STAT 4045/STAT 5045 are recommended.

STAT5220 - Advanced Design

Credits: 3

Advanced study of experimental designs, observational designs, and mixed models. Topics include fixed and random effects, factorial, split-plot and repeated measures designs, and hierarchical models. Linear model methodology and Data Science concepts will also be emphasized.

Prerequisite: MATH 5265/STAT 4265/STAT 5265, and at least one of STAT 4015/STAT 5015, STAT 4025/STAT 5025, or STAT 5210.

STAT5230 - Statistic Methods III

Credits: 4

Continuation of topics in Statistical Methods from STAT 5220; aimed at preparing students for advanced topics courses in Statistics.

Prerequisite: STAT 5220 and STAT 5520.

STAT5240 - Data Mining

Credits: 3

An introduction to statistical learning and data mining using techniques that have proven useful in recognizing patterns and making predictions. These techniques include both parametric and nonparametric models. Tools for computing and evaluating these techniques will also be studied.

Dual Listed STAT 4240.

Prerequisite: STAT 5015.

STAT5255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed MATH 5255.

Dual Listed STAT 4255.

Prerequisite: grade of C or better in MATH 2210 or MATH 2355.

STAT5265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 5265.

Dual Listed STAT 4265.

Prerequisite: STAT 4255/STAT 5255.

STAT5270 - Applied Bayesian Statistics

Credits: 3

This course introduces Bayesian data analysis in an applied context. We will learn about Bayesian statistics primarily in a regression model context, taken broadly. A conceptual understanding of popular Markov Chain Monte Carlo algorithms will be provided.

Dual Listed STAT 4270.

Prerequisite: STAT 4015 /5015

STAT5280 - Models for Hierarchical Data

Credits: 3

Provides an introduction to the modeling and analysis of correlated/hierarchical data from exponential family member distributions (i. e. presence/absence, count data, Gaussian data). Emphasis is on applications. Aimed to build off of a first course in regression analysis.

Dual Listed STAT 4280.

Prerequisite: STAT 5015.

STAT5300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminate analysis, factor analysis and multivariate regression, canonical correlation, discriminate analysis, factor analysis and multidimensional scaling. A wide range of computer assistance is incorporated.

Dual Listed STAT 4300.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT5350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment

(sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 4350.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT5360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 4360.

Prerequisite: STAT 4015.

STAT5370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 4370.

Prerequisite: STAT 4015, STAT 4025 and STAT 4265.

STAT5380 - Bayesian Data Analysis

Credits: 3

Bayesian statistical methods for analyzing various kinds of data. Topics include basic Bayesian ideas and model formulation (priors, posteriors, likelihoods), single- and multiple-parameter models, hierarchical models, generalized linear models, multivariate models, survival models and an introduction to computation methods.

Prerequisite: STAT 5255

STAT5470 - Data Analysis

Credits: 3

This course is designed to develop the skill of analyzing data sets using methods of classic statistical analysis, such as analysis of variance, regression, discrete models, descriptive analysis, non-parametrics, and multivariate methods. The focus will be on understanding the various models and methods, computer assisted data analysis, and communication of results (oral and written).

Prerequisite: 12 graduate level hours in statistics (excluding STAT 5000).

STAT5490 - Statistical Consulting

Credits: 1

An introduction to the art and practice of statistical consulting. Topics include active listening, ascertaining client knowledge level and ability, determining appropriate methods of analysis given limitations, and organizing and managing a consulting session.

Prerequisite: graduate standing in statistics, 15 hours in statistics.

STAT5510 - Distribution Theory

Credits: 4

Topics covered include probability theory, conditional probability, random variables, special distribution functions, functions of random variables, expectation, random samples, and limiting distributions.

Prerequisite: MATH 2210, 3000 or MATH/STAT 4265.

STAT5520 - Inference I

Credits: 4

Topics covered include Properties of a random sample, Sufficiency principle, Likelihood principle, point estimation (mle, mom, Bayes estimators, etc. and methods for evaluating estimators), some interval estimation.

Prerequisite: STAT 5510.

STAT5530 - Inference II

Credits: 3

Topics covered include methods used in Bayesian, Likelihood, Frequentist inference; some methods for robust inference and some large sample theory as needed.

Prerequisite: STAT 5520.

STAT5540 - Large Sample Theory

Credits: 3

Treats various limiting techniques which can be used to predict the behavior of statistics computed from large data sets. The characteristic function is used in deriving the law of large numbers and various forms of the central limit theorem, including the multivariate normal case. The central and noncentral chi-square distributions are derived as the probability law for certain statistics in the limit. Other topics discussed include modes of probabilistic convergence, speed of convergence, and large sample approximation procedures.

Prerequisite: STAT 5510.

STAT5615 - Time Series Analysis II

Credits: 3

A treatment of theory and application of ARIMA modeling of times series. Frequency domain analysis is also

introduced. Additional topics will be selected from intervention analysis, transfer function (ARMAX) models, outlier analysis, vector ARIMA models, ARCH, GARCH, and state-space models, according to the interests and abilities of the class.

Prerequisite: STAT 4015/STAT 5015, STAT 4115 and STAT 4265/STAT 5265.

STAT5620 - Theory of Linear Models

Credits: 3

A theoretical approach to estimation and testing in the general linear model. Topics include: special linear algebra results for statistics, parameterizations, estimability, least squares, best linear unbiased estimation, and testing linear hypotheses.

Prerequisite: STAT 5520, STAT 5630, MATH 4500.

STAT5630 - Multivariate Analysis

Credits: 3

The subject matter includes derivation of multi-variate normal distributions, the Wishart, and related sampling distributions, multivariate estimation, confidence regions, and hypothesis testing are covered including topics as Hotelling's T squared, profile analysis, discriminant analysis, factor analysis, and cluster analysis.

Prerequisite: STAT 4265, MATH 2250.

STAT5650 - Theory of Sampling

Credits: 3

Consists of the theory of simple random sampling, stratified sampling, multistage sampling, and regression and ratio estimation. Recent developments in sampling are presented.

Prerequisite: STAT 4265, STAT 4155/STAT 5155.

STAT5660 - Computationally Intensive Methods in Statistics

Credits: 3

Advanced statistical inference often relies on methods which are computationally intensive. The basic methods include Newton-Raphson; the EM algorithm; bootstrap and other resampling procedures; kernel density estimators; Laplace's method, importance sampling and MCMC, and saddlepoint and Edgeworth approximations.

Prerequisite: STAT 5520.

STAT5670 - Mixed Models

Credits: 3

An advanced treatment of models with fixed and random effects. Topics include: model definitions, least-squares, analysis of variance techniques, likelihood procedures, and computational applications.

Prerequisite: STAT 5620.

STAT5680 - Advanced Bayesian Statistics

Credits: 3

Philosophical principles underlying Bayesian and non-Bayesian statistics. Decision theoretic foundations of Bayesian statistics including loss functions, minimaxity, and admissibility. Construction of conjugate prior distributions and non-informative prior distributions. Bayesian point estimation, hypothesis tests and credible sets. Computational tools for Bayesian problems including Markov chain Monte Carlo (MCMC) and other methods for approximating posterior distributions with some emphasis on implementation via a programming language or statistical computing software. As time and interest permit: the normal linear model, non-normal models, hierarchical models, Bayesian model averaging, other topics.

Prerequisite: STAT 5380; 5420 and STAT 5520.

STAT5810 - Seminar

Credits: 1-2

Max Credit (Max. 4)

Research results are presented by statistics majors. (Faculty also present papers).

Prerequisite: graduate status in statistics.

STAT5820 - Teaching of Statistics1

Credits: 2

Max Credit (Max 2)

The following topics are presented and discussed: traditional and innovative teaching methods, assessment methods, the purpose of lectures and laboratories, in-class activities, projects, mathematics versus statistics, computer assistance, math anxiety, and group and one-on-one interaction guidelines.

Prerequisite: consent of instructor.

STAT5880 - Advanced Problems

Credits: 1-8

Max Credit (Max. 8)

Intended to develop the graduate student's ability to expand his theoretical knowledge by using library materials and working under close supervision of a faculty member who is an expert in the area of study.

Prerequisite: 12 hours in statistics and consent of instructor.

STAT5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

STAT5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

STAT5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

STAT5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

STAT5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Graduate level course designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

STAT5990 - Internship

Credits: 1-12
Max Credit (Max 24)

Prerequisite: graduate standing.

STEP

STEP1060 - College Athletics and Society

Credits: 3

This course will examine the unique relationship between intercollegiate athletics and higher education, as well as intersections that occur with gender, politics, and race.

STEP1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

STEP1102 - Step Into College

Credits: 1

Helps students interact with UW campus resources, staff, and faculty; learn about resources for academic support and wellness; and explore academic and co-curricular opportunities for students' professional and personal interests.

Restricted Restricted to new full-time, first-year freshmen.

Prerequisite: Freshman or sophomore class standing.

STEP1105 - Academic Success Skills

Credits: 1-2

Designed to provide students the necessary skill set to succeed at the University and beyond. Skills covered include time management, learning styles, note taking, self-motivation and more.

STEP3000 - Student Leadership in Supplemental Instruction

Credits: 2

Focuses on theoretical perspectives of group tutoring and peer leadership, best practices in supplemental instruction, and student reflection. Will strengthen leadership knowledge and skills and introduce effective methods for group facilitation and SI curriculum.

Prerequisite: closed to general enrollment.

Theatre and Dance

THEA1000 - Introduction to Theatre, TV & Film

Credits: 3

A broad examination of theatre, television and film through the ages including history, production, dramatic literature, creativity, art, entertainment and censorship.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

THEA1021 - Academic and Professional Issues in Dance

Credits: 1

Introduces freshman to the discipline of dance and academic study at the University of Wyoming. Key intellectual and literacy concepts will be introduced, including, but not limited to: critical thinking and analysis, knowledge of the discipline, career options, diversity of the discipline, university and region.

USP 2003-2014 Code U3I,U3L

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1050 - Beginning Drawing and Painting

Credits: 3

An introductory drawing and painting technique course for students to achieve a working knowledge of a variety of mediums that cross the disciplines of scenic, costume, and lighting design. Form, perspective, texture and basic color theories will be explored.

THEA1100 - Acting I

Credits: 3

Acting I introduces students to the study of the actor's process with an emphasis on analyzing, rehearsing and performing scenes in front of an audience. The student will be introduced to exercises which promote creative expression. Scene work and scoring will focus on contemporary realism.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Restricted Theater majors or permission of instructor

THEA1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1300 - Musical Theatre Workshop: Voice and Acting

Credits: 2

Max Credit (Max. 8)

Musical Theatre Workshop: Voice & Acting will focus on developing and strengthening the speaking and singing voice for stage, wherein students will construct performances through integration of breath and voice work.

THEA1360 - Fundamentals of Music for Theatre Majors

Credits: 3

Basics of music theory to include music notation, rhythm, pitch, scales, key signatures, triads, and basic ear training and keyboard skills, specific to the needs of Musical Theatre. Assumes little or no music theory background.

THEA1405 - Introduction to Pilates Training

Credits: 1

Max Credit (Max. 2)

An introduction to Pilates based training, including mat work and exercises on the Reformer.

Prerequisite: consent of instructor.

THEA1410 - Beginning Ballet I

Credits: 1

Introduces principles and practices of classical ballet technique.

USP 2015 Code U5H

Prerequisite: THEA 1410 or instructor permission.

THEA1420 - Beginning Ballet II

Credits: 1

Continues studies in classical ballet technique. Instructor permission required.

USP 2015 Code U5H

Prerequisite: THEA 1410.

THEA1430 - Beginning Modern I

Credits: 1

Introduces principles and techniques of modern dance.

USP 2015 Code U5H

THEA1440 - Beginning Modern II

Credits: 1

Continues studies in modern dance techniques.

USP 2015 Code U5H

Prerequisite: Prerequisite THEA 1430 or instructor permission.

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA1470 - Men's Technique

Credits: 1

Max Credit (Max. 2)

Introduces and develops the principles and techniques of movement and dance specific to men.

THEA1480 - Beginning Jazz Dance I

Credits: 1

Explores basic jazz dance techniques and related principles of jazz dance composition.

USP 2003-2014 Code H

THEA2005 - Creative Drama in the Classroom

Credits: 3

Focuses on K-12 Theatre teaching methods. Students discover teaching methods for integrating improvisation, storytelling, movement/dance, and puppetry into the school curriculum. Students design and implement theatre lessons using these creative drama techniques. To engage real life practice teaching, students are given opportunities to teach creative drama lessons to the class.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2030 - Beginning Playwriting

Credits: 3

Introduces writers to the creative process of playwriting (writing for the stage) or screenwriting (writing for the movies). Strongly emphasizes character and story development, as well as practical side of the industry. Students write a play or screenplay.

Former Course Number [3500]

Prerequisite: WA and THEA 1000, THEA 1100.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2050 - Theatre Practice

Credits: 1-2

Encompasses individually supervised practical training in performance and production.

Prerequisite: consent of instructor.

THEA2060 - Introduction to Performance Studies

Credits: 3

Introduces students to the theories and practices of Performance Studies as an interdisciplinary field. Students will apply these concepts as a way of exploring issues of culture and identity, particularly in an international context.

USP 2015 Code U5C2

A&S College Core 2015 ASG

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2145 - Costume Construction

Credits: 3

Teaches the basic skills and terminology that are used in costume construction. Teaches hand and machine sewing focusing on techniques used to stitch historical and modern costumes as well as basic knowledge of fabric.

THEA2150 - Drafting for Design

Credits: 3

Introduces Design and Technical students to the basics of hand drafting and numerous drafting techniques and conventions. After completing this course, students will be well prepared for scenic and lighting design courses.

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

THEA2170 - Speech for the Actor

Credits: 3

Studies speech techniques, including the International Phonetic Alphabet and Standard American Speech for the Stage. Builds upon the FitzmauriceVoicework technique as well as other voice methodologies.

Prerequisite: THEA 1100 and THEA 1700.

THEA2180 - Costume Crafts

Credits: 3

Focuses on the area of costume crafts which may include but not limited to dyeing, millinery, masks, fabric painting and distressing, working with a variety of materials.

Prerequisite: THEA 2145.

THEA2200 - Backgrounds of Dance

Credits: 3

Surveys ethnic and theatrical dance forms from primal society to 20th century. Examines the place of the arts as a reflection of the culture.

USP 2003-2014 Code U3CA,U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2250 - Computer Aided Design I

Credits: 3

Building on skills and techniques learned in THEA 2150 Drafting for Design, the course introduces and provides students with training on commonly used software, that may include CAD, 3D-modeling, and photo editing software. Skills acquired will be built upon in later courses.

Prerequisite: THEA 2150 or by permission of instructor.

THEA2300 - MT Workshop: Scene Study

Credits: 1

Max Credit 1

Study and analysis of written aspects of Musical Theatre (Book, Lyrics, Music) with an emphasis on translating analysis into tangible aspects of musical theatre performance. Study and practice outside of class, as well as rehearsals with assigned scene partner(s) is required.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1300

THEA2340 - Musical Theatre Voice Lesson

Credits: 1

Max Credit (Max. 8)

Solo instruction in singing techniques and performance styles associated with Musical Theatre. Includes demonstration, brief lecture, discussion, and active participation through singing, analyzing, movement, and performance.

THEA2400 - Vertical Dance I

Credits: 1

An introduction to vertical dance including safety issues, beginning rigging and performance.

Prerequisite: consent of instructors.

THEA2410 - Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary, and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2415 - Pointe I

Credits: 1

Max Credit (Max. 4)

A beginning level point class based on the principles of classical ballet.

Prerequisite: Completion of or concurrent enrollment in THEA 2410, or permission of the instructor. Limited to dance majors and minors.

THEA2420 - Intermediate Ballet II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2425 - Pointe II

Credits: 1

Max Credit (Max. 4)

An intermediate level pointe class based on the principles of classical ballet.

Prerequisite: THEA 2415 or permission of the instructor. Limited to dance majors and minors.

THEA2430 - Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA2435 - Repertory

Credits: 1

Max Credit (Max. 4)

A beginning level repertory class based on the principles of modern dance.

Prerequisite: Status in the dance department, or permission of the instructor is required before enrolling.

THEA2440 - Intermediate Modern II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester modern dance technique class for dance majors and minors. Mastering vocabulary and principles will be augmented with a deeper understanding of historical techniques and their application to contemporary dance.

USP 2015 Code U5H

Prerequisite: THEA 2430. Limited to dance majors and minors; admission by permission only.

THEA2445 - Repertory II

Credits: 1

Max Credit (Max. 4)

A beginning level partnering class based on the principles of ballet or modern dance.

Prerequisite: Status in the dance department, or permission of the instructor is required before enrollment.

THEA2450 - Intermediate Tap I

Credits: 1

Continued studies in techniques and principles of tap dance and tap dance composition.

Prerequisite: THEA 1450.

THEA2480 - Intermediate Jazz I

Credits: 1

Continued studies in techniques and principles of jazz dance and jazz dance composition.

USP 2015 Code U5H

Prerequisite: THEA 1480. Instructor permission required.

THEA2720 - Movement for Actors I

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100.

THEA2790 - Stage Management

Credits: 3

Study of the essential elements of supervising theatrical productions. Stresses the art of organizing auditions, casts, crews, rehearsals, and performances while developing a unique professional relationship with directors, designers and actors. Students will work on a live production.

Prerequisite: THEA 1100, THEA 1200, THEA 2220.

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

THEA2810 - Scenic Painting for the Theatre

Credits: 3

Introduces the art of scenic painting by the hands-on use and instruction of a variety of scenic paints, application on select construction materials, the use of unique tools and techniques commonly used to paint scenery for the stage. Safe use and proper handling of such material are addressed.

Prerequisite: THEA 2220.

THEA2900 - Sound Design for Theatre and Dance

Credits: 3

Examines the basic aspects of sound design for the theatre, dance, entertainment and film worlds. Topics covered include recording, sampling, live mixing, playback, and non-linear editing through several software packages.

Prerequisite: THEA 2220.

THEA2990 - Period Style for Theatre I

Credits: 3

First semester of a one-year survey. Studies antiquity to the Renaissance with an overview of the architecture, décor, clothing, arts and culture as related in their use and understanding of Western drama. The social, economic, and political histories of each period will be discussed as well. THEA 2990 and THEA 2995 should be taken in sequence.

THEA2995 - Period Style for Theatre II

Credits: 3

Second semester of a one-year survey. Studies Renaissance to Contemporary with an overview of the architecture, decor, clothing, arts and culture as related in their use and understanding of Western drama. The social, economic, and political histories of each period will be discussed as well. THEA 2990 and 2995 should be taken in sequence.

Prerequisite: THEA 2990 or permission of instructor.

THEA3000 - Special Topics in Theatre

Credits: 3

Max Credit (Max. 9)

Provides undergraduates with the opportunity for in-depth study in areas of Theatre not offered in regular courses or independent study. Course includes discussions on specific topics as well as studio work.

Prerequisite: 6 credit hours in Theater/Dance.

THEA3021 - Foundations of Dance Pedagogy

Credits: 1

Introduces students to basic theories and practices of dance pedagogy. Lecture and discussion will be balanced with peer teaching and coaching, observation of lessons and integration within a dance classroom situation with some teaching responsibilities and development of a portfolio with lessons and resources for teaching.

Prerequisite: sophomore standing in the department of Theatre and Dance; successful completion of THEA 3420 or THEA 3440.

THEA3100 - Kinesiology for Dance

Credits: 3

Encompasses seminar in current kinesiology research for dancers. Includes practicum based projects, lectures and supplementary materials.

Prerequisite: ZOO 2040.

THEA3160 - Advanced Stage Makeup

Credits: 2

Extension of Stage Makeup, focusing primarily on the development of a life mask and ultimately prosthetics using a variety of mediums.

Prerequisite: THEA 2160.

THEA3300 - MT Workshop: Production

Credits: 1-2

Max Credit 2

Focusing on solos, duets and/or large and small ensemble pieces, instruction will include music preparation, choreography, blocking, acting, character study and performance. Additional scene study, rehearsals outside of class times, mock auditions, and study of materials will be required. The course will be repeated twice for credit.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1300

THEA3400 - Vertical Dance II

Credits: 1

A continuing course in vertical dance emphasizing the math and physics of the rigging; safety and design, choreography and research in the field.

Prerequisite: completion of THEA 2400 and consent of instructors.

THEA3410 - Adv/Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester ballet technique class for dance majors and minors. Emphasis is placed on improving technical skills and learning more advanced steps. Includes research into one discipline of ballet.

Prerequisite: successful completion of THEA 2440 and admission by permission only. Limited to dance majors and minors.

THEA3420 - Adv/Intermediate Ballet II

Credits: 1.5
Max Credit (Max. 3).

Second semester, second year ballet technique class for dance majors and minors. Emphasizes broadening the dancer's movement vocabulary while refining acquired technical skills. Dancers begin work in study of Baroque dance terms.

Prerequisite: successful completion of THEA 3410 or equivalent required. Limited to dance majors and minors; admission by permission only.

THEA3430 - Adv/Intermediate Modern I

Credits: 1.5
Max Credit (Max. 3)

A second year, first semester, intermediate level modern dance technique class for dance majors and minors. Continued training in classical modern dance and continued historical survey of modern dance will be augmented by rhythmic analysis and compositional forms.

Prerequisite: successful completion of THEA 2440 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3440 - Adv/Intermediate Modern II

Credits: 1

A second year, second semester, modern dance technique class with continuing studies of sequential modern dance technique at the intermediate level, introduction of Laban effort/shape theory, compositional forms, improvisation and additional rhythmic analysis.

Prerequisite: THEA 3430 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3480 - Adv/Intermediate Jazz I

Credits: 1
Max Credit (Max. 2)

An intermediate jazz technique class. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation and incorporate them into class compositions.

Prerequisite: THEA 2480.

THEA3490 - Advanced Jazz I

Credits: 1
Max Credit (Max. 2)

An advanced class in jazz technique and performance. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation as well as incorporate them into class compositions.

Prerequisite: THEA 3480.

THEA3501 - Screen Writing and Television Writing

Credits: 3

This class introduces students to the craft of writing for movies and television. Strong emphasis is placed on character and story development as well as how the Hollywood entertainment industry works.

Prerequisite: COM1 or consent of instructor.

THEA3600 - Teaching Theatre in Elementary or Secondary School

Credits: 3

Focuses on aspects of age appropriate teaching methods, strategies, and curriculum planning for either elementary or secondary education. Additional emphasis include planning a production season, arts management and budgeting, using national and state content and performance standards, assessing student growth, and developing community advocacy plans.

Prerequisite: THEA 1100.

THEA3650 - Theatre for Young Audiences: Plays and Production

Credits: 3

Highlights aspects of performance and directing for child audiences. Students will explore the work of outstanding contemporary playwrights who are writing for young audiences, and develop techniques in writing, acting, and directing for and with young people.

Prerequisite: THEA 1100.

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3740 - Acting Styles

Credits: 3

Focuses on textual analysis of plays from different periods and styles of dramatic literature. Emphasizes vocal and physical interpretation of character as represented in non-realistic styles of drama.

Prerequisite: THEA 1100 and THEA 3710.

THEA3750 - Acting for the Camera

Credits: 3

Addresses performance skills required in acting for the camera. Covers various techniques, styles, and skills necessary to be successful in the professional world of film and television as an actor. Students perform scenes for 3-camera and single camera set-ups, and become familiar with rudimentary technical skills as crewmembers for shoots. Lecture and test material cover career opportunities, union affiliations, and current trends in the film and television industry.

Prerequisite: THEA 1100 and THEA 3710. THEA 3805. Stage Lighting II.

THEA3805 - Stage Lighting 2

Credits: 3

Max Credit 3

Analyze proposed productions in terms of period, style, theatre limitations and instrument inventories. Determine appropriate design solutions in written descriptive analyses that result in 2-D drawings of the design. Produce all supporting paperwork including drafting a plan view, section view, instrument schedules, magic sheets and proposed cue lists. Instructor permission required.

Prerequisite: THEA 2800

THEA3810 - Scene Design I

Credits: 3

An in-depth study of idea development from script analysis through design conception using different types of theaters and source material. The design process will cover research, drawing, drafting, model making, and rendering.

Prerequisite: THEA 2150 and THEA 2220 or by permission of instructor.

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

THEA3830 - Video Design for Live Theatre

Credits: 3

The purpose of this course is to explore the methodology, skills, and resources commonly used to create digital media (video) elements for a live production. In this course students will explore the practice of being a video designer for a live production and approaches to providing the media needed for this field of design.

Prerequisite: THEA 1200 , THEA 2250 , THEA 2220

THEA3840 - Historical Costumes from the Skin Out

Credits: 3

Learning how to replicate period gowns and undergarments prior to the 1920s by draping and flat-patterning techniques. Includes the research and construction of one complete set of period undergarments and gown either as an individual or in a team to be determined by the complexity of the garment and the skill level of the students.

Prerequisite: FCSC 3174 (4170) or FCSC 3175.

THEA3850 - Design and Technology Seminar

Credits: 2

Introduces designer/technician to process of preparing successful interview material, including a professionally developed portfolio. Exposes designer/technician to business aspects of the theatre world, including resumes, letters of inquiry and application, contracts, unions and professional organizations, internships, apprenticeships, URTAs and professional design/technical training programs. Culminates in junior End-of-the-Year Evaluations.

Prerequisite: junior standing in the BFA Program with Design/Technical emphasis.

THEA3890 - Lighting CADD

Credits: 3

Designed for the advanced lighting student, provides further exploration of the computer technology that has become so critical for modern lighting design. Introduces students to software programs such as VectorWorks, Lightwright, and Photoshop, as well as networking and advanced programming for modern light boards.

Prerequisite: THEA 2250 and THEA 2800.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD
Former Course Number [591]

Prerequisite: junior standing.

THEA3950 - Dialects for the Actor

Credits: 3

Introduces the actor to five major dialects for the stage. Examines sensibility, vowel and consonant changes, pitch placement and charting.

Prerequisite: THEA 1100, THEA 1700, and THEA 2170.

THEA4001 - Historical Dance

Credits: 2

Max Credit (Max. 2)

Historical dance forms in the "Noble Style" dating from the 15th through 18th Centuries. Class work covers the relationship of musical forms to the specific step vocabulary and dances of each period, deportment, period costume as it relates to movement, social environment, period style with an emphasis on reconstruction of 17th and 18th Century dances from Feuillet notation.

Prerequisite: THEA 3440.

THEA4010 - Advanced Ballet

Credits: 1-3

Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3

Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

THEA4060 - English/Theatre Studies in

Credits: 3
Identical to ENGL 4060.

THEA4200 - 20th Century Dance

Credits: 3
Intensely studies dance in 20th Century, emphasizing contemporary movement in modern, ballet, jazz and musical theatre dance. Examines social, political and aesthetic trends influencing dance theory and performance.

USP 2003-2014 Code U3CA,U3WC
USP 2015 Code U5C3

Prerequisite: THEA 2200.

THEA4230 - Greek Tragedy

Credits: 3
Reading and discussion of major plays by Aeschylus, Sophocles, and Euripides, together with examination of the performance and social context of Greek drama, its use of traditional myths, and selected issues in contemporary scholarship on the tragedies.

Cross Listed CLAS 4230/ENGL 4230.

Prerequisite: WB or COM2.

THEA4250 - Beginning Dance Composition

Credits: 2
Presents and criticizes movement studies based on various approaches to composition. Explores experimentation in choreography.

Prerequisite: THEA 2420, THEA 2440.

THEA4260 - Intermediate Dance Composition

Credits: 2-3
Prerequisite: THEA 4250 and consent of instructor.

THEA4330 - History of American Musical Theatre

Credits: 3
History of the American Musical from its inception to today. Emphasis on developments and literature.

USP 2003-2014 Code U3WC
USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at the 3000-level.

THEA4500 - Advanced Playwriting

Credits: 3

An intensive continuation of THEA 3500. Focuses on the creation, analysis and rewriting of play script(s), culminating in a public reading or performance of the script(s).

Prerequisite: THEA 2030.

THEA4600 - Teaching Theatre Artists: Service Learning in the Community

Credits: 3

Focus on Service Learning in the Community. Students will have the opportunity to observe various settings in the community of development of theatre program. Some areas of observation and practicum include drama/theatre-in-education, community-issue-focused-theatre, and theatre with special populations, crisis prevention, drama therapy, Preventive Medical Agencies, etc.

Prerequisite: THEA 1100.

THEA4700 - Auditioning and Careers in Dance

Credits: 1

Designed for dance majors as a culminating course in preparation for final semester auditions and applications for companies and graduate schools. Through this course, students will set career goals, create an audition portfolio, and gain exposure to the many challenges and opportunities in dance.

Prerequisite: senior standing, THEA 1021, and one semester of THEA 4010 or THEA 4030.

THEA4710 - Acting IV

Credits: 3

Max Credit 3

Involves intensive work at an advanced level dealing with individual actor's problems through the medium of scene study.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 3710

THEA4720 - Auditioning and Professional Issues

Credits: 3

Introduces actors to process of finding, preparing and executing successful audition material, including monologues, songs and dance combinations. Exposes actors to business aspects of the theatre world, including resumes, photos, contracts, unions, internships, apprenticeships, Equity Membership Candidacy programs, URTA's and professional actor training graduate programs. Culminates preparation for final semester auditions for the company/school of choice.

Prerequisite: THEA 1100, THEA 3710 and THEA 3740.

THEA4730 - Movement for Actors II

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100 and THEA 2720 .

THEA4770 - Summer Theatre

Credits: 1-3

Offers credit for participation in the Wyoming Summer Theatre program in all phases of production.

When Offered (Offered summer session)

Prerequisite: 12 hours in theatre and consent of instructor.

THEA4800 - Stage Lighting-Production

Credits: 3

Explores design and execution of lighting for theatrical production. Includes practical laboratory work with Theatre & Dance productions.

Prerequisite: THEA 2800, THEA 2900, and 3805.

THEA4810 - Scene Design II

Credits: 3

Building on previous coursework, this course will focus on further development of the individual creative and design processes, honing research and presentation skills, and refinement of artistry and craftsmanship. Strong emphasis will be on the presentation of ideas and the advancement of the portfolio.

Prerequisite: THEA 2250 and THEA 3810.

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4830 - Directing II

Credits: 3

Focuses on creative process of developing directorial concepts, establishing the world and style of the play, working with the actor, and functioning as a designer. Includes exercises that analyze different directorial approaches, as well as the audition and casting process. Culminates one-act mounted production performed before invited audience.

Prerequisite: THEA 4820 and written permission of instructor.

THEA4845 - Costume Fit and Alteration

Credits: 3

Focuses on fitting modern clothing and historical costumes to individuals. Students learn how to identify fit issues in a fitting, make the proper corrections and fit the garment again. Students use a combination of previously constructed garments and also pattern garments to fit.

Prerequisite: FCSC 3174 (4170) or FCSC 3175.

THEA4850 - Stage Costuming II

Credits: 3

Explores costume design, emphasizing various rendering techniques. Emphasis is placed on the portfolio.

Prerequisite: THEA 3820.

THEA4880 - Advanced Theatre Practice

Credits: 1-2

Prerequisite: 12 hours in theatre and consent of instructor.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

THEA4940 - Theatre History II

Credits: 3

Second semester of a one-year series. Continues THEA 4930.

Prerequisite: THEA 4930.

THEA4950 - Senior Thesis

Credits: 3

Encompasses senior research project under faculty member guidance and supervision.

Prerequisite: senior standing.

THEA4960 - Senior Project

Credits: 1-3

Max Credit (Max. 3)

Exercise in the practical application of production, centered on a UW production, either main stage or studio. It may deal with design in scenery, costumes, properties, sound, makeup, playwriting, technical direction, directing, dance pedagogy, or choreography. The project is intended to be a "real" exercise in theatrical production.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

THEA4990 - Research in Theatre

Credits: 1-3

Prerequisite: 6 hours in area of research and consent of instructor.

University of Wyoming

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

FYS-First Year - Seminar

Credits: 3
Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

GRAD5150 - Special Topics in ____ :

Credits: 1-6
Max Credit 6

Courses of broad general appeal and an interdepartmental flavor will be offered from time to time under this title. Permits utilization of unusual faculty expertise and provides highly-specialized and particularly pertinent, timely subject matter.

Restricted Graduate students only

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

UWYO1000 - IC for Undeclared Students

Credits: 2

An introduction to the intellectual community of the University of Wyoming, information literacy, and higher education in general, and is specifically intended for students who have not yet made a decision about their college major. Students will begin to develop the critical thinking skills that are necessary in higher education and to explore the primary intellectual activities of various disciplines.

Cross Listed A&S 1000.
USP 2003-2014 Code U3I,U3L

UWYO1019 - UWYO Saddle Up

Credits: 1

This mandatory course provides a five-day intensive academic program emulating the rigors of a midterm week during a normal college semester.

USP 2015 Code U5FY

UWYO1050 - Student-Athlete Academic Success

Credits: 1

Introduces first-year student athletes to U. W. Includes an introduction to campus resources, time management and study skill techniques, exploration of learning styles, diversity topics, and strategic goal setting to be a successful student and athlete.

UWYO1060 - College Athletics and Society

Credits: 3

UWYO1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

UWYO1205 - Student Success Services First Year Seminar

Credits: 1

First year students enrolled in the Student Success Services project will learn how to utilize campus resources and understand, her/his interests and values and develop the ability to establish and work toward short-term and long-term career goals, apply personalized study strategies and interpret university, college, and departmental rules and regulations.

USP 2003-2014 Code U3I,U3L

Prerequisite: Freshman only (exclusively for students who are part of the SSS project).

UWYO1450 - Critical Reflection in Intellectual Communities

Credits: 3

Intellectual Community course for the Synergy learning community. Supports WA reading, research, and writing activities. Provides opportunities for students to read critically, conduct primary and secondary research, investigate diversity issues, develop computer literacy, and learn about the intellectual expectations of college life. Unaffiliated with a major department.

USP 2003-2014 Code U3I,U3L

UWYO1600 - Veterans Transition Course

Credits: 1

Provides returning veterans skills for successful transition to college and civilian life. Reviews tools for academic success, resources available to the veteran, information on veteran related challenges, and career planning resources. Students will develop skills in written, oral, and digital communication.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3I,U3L

USP 2015 Code U5C2

Prerequisite: Students must be a U. S. military veteran or an active duty military member.

UWYO3000 - Student Leadership in Supplemental Instruction

Credits: 2

Focuses on theoretical perspectives of group tutoring and peer leadership, best practices in supplemental instruction, and student reflection. Will strengthen leadership knowledge and skills and introduce effective methods for group facilitation and SI curriculum.

Prerequisite: closed to general enrollment.

UWYO3010 - Student-Athlete Leadership Skills

Credits: 1

Designed for students to gain and apply leadership skills among other topics such as healthy relationships, nutrition, budgeting, and preparing for internships. This course builds on UWYO 1050 Student-Athlete Academic Success, and prepares the student for UWYO 3050 Student-Athlete Career Preparation.

Prerequisite: COM1.

UWYO3050 - Student-Athlete Career Prep

Credits: 1

Works with junior and senior student-athletes as they prepare to leave college and embark on their career search. Includes topics such as: resume writing, cover letter writing, practice interviews, professional attire, interview etiquette, and mental health after college athletics.

Prerequisite: COM2.

UWYO3600 - Veterans: Campus-To-Career

Credits: 3

Provides veterans with skills for successful transition from campus to the global workforce. Reviews tools for career success, resources available to veterans, information on veteran related challenges, and career planning resources. Students will develop skills in written, oral, and digital communication. Students will explore web based job search platforms and attend job fairs. Course intended for U. S. military veterans or an active duty military member.

USP 2015 Code U5C3

Prerequisite: COM2.

UWYO4000 - Study Abroad

Credits: 1

Max Credit 15

This is a placeholder course and has no description

UWYO4101 - BGS Capstone Design

Credits: 3

The capstone course has two major focuses: encouraging you to reflect on and integrate the learning you've done on your way to this degree and offering you the chance to apply that learning towards an interesting, important problem that makes good use of your growing expertise. The course also provides you the chance to refine your career-advancement materials and to develop a stronger understanding of the norms and values of fields that interest you.

USP 2015 Code U5C3

Prerequisite: COM2.

UWYO4600 - Veteran Issues in Higher Ed

Credits: 3

Max Credit 3

This upper division course is designed to be a capstone veterans course that will explore the student veterans and service members (SVSMs) experience in higher education and how they experience those parts of the curriculum that influence their experience but are either not accounted for, or invisible. The course will investigate SVSMs experiences through Reflective Dialogue (RD).

Prerequisite: FYS & COM2

UWYO4965 - Directed Studies/Research Problems

Credits: 1-3

Max Credit (Max. 12)

Interdisciplinary international undergraduate research or short-term study abroad project under the supervision of a visiting faculty member. Topics and themes will vary based on the international research and study abroad opportunities available.

Prerequisite: Completion of COM1 and consent of instructor. Undergraduate status in good academic standing. Additional prerequisites will be determined by instructor of record.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Wyoming Institute for Disabilities

WIND2100 - Introduction to Disability Studies

Credits: 3

Provides students with an overview of the disability studies field. Students gain introductory knowledge about the

disability studies perspective by examining the work of scholars from many academic backgrounds, which will facilitate students' understanding of the interdisciplinary nature of disability studies.

USP 2003-2014 Code U3CH,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

WIND2500 - Special Topics

Credits: 1-3

Max Credit (Max. 6)

Provides undergraduate students with the opportunity to gain introductory knowledge of critical topics and new areas of inquiry in the field of disability studies.

WIND2700 - Gender and Disability

Credits: 3

Disability studies draws upon critical theory to investigate disability as a discursive construction. Investigates how intersecting conceptions of disability and gender have shaped cultural meanings and the social positioning of specific groups, especially women with disabilities. Topics include non-normative embodiment, issues of representation and subjectivity, and the politics of health, sexuality, and care.

Cross Listed GWST 2700.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

WIND3150 - Literature and Medicine

Credits: 3

This course explores how literature and memoirs have grappled with illness, disease, and disability, paying particular attention to the perspectives of doctors, nurses, patients, families, and communities in shaping meanings of diagnoses, health, and access to care.

Prerequisite: Completion of COM1.

WIND4020 - Disability Studies Theory and Practice

Credits: 3

Explores the interdisciplinary nature of disability studies theory and scholarship, including investigation of embodied knowledge, cultural meanings, and socio-political practices related to disability. Students will develop in-depth critical disability research papers and deliver accessible, professional presentations.

Cross Listed SOWK 4020.

Dual Listed WIND 5020.

USP 2003-2014 Code U3CS

USP 2015 Code U5C3

Prerequisite: WIND 2100 or WB or COM2.

WIND4050 - Independent Study

Credits: 1-3

Max Credit (Max. 6)

Offers the advanced student the opportunity to pursue a topic of interest with the direction of an instructor in disability studies.

Dual Listed WIND 5050.

Prerequisite: WB and consent of instructor.

WIND4100 - Global Disability Studies

Credits: 3

The course investigates global approaches to disability, including the UN Convention on the Rights of Persons with Disabilities (CRPD), and crucial disability issues such as education, employment, poverty and social integration. Students will carry out research projects and present on their work.

USP 2003-2014 Code [none] >COM3]

Prerequisite: COM2

WIND4200 - Diverse Minds

Credits: 3

Through investigations of novels, memoirs, films, and media representations of intellectual disability, autism/neurodiversity, and psychiatric disability, students critically analyze figurations of "unstable," "unruly," or what we will conceptualize as "diverse" minds.

Dual Listed WIND 5200.

USP 2003-2014 Code [none] >COM3]

Prerequisite: COM2

WIND4500 - Practicum

Credits: 3

Provides students practical experience in the field of Disability. Typically taken during a student's final semester in the Disability Studies Minor.

Prerequisite: completion of WIND 2100, and WIND elective, WIND 4020 (or concurrent enrollment).

WIND4600 - Special Topics

Credits: 3

Provides upper division undergraduate students with the opportunity for in-depth examination of critical topics and new

areas of inquiry in the field of disability studies.

Prerequisite: WIND 2100 , Junior standing and consent of instructor.

WIND4990 - Topics in

Credits: 1-3
Max Credit (Max. 12)

Provides upper division/graduate students with the opportunity for critical analysis and in-depth examination of various topics in the field of Disability Studies.

Prerequisite: consent of instructor.

WIND5020 - Disability Studies Theory and Practice

Credits: 3
Explores the interdisciplinary nature of disability studies theory and scholarship, including investigation of embodied knowledge, cultural meanings, and socio-political practices related to disability. Students will develop in-depth critical disability research papers and deliver accessible, professional presentations.

Cross Listed SOWK 5020

Dual Listed WIND 4020.

Prerequisite: WIND 2100 or WB or COM2.

WIND5050 - Independent Study

Credits: 1-3
Max Credit (Max. 6)

Offers the advanced student the opportunity to pursue a topic of interest with the direction of an instructor in disability studies.

Dual Listed WIND 4050.

Prerequisite: WB and consent of instructor.

WIND5100 - Topics In:

Credits: 1-3
Max Credit (Max. 12)

Provides graduate students with the opportunity for critical analysis and in-depth examination of various topics in the field of Disability Studies.

Prerequisite: upper division/ graduate standing.

WIND5200 - Diverse Minds

Credits: 3

Through investigations of novels, memoirs, films, and media representations of intellectual disability, autism/neurodiversity, and psychiatric disability, students critically analyze figurations of "unstable," "unruly," or what we will conceptualize as "diverse" minds.

Dual Listed WIND 4200.

Prerequisite: consent of instructor.

Zoology and Physiology

ZOO1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ZOO3010 - Vertebrate Anatomy, Embryology, and Histology

Credits: 4

Provides a comprehensive overview of vertebrate anatomy. The structural organization, embryological derivation, and histological organization of the major organ systems will be emphasized. The evolution and functional organization of anatomical structure will also be emphasized. Includes laboratory sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: LIFE 2022 or equivalent, and a semester of chemistry.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish

and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed NEUR 4295.

Dual Listed ZOO 5295.

Prerequisite: ZOO 4280.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological

problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

ZOO4650 - Tropical Field Ecology Ecuador

Credits: 4

Course comprises 10 days in Ecuador in January (before spring semester), followed by one lecture per week during spring semester. Focus will be ecology, biodiversity and conservation of tropical forests and behavioral ecology of birds and mammals. Field site is at 1100m on west slope of the Andes.

Dual Listed ZOO 5650.

Prerequisite: LIFE 2022.

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO4740 - Fish Culture and Nutrition

Credits: 3

Studies methods in artificial propagation of fishes. Includes spawning, hatchery methods, water quality requirements and nutritional requirements. Includes laboratory.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022, CHEM 1020.

ZOO4900 - Problems

Credits: 1-8

For advanced students. Studies some particular problem or phase of zoology, or presents reviews and discussions of current advancement in zoological investigations. Content is arranged to suit individual needs of students.

Prerequisite: courses necessary to pursue the problem selected; prior written consent of the instructor.

ZOO4970 - Internship in Wildlife Management

Credits: 1
Max Credit (Max. 1)

Provides practical field experience in resource management for undergraduate credit.

Prerequisite: consent of instructor.

ZOO4971 - Internship in Zoology and Physiology

Credits: 1-3
Max Credit (Max. 6)

Provides practical experience in selected biological fields by working with a professional to help bridge the gap between academic and the world of work.

Prerequisite: consent of instructor.

ZOO4975 - Practicum in Laboratory Instruction

Credits: 1-3
Max Credit (Max. 6)

For advanced students. Students will assist GAs and professors in laboratory preparation and demonstration in undergraduate teaching labs.

Prerequisite: consent of instructor.

ZOO5050 - Statistical Methods for the Biological Science

Credits: 3
General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 2020, STAT 3050, STAT 5050, 5060, STAT 5070.

Cross Listed STAT 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

ZOO5060 - Fundamental Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/BOT 5060.

Prerequisite: graduate student in good standing.

ZOO5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed NEUR 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

ZOO5190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces the discipline which has risen between the traditional fields of physiology and ecology and provides an understanding of animal distribution and survival.

Dual Listed ZOO 4190.

When Offered (Offered spring semester)

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO5235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 5235.

Dual Listed ZOO 4235.

Prerequisite: graduate standing.

ZOO5270 - Writing and Reviewing Science

Credits: 4

This course will help students prepare a scientific manuscript for submission to a peer-reviewed journal; in so doing, students will become more effective, efficient, and confident writers. Students will learn principles of effective writing, how to prepare a manuscript for publication, navigate the peer-review process, and write a constructive review.

Cross Listed ENR 5270.

Prerequisite: Students must have graduate standing and an analyzed dataset on which the manuscript will be based. Students must have approval from their advisors and key collaborators before embarking on this journey. Students are also encouraged to maintain this approval throughout the semester.

ZOO5280 - Introduction to Neuroscience

Credits: 3

Examines the basic properties of neurons and from there identifies determinants of brain development and how neuronal circuits are formed. How neuronal circuits underlie processing sensory information, coordinated movement, complex functions (e. g. sleep, learning) and homeostasis are discussed.

Cross Listed NEUR 5280.

Dual Listed ZOO 4280.

Prerequisite: ZOO 3115 or equivalent.

ZOO5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed NEUR 5295.

Dual Listed ZOO 4295.

ZOO5300 - Wildlife Ecology and Management

Credits: 5

Concepts of vertebrate ecology integrated with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. viability analysis, monitoring, habitat assessment), and ecosystem management approaches are discussed. Lab included.

Dual Listed ZOO 4300.

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO5310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and recruitment, and the use of yield models in fisheries biology. Laboratory and field exercises included.

Dual Listed ZOO 4310.

Prerequisite: ZOO 4330.

ZOO5330 - Ichthyology

Credits: 3

Studies anatomy, physiology, and classification of fishes, emphasizing classification and identification of Wyoming fish. Includes laboratory.

Dual Listed ZOO 4330.

Prerequisite: LIFE 2022 or LIFE 2023.

ZOO5340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration, and asexual reproduction. Emphasizes mechanisms that create form and cellular differentiation.

Dual Listed ZOO 4340.

Prerequisite: one year of life science or one year of chemistry.

ZOO5350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history, and ecology of the birds of North America. Laboratory included.

Dual Listed ZOO 4350.

Prerequisite: LIFE 2022.

ZOO5370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology, and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 4370.

Prerequisite: LIFE 2022 or LIFE 2023.

ZOO5380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 4380.

Prerequisite: LIFE 2022.

ZOO5400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 4400.

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050.

ZOO5405 - Winter Ecology of the Yellowstone Ecosystem

Credits: 2

Winter Ecology emphasizes the effects of winter abiotic conditions on organisms and organismal adaptations. Energy flux, snowpack physics, organismal adaptations, avalanche awareness, and the influence of winter on wildlife management are emphasized through lectures and field laboratories. Students will develop an independent research project and present their results.

Prerequisite: graduate standing.

ZOO5415 - Behavioral Ecology

Credits: 3

Behavioral ecology applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 4415.

Prerequisite: ZOO 3600 or LIFE 3400.

ZOO5420 - Ecological Inquiry

Credits: 3

Addresses basic ecological concepts and natural resource management issues in the Greater Yellowstone Ecosystem (GYE). Emphasis will be placed on developing critical thinking skills and exploring the effects of resource management policy and actions. Course direction will involve moving from a known facts way of thinking in to realm of evaluating effects of human management of the GYE.

Prerequisite: LIFE 2022, LIFE 3400, and graduate standing.

ZOO5430 - Ecology of the Greater Yellowstone Ecosystem

Credits: 3

Covers plant and animal community ecology from both a qualitative and quantitative perspective. Topics include: community interaction of plants and animals; community dynamics, succession, and disturbance; basic data collection and statistical analysis of habitat association data; and the effect of abiotic factors on community structure.

Prerequisite: LIFE 2022, LIFE 3400, and graduate standing.

ZOO5500 - Quantitative Analyses of Field Data

Credits: 4

A practical guide to the analysis of messy field data, including data exploration, generalized linear and additive models, mixed models, autocorrelation, and model selection using Program R. Students will spend one intensive week learning methods and the rest of the semester analyzing their own data and writing a manuscript.

Cross Listed ECOL 5500.

Prerequisite: graduate standing.

ZOO5520 - Habitat Selection

Credits: 2

In this course we will cover theory and behavioral/evolutionary concepts related to the process of habitat selection, the contexts under which habitat choices are adaptive or maladaptive, and different types of anthropogenic habitat change and the consequences for animals in the wild.

Cross Listed ECOL 5520.

Prerequisite: graduate students in good standing.

ZOO5530 - R Intro for Wildlife Ecology

Credits: 1-4

Max Credit (Max 4)

An intensive introduction to program R for graduate students in the fields of wildlife and fisheries ecology. Students will gain a general knowledge of R code and an ability to identify and solve problems for their particular data management and analysis needs.

ZOO5540 - Invertebrate Zoology

Credits: 4

Studies invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 4540.

Prerequisite: LIFE 2022.

ZOO5600 - Research in Physiology

Credits: 1-16

Max Credit (Max 16)

Opportunities are available for research in physiology and in animal behavior. Maximum credit not to exceed 8 hours for master's candidates and 16 hours for PhD candidates.

ZOO5650 - Tropical Field Ecology Ecuador

Credits: 4

Course comprises 10 days in Ecuador in January (before spring semester), followed by one lecture per week during spring semester. Focus will be ecology, biodiversity and conservation of tropical forests and behavioral ecology of birds and mammals. Field site is at 1100m on west slope of the Andes.

Cross Listed ECOL 5650.

Dual Listed ZOO 4650.

Prerequisite: graduate standing.

ZOO5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms are covered in addition to the basic neurophysiology of nerve cells. The laboratory complements the lecture sequence.

Cross Listed NEUR 5685.

Prerequisite: one course in physiology, chemistry, physics.

ZOO5690 - Advanced Animal Behavior

Credits: 3

An advanced consideration of research in, and theory of, animal behavior.

Prerequisite: senior or graduate standing in zoology or psychology.

ZOO5715 - Seminar in Neuroscience

Credits: 2

Max Credit (Max 20)

A continuing seminar. All students in the graduate neuroscience program are expected to register for this seminar each semester. The interdisciplinary approach to the nervous system is used employing work from physiology, neuroanatomy and neurochemistry, psychology, pharmacology, and biochemistry.

Cross Listed NEUR 5715.

Prerequisite: admission to the graduate neuroscience program or graduate standing.

ZOO5725 - Transmission Electron Microscopy

Credits: 3

With the emphasis on modern techniques, course prepares students via theory and technical experience to use transmission electron microscopy in biological and material science research. An individual research project is required.

Prerequisite: consent of instructor.

ZOO5735 - Advanced Topics in Physiology

Credits: 1-4
Max Credit (Max 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 4735.

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO5740 - Biological Confocal Microscopy

Credits: 2

With the advances of technology, confocal microscopy is an increasingly important tool for biological research. Teaches students the basic principles of confocal microscopy and its biological applications. This is a hands-on course and students have the chance to practice on a state-of-the-art confocal microscope.

ZOO5750 - Research: Ecology

Credits: 1-16
Max Credit (Max 16)

A wide variety of biotic communities, both terrestrial and aquatic, occur in Wyoming which afford excellent opportunities for ecological studies with responses of animals to the physical, chemical, and biotic factors of their environment. The research must be conducted under the supervision of a faculty member.

ZOO5820 - Research in Vertebrate Fauna

Credits: 1-16
Max Credit (Max 16)

Wyoming affords unusual opportunities for the study of a wide variety of vertebrate animals. The taxonomy, distribution, and certain aspects of the life histories of these animals are still inadequately known and afford excellent opportunities for research. Numerous problems concerning the management of our game animals remain to be investigated. The research must be conducted under the supervision of a zoology faculty member.

ZOO5840 - Advanced Fisheries Management

Credits: 3
Familiarizes students in wildlife management and ecology with the advanced methods and techniques in fisheries management.

Prerequisite: ZOO 4310/ZOO 5310 and consent of instructor.

ZOO5890 - Graduate Seminar

Credits: 1-4
Max Credit (Max 10)

Provides an opportunity for graduate students to critically evaluate publications on zoological research.

Prerequisite: 20 hours of biological sciences.

ZOO5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate standing.

ZOO5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max 16)

Prerequisite: advanced degree candidacy.

ZOO5930 - Network Analysis

Credits: 2

Addresses problems in ecology, neurobiology, sociology, geography and behavioral ecology. Networks consists of entities (nodes) such as neurons, individuals or locations, linked by interactions (e. g. , flow of information, pollen or behavior). Students will analyze topics of interest using R scripts. 2 hour lecture each week in spring semester.

Cross Listed ECOL 5930.

Prerequisite: graduate standing.

ZOO5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max 16)

Prerequisite: advanced degree candidacy.

ZOO5960 - Thesis Research

Credits: 1-12
Max Credit (Max 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ZOO5980 - Dissertation Research

Credits: 1-12
Max Credit (Max 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

ZOO5990 - Internship

Credits: 1-12
Max Credit (Max 12)

Prerequisite: graduate standing.

Credit Available to Undergraduate Students

- I. University of Wyoming Credit
- II. Transfer Credit
- III. Military Service Courses

The University of Wyoming offers credit towards an undergraduate degree through:

I. University of Wyoming Credit

Instructed Classes

Courses are offered on campus and at distance settings around the state, including recognized academic courses under faculty general supervision such as internships, clerkships, clinical experience, co-op programs, etc.

Distance courses

Unlike some institutions, UW delivers courses at a distance through its mainstream academic departments, not through a separate academic unit. Academic department heads have the authority to assign instructors to distance-delivered courses, including online courses. They also have a responsibility to ensure that those courses are comparable in rigor and effectiveness to courses delivered face to face.

For this reason, when a department offers a UW course both face to face and at a distance, any UW student may satisfy any relevant university-, college-, and department-level requirements or elective credit by taking the course in either format.

Exceptions may arise when it is necessary to reserve space in a distance-delivered course for off-campus students, who can't take the face-to-face version. In these cases, departments may reserve spaces for off-campus students. But to the extent that spaces remain available after all interested off-campus students have enrolled, these spaces must be available to interested on-campus students.

Credit by Examination

An examination of an appropriate type and content for the credit sought may be conducted to determine if the applicant's proficiency is equivalent to that which could be expected upon completion of a college-level course in the subject. An applicant found to have this level of proficiency will be awarded credit for that course and allowed to proceed either with more advanced courses or with courses in other areas.

The use of credit by examination, or credit for prior learning, in graduate programs is not allowed.

Information concerning credit by examination can be obtained by contacting the Office of the Registrar.

Departmental Exams

While there is no maximum placed on the amount of credit earned by examination, credit so earned does not count in fulfilling the residency requirement of 30 hours of upper division University of Wyoming credit.

A student may not be allowed credit by examination in a course in which the student is currently or was previously enrolled either for credit or as a visitor or auditor, except that credit by examination may be used as a means to obtain credit for courses previously taken at institutions from which credit is nontransferable. A student may not challenge equivalent courses.

A student may not earn credit by examination in a course if the student has completed a course in the subject matter area above the level of the course for which the examination is sought. However, at the discretion of the departments involved, during the add/drop period a student may challenge a lower-level course while enrolled in a higher-level course in the same subject matter area, if the course challenged is a prerequisite for the course in which the student is currently enrolled.

If an examination exists, eligible students who pay the testing fee of \$80.00 may not be denied an examination in the introductory undergraduate course in any department. "Introductory course" is interpreted as that course which is prerequisite for successive courses in the department. Additional fees for examinations offered by testing agencies other than the University of Wyoming are determined by the agency concerned.

Grades of S or U (satisfactory/unsatisfactory) are given in all examinations. Credit by examination is not included in the student's grade point average; it is, however, included in the hours earned toward graduation. The grade of S is the equivalent of a C or better. See below for specific subject requirements. Entry on the student's academic record for credit by examination is made only if a grade of S is obtained and is noted as a grade obtained by examination.

To qualify for undergraduate credit, the student must be currently registered at the University of Wyoming as a degree candidate. The student must also be able to demonstrate to the satisfaction of the chair of the department involved that background experience has prepared him or her to attempt a challenge examination if such an examination is sought. The department chair's decision will be based upon existing departmental constraints such as accreditation, graduation requirements, and program requirements.

Other Options Include:

- Subject CLEP tests

- AP tests
- International Baccalaureate (IB)
- DSST

Students showing proficiency by passing examinations such as the College Board Advanced Placement Program (AP), for example, or examinations developed by University of Wyoming departments may earn college credit through the level of demonstrated proficiency. Credit may be allowed on the basis of any testing procedure acceptable to any department, which may include tests of the AP program and both the general and subject (specific) examinations of the College Level Examinations Program (CLEP).

Advanced Placement (AP) Information

Subject	Acceptable Score	UW Course Number(s)/Title(s), Semester Credit Hours
Art History	4+	ELEC 1000 (3)
Biology	4+	LIFE 1010 (4), General Biology
Calculus AB	3+	MATH 2200 (4), Calculus I
Calculus BC	3+	MATH 2200, 2205 (8), Calculus I and II
Chemistry	4+	CHEM 1020 and CHEM 1030 (8), General Chemistry I and General Chemistry II
Chinese Language	4	CHIN 1010 (4), 1st yr. Chinese I
Chinese Language	5	CHIN 1010, 1020 (8), 1st yr. Chinese I and II
Computer Science A	4	COSC 1010 (4), Intro to Computer Science I
Computer Science A	5	COSC 1010, 1030 (8), Intro to Computer Science I, Computer Science I
Computer Science Principles	3+	COSC 1100 (3), Computer Science Principles and Practice
Environmental Science	3+	ENR 1200 (4), Environment
European History	3+	HIST 1120 (3), Western Civ. II
French Language	3	FREN 1010 (4), 1st yr. French I
French Language	4	FREN 1010, 1020 (8), 1st yr. French I and II
French Language	5	FREN 1010, 1020, 2010 (12), 1st yr. French I, II, 2nd yr. French I
German Language	3	GERM 1010 (4), 1st yr German I
German Language	4	GERM 1010, 1020 (8), 1st yr. German I and II
German Language	5	GERM 1010, 1020, 2030 (12), 1st yr German I, II, 2nd yr. German I

Government and Politics	3+	POLS 0000 (3) (fulfills the US Constitution requirement; eligible to take the one-hour Wyoming Constitution exam)
Government Comp.	3+	ELEC 1000 (3), Transfer Credit Elective
Human Geography	4+	GEOG 1020 (3), Intro to Human Geography
Language & Composition	4+	ENGL 1030 (3), Intellectual Community in Cinema Etc
Latin Literature	3	LATN 1010 (4), 1st yr. Latin I
Latin Literature	4	LATN 1010, 1020 (8), 1st yr. Latin I, II
Latin Literature	5	LATN 1010, 1020, 2030 (12), 1st yr. Latin I, II, 2nd yr. Latin I
Literature & Composition	4+	ENGL 1010 (3), English Composition*
Macroeconomics	4+	ECON 1010 (3), Principles of Macroeconomics
Microeconomics	4+	ECON 1020 (3), Principles of Microeconomics
Music Theory	4+	MUSC 1030 (3), Music Theory I and MUSC 1035 (1), Aural Theory I
Physics 1	4+	PHYS 1110 (4), General Physics I
Physics 2	4+	PHYS 1120 (4), General Physics II
Physics B	4+	PHYS 1210 (4), College Physics I
Physics Mechanics	4+	PHYS 1210, 1220 (8), College Physics I and II
Physics Elec & Magnetism	4+	PHYS 1220 (4), Engineering Physics II
Psychology	4+	PSYC 1000 (3), General Psychology
Spanish Language	2	No credit, but student should contact department for possible placement in SPAN 1020
Spanish Language	3	SPAN 1010 (4), 1st yr. Spanish I
Spanish Language	4	SPAN 1010, 1020 (8), 1st yr. Spanish I, II
Spanish Language	5	SPAN 1010, 1020, 2030 (12), 1st yr. Spanish I, II, 2nd yr. Spanish I
Spanish Literature and Culture	2	No credit but student should contact department for placement
Spanish Literature and Culture	3	SPAN 1010, 1020, 2030 (12), 1st yr. Spanish I, II, 2nd yr. Spanish I

Spanish Literature and Culture	4+	SPAN 1010, 1020, 2030, and 2140 (15); 1st yr. Spanish I, II, 2nd yr. Spanish I, and Introduction to Readings
Statistics	3+	STAT 2050 (4), Fund of Statistics
Studio Art 2D	4+	ELEC 1000 (3)
Studio Art 3D	4+	ELEC 1000 (3)
Studio Art Drawing	4+	ELEC 1000 (3)
U.S. History	4+	ELEC 1000 (6)
World History	4	HIST 1330 (3), World History from 1450
World History	5	HIST 1330, 1320 (6), World History to 1450 and from 1450

*Credit is available for either Language and Composition or Literature and Composition.

College Level Examination Prep (CLEP)

Subject	Acceptable Score	UW Course Number(s)/Title(s), Semester Credit Hours
American Government	50 or above	POLS 0000 (3), (fulfills US Constitution requirement, eligible to take the one-hour Wyoming Constitution exam)
Analyzing and Interpreting Literature	50 or above	ELEC 1000 (3)
Biology	50 or above	LIFE 1010 (4), General Biology
Introductory Business Law	50 or above	MGT 1040 (3)
Calculus	50 or above	MATH 2200 (4), Calculus I
Chemistry	50 or above	CHEM 1020 and CHEM 1030 (8), General Chemistry I and General Chemistry II
College Algebra	50 or above	MATH 1400 (3), College Algebra
Financial Accounting	50 or above	ACCT 1010 (3), without USP
French Language	41 to 49	FREN 1010 (4), 1st yr. French I
French Language	50 to 56	FREN 1010, 1020 (8), 1st yr. French I and II
French Language	57 or above	FREN 1010, 1020, 2030 (12), 1st yr. French I, II, 2nd yr. French I
German Language	40 to 47	GERM 1010 (4), 1st yr. German I

German Language	48 to 53	GERM 1010, 1020 (8), 1st yr. German I and II
German Language	54 or above	GERM 1010, 1020, 2030 (12), 1st yr. German I, II, 2nd yr. German I
History of the U.S. I	50 or above	HIST 1210 (3), United States History I
Humanities	50 or above	ENGL 2130 (3) Creative Impulse
Information Systems and Computer Applications	50 or above	COSC 1200 (3) Computer Information Systems
Intro to Educational Psychology	47 or above	3 hours of general elective credit
Pre-Calculus	50 or above	MATH 1450 (5), Algebra & Trigonometry
Principles of Management	50 or above	MGT 3210 (3), Management & Organization
Principles of Marketing	50 or above	MKT 3210 (3), Intro to Marketing
Principles of Macroeconomics	50 or above	ECON 1010 (3), Principles of Macroeconomics
Principles of Microeconomics	50 or above	ECON 1020 (3), Principles of Microeconomics
Introductory Psychology	50 or above	PSYC 1000 (3), General Psychology
Social Sciences and History	50 or above	ELEC 1000 (3)
Spanish Language	41 to 49	SPAN 1010 (4), 1st yr. Spanish I
Spanish Language	50 to 53	SPAN 1010, 1020 (8), 1st yr. Spanish I and II
Spanish Language	54 or above	SPAN 1010, 1020, 2030 (12), 1st yr. Spanish I, II, 2nd yr. Spanish I
Introductory Sociology	56 or above	SOC 1000 (3), Sociological Principles
Western Civ. I	50 or above	HIST 1110 (3), Western Civilization I
Western Civ. II	50 or above	HIST 1120 (3), Western Civilization II

DANTES Standardized Subject Tests (DSST)

Subject	Acceptable Score	UW Course Number(s)/Title(s), Semester Credit Hours
General Anthropology	50 or above	ELEC 1000 (3)
Art of the Western World	50 or above	ELEC 1000 (3)
Civil War and Reconstruction	47 or above	3 hours upper-division elective credit
Criminal Justice	46 or above	3 hours general elective credit
Environment and Humanity	46 or above	3 hours of general elective credit
Ethics in America	50 or above	ELEC 1000 (3)
Here's to your Health	400 or above	PEAC 1001 (3) lecture component; must complete activity for USP P credit
History of the Vietnam War	53 or above	HIST 1220 (3) US History II
Human/Cultural Geography	48 or above	GEOG 1020 (3) Introduction to Human Geography
Human Resource Management	46 or above	3 hours general elective credit
Introduction to Business	400 or above	3 hours general elective credit
Introduction to Computing	400 or above	3 hours general elective credit
Introduction to World Religions	50 or above	RELI 1000 (3), Introduction to Religion
Lifespan Development Psychology	50 or above	3 hours general elective credit
Management Information Systems	400 or above	3 hours general elective credit
Organizational Behavior	46 or above	3 hours general elective credit
Money and Banking	48 or above	3 hours general elective credit
Personal Finance	46/400	3 hours general elective credit
Physical Geology	46 or above	3 hours general elective credit
Principles of Finance	400 or above	3 hours upper-division elective credit

Principles of Financial Accounting	50 or above	ACCT 1010 (3) no USP credit
Principles of Physical Science	47 or above	3 hours general elective credit
Principles of Public Speaking	47 or above	3 hours general elective credit
Principles of Supervision	400 or above	3 hours general elective credit
Rise and Fall of the Soviet Union	49 or above	3 hours upper-division elective credit
Statistics	48 or above	STAT 2070 (4), Intro to Statistics for Social Sciences
Substance Abuse	49/400	3 hours upper-division elective credit

International Baccalaureate (IB)

Subject	Acceptable Score	UW Course Number(s)/Title(s), Semester Credit Hours
Adv. Math SL	4+	MATH 2200, 2205 (8), Calculus I and II
Social/Cultural Anthropology HL	4+	ANTH 2200 (3), World Culture
Social/Cultural Anthropology SL	4+	ANTH 1200 (3), Intro to Cultural Anthropology
Art/Design HL	4	ART 1000 (3), General Art Studio ART 1010 (3), General Art History
Biology HL	4+	LIFE 1010 (4), General Biology
Biology SL	4+	LIFE 1010 (4), General Biology
Business & Management HL	4+	MGT 2000 (3), Introduction to Business
Business & Management SL	4+	MGT 2000 (3), Introduction to Business
Chemistry HL	4	CHEM 1020 (4), Gen. Chemistry I
Chemistry HL	5+	CHEM 1020 (4), Gen. Chemistry I CHEM 1030 (4), Gen. Chemistry II
Chemistry SL	5+	ELEC 1000 (4), Physical Science Elective, USP SP

Computer Science HL	4+	COSC 1010, 1030 (8), Intro to Computer Science I and II
Computer Science SL	4+	COSC 1010 (4), Intro to Computer Science I
Economics HL	4+	ECON 1000 (3), Global Econ. Issues
Economics HL	5+	ECON 1010(3), Principles of Macroeconomics; ECON 1020 (3), Principles of Microeconomics
Economics SL	4+	ECON 1000 (3), Global Econ. Issues
English HL	4+	ELEC 1000 (3), USP Credit for WA/C1
Environmental Systems and Societies	4+	ENR 1200 (4), Environment
French Language	4	FREN 1010 (4), 1st yr. French
French Language	5	FREN 1010, 1020 (8) 1st yr. French I and II
French Language	6/7	FREN 1010, 1020, 2030 (12), 1st yr. French I, II, 2nd yr. French I
German Language	4	Germ 1010 (4) 1st yr. German I
German Language	5	Germ 1010, 1020 (8), 1st yr. German I and II
German Language	6/7	GERM 1010, 1020, 2030 (12), 1st yr. German I, II, 2nd yr. German I
History - American HL	4	HIST 1210, 1220 (6), US History I and II
History-European	4+	ELEC 1000 (3), Cultural Context Social Science
History - Africa HL	4+	ELEC 1000 (3), Transfer Credit Elective
History - Asia and Oceania HL	4+	ELEC 1000 (3), Transfer Credit Elective
History - Europe and the Middle East HL	4+	ELEC 1000 (3), Transfer Credit Elective
Information Technology/Global Awareness	4+	ELEC 1000 (3), Global Awareness
Macroeconomics, Principles of	6/7	ECON 1010 (3), Principles of Macroeconomics
Math SL	4+	MATH 1450 (5), Algebra & Trigonometry
Math HL	4	MATH 2200, 2205 (8), Calculus I and II
Math Studies	4+	UNST Q (3), Quantitative Reasoning I

Music HL	4	Music 1000 (3), Intro to Music
Music Theory SL	4+	Music 1000 (3), Intro to Music
Philosophy HL	4+	3 hours of general elective credit
Physics HL	4	PHYS 1110, 1120 (8), General Physics I and II
Psychology HL	4+	PSYC 1000 (3), General Psychology
Psychology SL	4+	PSYC 1000 (3), General Psychology
Spanish Language	4	SPAN 1010 (4), 1st yr. Spanish I
Spanish Language	5	SPAN 1010, 1020 (8), 1st yr. Spanish I and II
Spanish Language	6/7	SPAN 1010, 1020, 2030 (12), 1st yr. Spanish I, II, 2nd yr. Spanish I
Theory of Knowledge	B or A	3 hours of ELEC 1000 credit
Performance/ Theatre Prod. HL	4+	THEA 2050 (3), Theatre Practice
Visual Art SL	4	ART EL (6), Art Elective, USP CA
Visual Art HL	4	ART EL (12), Art Elective, USP CA
World Religions	4+	RELI 1000 (3), Introduction to Religion

Portfolio Evaluations

In recognition of factors in our society that produce great individual differences in backgrounds and preparation of students entering the university, the university has developed various options to assess extracurricular college-level learning. To qualify for undergraduate credit, the student must be currently registered at the University of Wyoming as a degree candidate.

Credit based on faculty evaluation of the kinds and extent of collegelevel learning which an applicant has acquired in prior extra-institutional settings, evidenced in a portfolio of documentation, may count toward university undergraduate graduation requirements. In such event, the student's degree program can be enriched by freeing time needed to take additional courses, or accelerated to earn the baccalaureate degree earlier and commence postgraduate studies sooner.

The number of credit hours able to be earned by means of a portfolio evaluation is normally limited to 12. Such credit, when awarded, shall be for specific University of Wyoming content-oriented courses (rather than given as X number of hours of credit in a general discipline area), following the college course model of assessment as defined by the Council for Adult and Experiential Learning. Portfolio assessment, when used, will be conducted by a committee of appropriate tenured faculty including at least one member with the academic rank of professor. *All credit assigned for experiential learning based upon portfolio evaluations is excluded from the minimum credit hour requirements as set forth in the university requirements.*

II. Transfer Credit

Transfer credit includes college courses accepted from other regionally-accredited colleges or universities. Such course work must be considered equivalent or comparable to course work required by the University of Wyoming. The university accepts only academic courses in the study of religion similar to those offered by the Religious Studies Program in the College of Arts and Sciences.

Students transferring to UW must have the registrar or records office of the previous school(s) send an official transcript to the University of Wyoming Admissions Office. Once all final transcripts have been received by the Admissions Office, the degree analysts in the Office of the Registrar will create an electronic record of all courses that transfer to UW.

Evaluations are not accomplished for students working toward a Second Bachelor's Degree or those admitted as non-degree seeking. Second Bachelor's students should consult with their adviser concerning the applicability of transfer work to their UW degree program.

The recording of credit does not automatically imply acceptance toward a degree since degree requirements vary from major to major. Questions concerning the transferability of course work from other institutions should be directed to the Office of the Registrar.

Nontraditional credits awarded by another institution will not normally be accepted by the University of Wyoming. They may be validated by departmental exam within the faculty regulations allowing for such examinations.

a. UW Policy (Academic Affairs Policy Letter, October 9, 2012)

UW maintains a system for accepting transfer credits from other institutions and prides itself on forward-looking approaches to distance education. The following clarifies policies for:

- Accepting transfer credit from Wyoming's public community colleges
 - Accepting transfer credit for students transferring to UW from other institutions
 - Accepting transfer credit for students enrolled at UW
1. **Transfer credit from Wyoming's public community colleges**

UW generally accepts credit earned at any Wyoming public community college in accordance with the Wyoming Transfer Catalog. This policy applies to students transferring to UW and to students enrolled at UW who take courses at one of these community colleges while they pursue degrees at UW. It does not apply to FYS credit earned by students who earned concurrent enrollment FYS credit or students transferring with less than 30 semester hours.

UW maintains an active regimen of institution-wide and discipline-specific articulation with Wyoming community colleges. These discussions, together with department-driven decisions about which courses to list in the statewide common course-numbering system, provide mechanisms that can ensure appropriate levels of course equivalency.

2. **Transfer credit for students transferring from other institutions**

The UW Office of the Registrar (OTR) maintains a list of course equivalencies and courses accepted for general credit from other institutions of higher learning. In maintaining this list, the OTR, in consultation with academic departments as necessary, determines which outside courses:

- are equivalent to specific UW courses
- count for general university-level credit
- are not transferable for university-level credit

For courses beyond the 1000-2000 level and in cases where questions arise, the OTR relies on academic departments to assist in the assessment.

For any student transferring to UW from another institution of higher learning, UW will adhere to the OTR's equivalencies on the date that the transcript is evaluated. If a course in question has not previously been articulated, the

OTR will follow the normal protocol to make a determination. If an academic department determines that an outside course has been improperly articulated, the OTR will correct the equivalency. The corrected equivalency will apply to subsequent transfer students but not retroactively.

3. Transfer credit for students enrolled at UW

The university's faculty and administration expect UW students to earn credits by taking courses at UW. Exceptions may be appropriate in some instances. For example, the university encourages students to pursue opportunities to study abroad, whether through UW course offerings or through other approved programs. As another example, a student who spends a summer in another university town may also have a compelling case for taking a non-UW course and applying the credits to the UW transcript. There are many other possibilities.

For any student enrolled at UW, the university will guarantee transfer credits only for courses for which the student has received prior, course-specific approval from the Office of the Registrar. A Transfer Evaluation Form should be submitted prior to enrolling for a transfer course.

The only exceptions are transferable credits from Wyoming community colleges, as discussed above. In considering requests of this type, academic department heads may take into account the student's circumstances, department, and university-level learning outcomes such as global awareness, and the department faculty's assessment of the course's content, level, and academic rigor.

This policy has no effect on such programs as WICHE's Internet Course Exchange and other inter-institutional arrangements through which courses taught elsewhere count as credit-bearing UW courses.

b. Process

Transfer credit includes college courses accepted from other accredited colleges or universities. Such course work must be considered equivalent to course work required by the University of Wyoming. Students transferring to UW must have the registrar or records office of previous school(s) send an official transcript to the University of Wyoming Admissions Office. Once all final transcripts have been received by the Admissions Office, the degree analysts in the OTR will create an electronic record of credit transferred.

The recording of credit does not automatically imply acceptance toward a degree since degree requirements vary from major to major. Questions concerning the transferability of course work from other institutions should be directed to the Office of the Registrar.

c. Articulation: Earned Associate Degrees

1. Wyoming Community Colleges

Students entering UW beginning Fall 2001 who have completed an AA, AS, ADN, or AB degree from a Wyoming Community (spring 2001 or later) College receive credit toward completion of the lower division general education requirements included in the University Studies Program with the exception of the US/WY Government and Constitutions requirement. Students with an eligible associate's degree who have not completed both components of the US/WY Government and Constitutions requirement must complete it with coursework or challenge exam.

This policy applies to graduates receiving an Associate of Arts, and Associate of Sciences, Associate Degree Nursing, or an Associates of Business degree from any of the seven Wyoming Community Colleges. All graduates with an AA, AS, ADN, or AB degree complete a minimum of 64 college-level credits with a minimum of 2.000 GPA.

2. Community College Articulation: effective spring 2012

Graduates of regionally-accredited Colorado community colleges earning an AA/AS Spring 2012 or later are awarded the lower-division general education core in the same manner as graduates of Wyoming community

colleges, with the exception of the US/WY Government and Constitutions requirement. Students must complete the Wyoming component through coursework or challenge exam. Spring 2008 (and later) graduates of Pikes Peak Community College are included due to a pre-existing articulation agreement. Spring 2012 and later AA/AS graduates of Western Nebraska, Mid- Plains (Nebraska), and Colby (Kansas) Community Colleges will be extended the lower-division general education core in the same manner as Colorado schools above.

3. **Community College Articulation: effective spring 2015**

Graduates of regionally-accredited institutions earning an AA/ AS/AB Spring 2015 or later are awarded the lower-division general education core in the same manner as graduates of Wyoming community colleges, with the exception of the US/WY Government and Constitutions requirement. Students must complete the Wyoming component through coursework or challenge exam.

Transfer Credit from Regionally-Accredited U.S.Colleges and Universities

The Wyoming Transfer Catalog is a searchable online database of courses which the University of Wyoming has previously articulated from regionally-accredited U.S. institutions. Coursework may transfer in as equivalent, elective or NA. Elective coursework may be a general elective, academic department specific elective and/or elective with University Studies (USP) credit. Transfer courses which return values of "NA" in the UW Subject field are considered to be not transferable to UW.

UW operates on semester credit; credit is awarded credit hour for credit hour. Quarter hours are recognized as two-thirds (2/3) of a semester hour.

Academic advisors may submit an elective course to fulfill a major or curricular requirement. Elective courses may also be considered for University Studies requirements via the University Studies Petition process.

Students intending to transfer to UW are encouraged to meet with advisors and review both the Wyoming Transfer Catalog and the UW Catalog when planning their program of study to ensure courses taken elsewhere will transfer to UW as intended for their desired major. Final determination of transfer credit acceptance is made by the University Registrar and faculty. Students must submit official transcripts of all completed coursework before a final determination can be made on credit transfer.

These equivalencies are subject to change without notice.

d. Transfer Credit for Study Abroad

Study abroad coursework is evaluated based off the documentation provided by the student and what is available to the Office of the Registrar. It is the students' responsibility to review the transfer work and to provide any course documentation (syllabi, descriptions, sample course work) to the Office of the Registrar. Once the transcripts received from the study abroad experience have been evaluated, students will have one year from that date to make any appeals or changes to what was initially awarded. Requests for changes to transfer credit awarded through study abroad following one year of the initial review will not be processed.

III. Credit Evaluation Policy for VA Funded Students

The degree analysts in the Office of the Registrar determine whether the course work is transferable to UW. Evaluations for the granting of credit for military-based training are based on recommendations in the American

Council of Education (ACE) guidelines. Individual colleges will determine whether such course work is applicable to their degree programs.

Advising Career Exploratory Studies (ACES)

Advising Career Exploratory Studies

222 Knight Hall

Richard Miller, Interim Director

Phone: (307) 766-2398 FAX: (307)766-2089

Web site: www.uwyo.edu/aces/index.html

ACES1101 - FYS: New Geography of Jobs

Credits: 3

This course will provide students with a view of the evolving world of work in the United States, with specific attention to Innovation, Manufacturing, Natural Resource Extraction, and Agriculture. The course will survey the history of jobs in the U.S. with specific attention to changes through time, location and events. We will also look ahead to the age of automation. Students will participate in a significant research project, through which they will create a case study of a specific economic ecosystem.

USP 2003-2014 Code U5FY

ACES1105 - Academic Success Skills

Credits: 2

Designed to provide students the necessary skills to succeed at the University and beyond. Skills covered include time management, learning styles, note taking, self-motivation, and more.

When Offered (Offered each semester)

ACES1150 - Major & Career Exploration

Credits: 1

This course is for freshmen who have no idea what to major in, or who are open to investigating possibilities. Students will gain information about themselves, opportunities in higher education, and the world of work, which they can use to make an informed decision about a major.

ACES3000 - Peer Advising

Credits: 3

This course is designed to help you develop the skills, understanding, competencies, and dispositions needed to be an effective peer advisor at UW. Course content will cover student development theory, interpersonal skills, Ethics of working with college students, UW policies/procedures, UW academic requirements, and advising approaches.

When Offered (Offered Spring Semester Only)

Prerequisite: Sophomore standing and completion of USP15-C2

ACES3100 - Peer Advising Internship

Credits: 1-6

Max Credit (Max. 6)

Designed to help you apply the skills, competencies, and dispositions that were developed in ACES 3000. The course will allow you to apply and reflect upon student development theory, interpersonal skills, UW policies/procedures, UW academic requirements, and advising approaches. Each internship credit will require a minimum of 3 hours of work per week in the ACES office. Students and the peer advising supervisor will consult in establishing individual student hours.

Prerequisite: ACES 3000 and application to ACES Internship.

Registration and Enrollment in Courses

- Registration Procedures
- Academic Adviser
- Change of Registration
- Choice of College and Major
- Change of College, Major, or Adviser
- Definitions for Student Classifications
- Credit Hour Load
- Auditing a Course
- Graduate Credit for Seniors
- Class Attendance
- Academic Dishonesty

Registration Procedures

Eligible students can register, drop, add, and get a schedule of their courses through WyoRecords. To insure that students have seen an adviser, access numbers for each semester's registration are distributed through the academic advisers. Directions for registration are contained in the appropriate *Class Schedule*. *Class Schedules* are available online no later than one week prior to advising week. Students are responsible for following directions and deadlines contained in the *Class Schedules*.

The following categories of continuing students in good standing or on academic probation are eligible to register for the semesters indicated:

1. *For the fall semester:*
All students who were enrolled the previous fall, spring, or summer semester.
2. *For the spring semester:*
All students who were enrolled the previous spring, summer, or fall semester.
3. *For the summer session:*
Students who were enrolled the previous summer, fall, or spring semester.

All other applicants and students should complete admission requirements by the admission deadline. (Refer to the sections on undergraduate and graduate admissions in this catalog for deadlines.)

All information requested during admission and registration is important to the student and to the university and should be kept accurate and complete. If a student's address, telephone, major, adviser, or other vital information changes after enrollment, the Office of the Registrar should be informed without delay.

Academic Adviser

Academic advising is a decision-making process involving a partnership between the academic adviser and the student (advisee). In this partnership, issues and questions regarding personal, professional, and educational goals are examined and evaluated. This includes, but is not limited to, planning an appropriate course of study and the scheduling of classes.

The purpose of academic advising is to promote rational, informed, and independent choices by the student. To that end, the academic adviser is a significant link for the student to other resources in the university community. Students are expected to take the initiative in developing the adviser-advisee relationship and to assume an ever-increasing role in developing their own academic, career, and personal goals.

Change of Registration

Modification of a course schedule during the drop/add time period is accomplished through WyoRecords. After the end of the drop/add period, individual class withdrawals can be done by the students on WyoRecords. Changes to a student's registration or withdrawals are not official until the process is completed as prescribed.

The period of time allowed for modifying a student's schedule or withdrawing during the summer session or other special terms is established in regulations or by the registrar, subject to the approval of the vice president for academic affairs.

During the fall and/or spring semester(s):

1. *Dropping a class or changing sections:* A student may drop classes during the first eight class days of the semester (four class days for blocked courses).
2. *Adding a course or changing grading option:* A student may add classes, change sections, or change grading options or hours in variable-credit courses during the first four class days of the semester (two class days for blocked courses).
3. *Withdrawal from a course:* After the designated drop/add period, students may officially withdraw from individual regular term courses until fifteen class days after mid-semester (five days after the middle of the course for blocked courses). Withdrawing means that a non-punitive grade of "W" is assigned as the final grade for the class. Students considering withdrawing should contact the Student Financial Aid Office prior to withdrawing to fully understand how withdrawing will affect their aid and scholarships. Students may withdraw from an individual course through their WyoRecords account. If a student has a hold on their account preventing them from withdrawing through WyoRecords, they may submit an online Class Withdrawal form available on the Office of the Registrar website. The online form is required for students who wish to withdraw from First Year Seminar classes. Refunds for course withdrawal (when applicable) are based on the date the withdrawal is processed, not on submission of the online petition. When a class has a status of "Indiv Course Withdrawal" on the "Add or Drop Classes" page in WyoRecords, the student has officially withdrawn. Students may also confirm that a final grade of "W" is noted on the

transcript, which may be viewed through WyoRecords.

Unauthorized discontinuance of enrollment or unofficial abandonment of classes will result in a failing grade.

4. *All-School-Withdrawal (termination of enrollment)*: Withdrawal from the university is the official termination of student status prior to the end of a fall or spring semester, but students may otherwise register for classes for the subsequent semester if they choose to do so. Students wishing to withdraw from all on-campus classes should initiate the procedure with the Dean of Students Office. Withdrawal from the university is not permitted during the last 15 days of a term. After clearing with the Dean of Students Office, the withdrawal form must be presented to the university cashier for initial processing. The Office of the Registrar will report withdrawals to instructors concerned. Students withdrawing from distance classes should send an email to the Office of the Registrar to initiate the process.

Choice of College and Major

The academic adviser is an excellent source of information about the adviser's professional field for students who have selected a major. Students who are undecided about the selection of a college and/or major and who seek specialized assistance in choosing educational and vocational objectives should contact the Advising, Career, and Exploratory Studies center. These units have programs designed to help the undeclared student acquire the tools to make an intelligent decision regarding an appropriate major discipline.

Change of College, Major, or Adviser

Students who wish to change their college, major, or adviser should obtain the appropriate form from either the Office of the Registrar or the office of the dean of the college of their current enrollment. Students wishing to transfer from one college to another must secure the signatures of both their present and future deans. Graduate students need the approval of the college dean and the head of the department to which the student is transferring. After all appropriate signatures have been obtained, the student should take the form to the Office of the Registrar.

Students who have completed their undergraduate work at the university and who wish to embark upon a graduate program, even through continuing their graduate work in the same field they pursued as undergraduates, will need to apply for graduate admission. (Refer to the section on graduate admission in this catalog for deadlines.)

Definitions for Student Classifications

Code	Class	Definition by earned semester hours
FR	Freshman	Under 30
SO	Sophomore	30 but less than 60
JR	Junior	60 but less than 90
SR	Senior	90 or more
GR	Graduate Student	
LW1	Law student (professional level) first year	
LW2	Law student (professional level) second year	

LW3	Law student (professional level) third year
MD1	Medical student (professional level) first year
PH1	Pharm.D. (professional level) first year (0-33 semester hours)
PH2	Pharm.D. (professional level) second year (34-69 semester hours)
PH3	Pharm.D. (professional level) third year (70-104 semester hours)
PH4	Pharm.D. (professional level) fourth year (105+ semester hours)

Credit Hour Load

Undergraduates: An average of 15 hours of coursework each semester is considered a normal load. Maximum credit loads are 20 hours in all colleges. Normally, not more than 12 hours of undergraduate credit may be taken during the summer session. An approved Overload Petition form must be filed to exceed these maximums. Overload Petition forms are available online or from the Office of the Registrar.

Graduate students: 14 hours of credit is the average and 16 hours the maximum amount of credit allowed per semester for full-time graduate students. A student who has been assigned an assistantship for the academic year is usually restricted to a load of 13 semester hours. Normally, not more than 8 hours of credit may be earned in course work during an eight-week summer session. An approved Overload Petition form must be filed to exceed these maximums. Overload Petition forms are available online or from the Office of the Registrar.

Auditing a Course

The privilege of non-credit enrollment in a class is available to any university student. The auditing privilege is subject to the same fee schedule as credit courses. Auditors are expected to attend class regularly and complete such graded work as required by the instructor. It is the responsibility of the student to determine and fulfill the requirements for a satisfactory audit. Though this auditing privilege carries full rights of class participation, it definitely offers no academic credit, does not count toward full- or part-time status, and will result in a mark of satisfactory (SA/S) or unsatisfactory (UA/U). Subsequent credit for the course by special examination is not available.

Graduate Credit for Seniors

Undergraduate students taking graduate-level courses which are not in any way a part of their undergraduate degree have the option of later using such courses for purposes beyond the bachelor's degree requirements. If the student intends to pursue a graduate degree or needs the courses noted on the academic transcript as reserved for graduate credit for job classification (e.g. advancement on teacher salary schedules) the student should file a petition. The Request to Reserve Coursework for Graduate Credit should be filed by midterm of the semester which is requested. The petition form is available on the Graduate Student Forms page on the Office of the Registrar website. Courses may not be retroactively reserved once a semester has ended.

Class Attendance

Each student shall attend the lectures, recitations, and laboratories, and participate in field work deemed necessary to adequately fulfill the academic requirements of each course. Each instructor, at the beginning of every semester, shall stipulate the attendance policy necessary for satisfactory completion of the course.

The Dean of Students Office may issue authorized absences for participation in university-sponsored activities and for other unusual circumstances. If students have been hospitalized, or if they have been directed by the Student Health Service or their private physician to stay at their place of residence because of illness, the Student Health Service or their private physician may issue a statement giving the dates of the student's confinement which the student may show to the instructor without verification from the Dean of Students Office. The Student Health Service has a policy not to provide medical excuses for missed classes. Please review the policy at <http://www.uwyo.edu/shser/medical-excuses.html>.

All instructors shall permit students who have official authorized absences to make up missed course work without penalty. An authorized absence, however, merely gives the individual who missed the class an opportunity to make up the work and in no way excuses him or her from the work required.

When a class has a status of "Indiv Course Withdrawal" on the "Register for Classes" page in WyoRecords, the student has officially withdrawn. Students may also confirm that a final grade of "W" is noted on the transcript, which may be viewed through WyoRecords.

Unauthorized discontinuance of enrollment or unofficial abandonment of classes will result in a failing grade.

Academic Dishonesty

Whatever form academic dishonesty may take, the university community regards it as a serious offense. An act is academically dishonest when, and only when, it is an act attempted or performed in order to misrepresent one's involvement in an academic task in any way. Such conduct will result in imposition of sanctions pursuant to University Regulations.

It is the responsibility of both the student and person in charge of an academic task, respectively, to make reasonable efforts to learn of, or make known, the expectations and standards of conduct required in the performance of an academic task. Failure on the part of the student to observe and maintain required standards of academic honesty will require corrective action by officials.

Division of Academic Affairs

- Enrollment Management
- Office of the Registrar
- Transfer Success Center
- Global Engagement Office
- Education Abroad
- English Language Center
- International Students and Scholars
- Undergraduate Education
- Graduate Education

312 Old Main, (307) 766-4286, Fax: (307) 766-2606

Kevin Carman, Provost and Executive Vice President
Tami Benham-Deal, Senior Vice Provost

Enrollment Management

Admissions Office

Shelley Dodd, Director of Admissions
150 Knight Hall, (307) 766-5160
Web site: www.uwyo.edu/admissions

A new undergraduate student's first official contact with the University of Wyoming is often through the Admissions Office. This unit is responsible for recruiting/admitting undergraduate students to the university. Responsibilities include the development of effective school relations, programs with high schools and community colleges, recruitment of prospective freshmen and undergraduate transfer students, and events for students and families to learn more about opportunities at UW. This office also facilitates the admission process for graduate students. A detailed description of admission to the university and procedures can be found in the admission policies section of this publication.

Office of the Registrar

Kwanna King, Registrar
167 Knight Hall, (307) 766-5272
Web site: www.uwyo.edu/registrar

The Office of the Registrar is responsible for overseeing course registration, transcripts, verification of enrollment, adding/dropping/ withdrawing from courses, administering the residency policy for tuition classification purposes, and for maintaining student academic records. This involves responsibility for web registration, as well as preparation and electronic publication of the *Class Schedules* and *University Catalog*. The office is also responsible for the electronic degree audit program, graduate record processing, and for determining whether or not students have successfully met all degree requirements. Additionally, this office evaluates all transfer credit for undergraduate students to determine transferability as well as UW equivalents.

Transfer Success Center

Amanda Reeder, Director
Marian H. Rochelle Gateway Center, Tomé Student Admissions, Room 116
E-mail: transfer@uwyo.edu
Web site: www.uwyo.edu/transfer/

The Transfer Success Center provides assistance, referrals and advocacy to enhance transfer students opportunities for strong academic performance and smooth transition to the University of Wyoming. The office works closely with Undergraduate Admissions, the Office of the Registrar, Wyoming Community Colleges and out of state institutions to implement effective policies to streamline the transfer process. The office facilitates articulation efforts including programmatic articulation agreements and transfer planning guides. Additionally, the office provides student support services through peer mentors, the Reverse Transfer Program and Transfer Advance.

Global Engagement Office

(307) 307-766-3151
Web site: uwyo.edu/global

The Global Engagement Office (WyoGlobal) is the home of internationalization at the University of Wyoming. It includes the Vice Provost for Global Engagement, the Center for Global Studies, International Students & Scholars, Education Abroad, and the English Language Center. Whether recruiting and supporting international students, providing exchange and study abroad opportunities, facilitating global partnership development, coordinating immigration for new international hires, or assisting with visiting dignitaries, we support the entire UW campus community in achieving their internationalization goals. Stop by and visit us in the Cheney International Center to learn more about the programs and services we offer to the UW campus community to promote global citizenship, inform visitors, and communicate with our partner institutions abroad.

Education Abroad

(307) 766-3677

E-mail: uwoabd@uwyo.edu

Web site: www.uwyo.edu/uwoabroad

The Education Abroad Office connects students from all majors and programs with international study, exchange, service and internship opportunities on six of the seven continents at hundreds of locations around the globe. Students earn UW credit towards major, minor or general education requirements on academic year, semester, summer and faculty-directed short-term programs. The Education Abroad Office is located on the first floor of the Cheney International Center. UW students with a minimum 2.750 GPA are eligible to apply to participate on a wide variety of credit-bearing programs outside of the U.S. The Education Abroad Office staff advises students individually to tailor the program to students' specific needs. Considerations are made for cost, financial aid opportunities, transfer of credit, health and safety, degree completion, country or region desired, and foreign language requirements.

UW students with a minimum 2.750 GPA are eligible to apply to participate on a wide variety of credit-bearing programs outside of the U.S. The Education Abroad Office staff advises students individually to tailor the program to students' specific needs. Considerations are made for cost, financial aid opportunities, transfer of credit, health and safety, degree completion, country or region desired, and foreign language requirements.

In addition to learning about other cultures in depth and perfecting language skills, studying abroad can be a life changing experience. Students return home with altered perspectives by developing flexibility and critical thinking skills. Students gain a greater sense of where they are from, what it is to be a citizen of the world, and what it is to be an individual. Studying abroad can help students clarify life and professional goals which leads to the development of greater direction, focus, and motivation for the remaining years of their university life and beyond.

English Language Center

Frederica Suess, Director

(307) 766-3630

Web site: www.uwyo.edu/study-iep-esl

Petra Heinz, Graduate ESL Coordinator

(307) 766-3606

Web site: www.uwyo.edu/study-iep-esl

The English Language Center serves second language English speakers across campus in credit bearing ESL courses, a full-time pre-college Intensive English Program, Visiting Scholar and International Graduate student support, and cultural training for International Teaching Assistants at UW. Through special programs with our partner schools, the

ELC also provides short-term English language training courses and Wyoming study tours for international groups in the summer months.\

The English Language Center provides campus-based services and language support for all non-native speakers of English in the UW community. Our program offerings include: ESL credit courses for undergraduates continuing to improve their Academic English skills. A fulltime pre-college Intensive ESL Program to meet college admissions requirements. Orientations and TA training for international graduate students, and conversation hours and cultural support for Visiting Scholars. Custom short-programs and study tours are also available for academic departments and international partners.

International Students and Scholars

Jill Johnson, Associate Director of Admissions
Cheney International Center, Suite 5, (307) 766-5193
Web site: www.uwyo.edu/ISS

International students, numbering over 825 from nearly 90 countries, are a vital part of international education at the University of Wyoming. As such, International Students and Scholars (ISS) works to promote an interchange of ideas and understanding from among all of the countries represented on campus. ISS is responsible for recruitment of international students and provides advising and counseling to all international students/scholars for their academic, social, personal, and immigration concerns. The office also promotes and implements social and cultural activities for international awareness and educational exchange through International Education Week, Friendship Families, American Conversation Club, international coffee hours, and other special programs. Many of these activities are coordinated through the ISS-sponsored International Resource Center in the Cheney International Center, Room 1.

International students and visitors are required to contact International Students and Scholars to confirm their arrival at the University of Wyoming and to consider the office their primary contact for further information and assistance. Students must be enrolled as full-time students each semester as required by the U.S. Citizenship and Immigration Services. The ISS e-mail address is uwglobal@uwyo.edu.

National Student Exchange: The University of Wyoming is a member of the National Student Exchange (NSE) consortium. Through NSE, students are provided an opportunity to attend one of more than 175 U.S. institutions in the NSE consortium. NSE offers a student the chance to live in another part of the United States and to travel and experience college life in different settings for an academic semester or a year under his or her normal UW tuition and fees. Financial aid is often available and academic credit is guaranteed to transfer back to UW.

For more information about the National Student Exchange, please contact International Students and Scholars, Cheney International Center, Suite 5 or call (307) 766-5193. The e-mail address is uwglobal@uwyo.edu.

Undergraduate Education

Steven Barrett, Associate Vice Provost
312 Old Main, (307) 766-2666
Web site: www.uwyo.edu/acadaffairs

Advising, Career, Exploratory Studies Center

Richard Miller, Acting Director
222 Knight Hall, (307) 766-2398
Web site: www.uwyo.edu/aces

The Advising, Career, Exploratory Studies Center (ACES) provides a variety of services to UW students, including advising Exploratory Studies and Bridge students; providing academic support to various populations of probationary, conditionally admitted, and reinstated students; assisting students campus-wide with their career exploration, planning, and job search needs; assisting in coordinating discussions, information dissemination, and event planning between the various professional advisors and advising offices on campus; and coordinating national tests and exams through the University Testing Center in Knight Hall, Room 4.

ACES is committed to providing a comprehensive and integrated service that moves a student along a continuum of receiving academic advising, exploring academic and career options, selecting a college major, and finally, implementing his/her degree in the world of work.

Exploratory Studies and students admitted with support, placed on probation, or reinstated to the university are highly encouraged to meet with a ACES career counselor. The purpose of this meeting is to analyze the student's past academic progress and future career goals to develop a strategic plan to maximize his/her academic success and future employment opportunities. ACES also works closely with other campus offices and departments to engage students in available study skill and tutorial resources.

Students interested in engaging in career exploration activities may make an appointment to meet with a career counselor to discuss their career goals and/or confirm their choice of major. Various assessment tools that provide feedback on the match between a student's interests or personality type and the world of work, are available. ACES career specialists provide information pertaining to a broad range of career fields, internship opportunities, specific employer information, general job search strategies, and federal government application processes.

Students are advised on how to use the HANDSHAKE platform on the ACES homepage to find out about and apply for summer, internship, and permanent job opportunities. Each year numerous employer representatives from business, industry, health care, education, and government visit ACES to interview students for these types of opportunities. All information pertaining to these visits is contained in the HANDSHAKE link on the ACES homepage.

The campus wide experiential learning program SOAR is coordinated in the ACES office. Students are advised how to contribute to and utilize their own personal profile to help better prepare them for career or graduate school.

ACES hosts numerous general and specialized job fairs each year for students and alumni. Upcoming job fair dates can be found on the ACES homepage.

The University Testing Center: The University Testing Center coordinates national tests and exams and is housed in the Knight Hall basement, Room 4. Students may register to take national tests and professional school entrance exams. Information is available on the University Testing Center web site www.uwyo.edu/UTC or by calling (307) 766-2188.

Learning Resource Network (LeaRN)

April Heaney, Director
105 Coe Library, (307)766-3448
Web site: www.uwyo.edu/learn

The Learning Resource Network (leaRN) offers first-year program, academic learning communities, and an umbrella of academic support initiatives for UW's entering and undergraduate students. The program's mission is to provide high-impact academic programs to increase the success and persistence of UW's undergraduates. LeaRN programs support access, academic achievement, and impactful teaching and mentoring within all programs.

First-Year Courses & Learning Communities

Summer and Fall Bridge: Bridge offers two first-year options that help entering and admitted with support students complete general education courses in a learning community structure. Bridge courses feature small class sizes, consistent support from ACES advisors,

talented instructors, and connections with peer mentors. First-Year Interest Groups: Freshmen Interest Groups (FIGs) are living and learning communities through which students take 3-4 courses together in the Fall semester and live on the same residence

hall floor. Faculty and FIG resident assistants work together to create enrichment opportunities, study and course review sessions, and campus/community engagement through the FIG experience.

First-Year Seminar: As a key piece of UW's general education program, First-Year Seminar courses integrate critical and creative thinking, democratic discussion, exploration of important contemporary issues, and research skills in a freshmen-level course.

First-Year Experience course: The FYE course (STEP 1102) is an optional one-credit course designed to help freshmen interact with UW campus resources, staff, and faculty; to learn about tools for academic support and wellness; to explore academic and co-curricular opportunities; and to delve into major and career selection.

Academic Success and Recovery courses: Academic Success courses (STEP 1105) support first-year students with academic probation following Fall semester. The two-credit courses help students learn key skills for college success and evaluate their major, career, and life goals.

Academic Support Initiatives

The STEP Center offers in-person and online tutoring and supplemental instruction for 60+ courses at the 1000 and 2000 level. STEP also offers NetTutor, an online tutoring platform accessible all year to distance and campus students.

Early Alert: Early Alert is program that allows faculty to provide academic feedback on student performance during the 4th week of classes, before mid-term grades are assigned. Early Alert provides a glimpse of students' early-semester progress and multiple avenues for support in challenging courses.

First Gen Scholars: First Gen Scholars provides multiple resources and engagement opportunities for students whose parents have not earned a four-year degree. Participating students have access to peer and faculty mentoring, workshops and community building activities, scholarship opportunities, honors society membership-and many more support avenues.

PIE Award: The Promoting Intellectual Engagement (PIE) Award honors instructors who inspire excitement, inquiry, and autonomy in first-year courses. The award is co-sponsored by LeaRN, Ellbogen CTL, Residence Life & Dining, and Advising, Career, and Exploratory Studies.

LeaRN Faculty:

IRENE ENLOW, B.A., The University of Iowa 2019; M.A., The University of Wyoming 2021; Assistant Lecturer 2021.

ALLISON GERNANT, B.A. Grinnell College 1996; M.A. University of Wyoming 2005; Assistant Lecturer 2016; Fall Bridge First Year Seminar Coordinator & First Year Seminar Coordinator 2019.

SHELBY HUTSON, B.A. Colorado State University Pueblo 2016; M.A. University of Wyoming 2018; Assistant Lecturer 2018.

CATHERINE JOHNSON, B.A. Whittier College 2005; M.A. American University 2009; M.F.A. Portland State University 2017; Assistant Lecturer 2019.

ALYSSA KONESKO, B.A. Saginaw Valley State University 2008; M.Ed. Bowling Green State University 2011; Assistant Lecturer 2015.

SETH SWANNER, B.A. Birmingham-Southern College 2007; M.A. University of Alabama 2011; Ph.D. 2017 Northwestern University; Assistant Lecturer 2019.

Student Educational Opportunity (SEO)

Pilar Flores, Director
330 Knight Hall, (307) 766-6189
Web site: www.uwyo.edu/SEO

Student Educational Opportunity is composed of both on-campus and outreach projects with offices throughout Wyoming. These projects serve students who are first generation; income-eligible; students with cognitive, psychological or physical disabilities; ethnic minority students; and non-traditional students. SEO assists eligible students to plan and prepare for entry into higher education, succeed in the higher education environment, and graduate from college by providing academic success services, and instruction in basic skills, career, and personal development. All projects within SEO seek to increase the public awareness of the needs of ethnic minority, first generation, income-eligible students, and students with disabilities in an educational environment.

On-Campus Projects

McNair Scholars Program: The McNair Scholars Program prepares students to pursue doctoral level study. Services include intensive academic support including tutoring and academic counseling; activities related to successful application to graduate school and pursuit of financial aid opportunities; preparation for the GRE; and faculty mentoring. The capstone of the program is a paid summer research internship program which prepares students for admission to graduate level education. Students who are juniors and seniors, income-eligible and first generation college students, or who are from ethnic minority groups underrepresented in graduate education qualify for program services. The McNair Scholars Project is a federally funded TRIO project. Note: this is a graduate school preparation program; it is not a scholarship program.

Student Success Services: The Student Success Services (SSS) project offers academic support to students who are first generation college students, income-eligible, and/or individuals with disabilities. Student Success Services provides assistance with academics, personal/social choices, financial issues and pursuit of financial aid opportunities, and choice of college major and related career opportunities. The SSS project also provides its students with individual and group tutoring. All services are free to eligible participants and services are intended to help students be successful in college and to stay in college through graduation. SSS is a federally funded TRIO project.

Outreach Projects

Educational Opportunity Center: The Educational Opportunity Center (EOC) assists first generation and income-eligible adults throughout Wyoming to continue their education. Services include assistance with college and financial aid applications, career and college exploration, and GED preparation. Outreach offices are located in Casper, Cheyenne, Ethete, Rock Springs, Powell, Riverton, Gillette, Torrington, and Laramie. EOC is a federally funded TRIO project.

GEAR-UP Wyoming: The Wyoming Statewide GEAR-UP project provides services to 2,000 income-eligible pre-college students throughout the state each year. Student services include career exploration, advising and supporting students in taking a college preparation curriculum, college preparation, ACT preparation, college exploration, application, and planning, and assistance with financial aid processes and procedures. Student services are provided through GEAR-UP coordinators located at each of Wyoming's seven community colleges. The GEAR-UP grant also works with the Wyoming Department of Education in providing teacher training and school improvement initiatives. All GEAR-UP services are aimed at increasing student academic preparation and performance levels suited for post-secondary education, rates of high school graduation, rates of post-secondary education participation and graduation, and GEAR-UP student and family knowledge of post-secondary education options, high school preparation needs, and means of financing.

Upward Bound Math/Science: The Upward Bound Math/Science Program (UBMS) provides services to income-eligible and first generation 9th through 12th grade high school students throughout Wyoming. UBMS is designed to generate the skills and motivation necessary to be successful in high school and to complete a college degree program in a math or science area. Assistance with high school coursework and tasks related to college enrollment are provided throughout the academic year. The UBMS program includes a six-week, residential, summer academic session on the

UW campus with an intensified math and science curriculum that includes performing active research under the guidance of university staff and graduate students. UBMS is a federally funded TRIO project.

Upward Bound: The Upward Bound program works with income-eligible, first generation high school students (grades 9-12) and their families to help them gain the skills and motivation necessary to successfully complete high school and to pursue a college degree. The program includes a six-week, residential, summer academic component on the UW campus designed to help students develop academically and socially in a university setting. Tutorial and enrichment services are provided throughout the academic year and participants and their families receive individualized assistance in completing tasks related to successful college enrollment. Outreach offices are located in Albany, Fremont, Laramie, and Natrona counties. Upward Bound is a federally funded TRIO project.

Graduate Education

James C. Ahern, Vice Provost

(307) 766-4286

Web site: www.uwyo.edu/uwgrad

The Office of Graduate Education oversees and supports graduate and professional education at the university. In collaboration with Graduate Council, the Office of Graduate Education develops, reviews and implements policies and procedures regarding graduate and professional education and helps develop and review major changes to graduate and professional programs. The office also provides funding to programs and students including special initiatives, graduate assistantships, graduate fellowships and student travel. Furthermore, the Office of Graduate Education is the administrative home for interdisciplinary and transdisciplinary graduate programs.

Division of Student Affairs

- Campus Recreation
- Dean of Students Office
- Student Health Service
- University Counseling Center
- Residence Life & Dining Services
- Center for Student Involvement and Leadership (CSIL)

Kimberly Chestnut, Vice President

Ryan O'Neil, Dean of Students & Associate Vice President

Nycole Courtney, Dean of Student Success & Associate Vice President

Vice President For Student Affairs Office:

408 Old Main, (307) 766-5123, Fax: (307) 766-2696

The Division of Student Affairs is the administrative unit of the university that is responsible for providing leadership and coordination of programs and services designed to support student learning and development in and outside the classroom.

In partnership with UW faculty, staff, and students, the Division of Student Affairs develops and delivers services, programs, and facilities that promote the intellectual, personal, cultural, and civic development of students; coordinates efforts to create a caring community in which individuals are respected, encouraged to pursue excellence, and achieve their potential; and fosters honoring the diversity of individuals and cultures.

The Division of Student Affairs is comprised of the Associated Students of the University of Wyoming, Campus Recreation, Cowboy Parents Council, the Dean of Students Office, the Center for Student Involvement and Leadership, Student Health Service, Student Success and Graduation Hub, the University Counseling Center, Residence Life, the UW Alumni Association. The different areas within the Division work together to provide safe and comfortable housing; to provide wellness services for the health of students; to educate students and encourage personal accountability; to engage students in leadership opportunities; to provide educational and entertaining programs and events; and to foster opportunities for student feedback which is essential for a successful institution.

Campus Recreation

Pat Moran, Director

Half Acre Recreation and Wellness Center

Phone: (307) 766-5586

Web site: www.uwyo.edu/Rec

Our mission is to provide recreational and wellness opportunities to a diverse campus community that enhance the learning and workplace environment and promote mental and physical health via quality facilities, equipment, and programs. Our programs, which include the Wellness Center, Open Recreation, Intramural Sports, Club Sports, and the Outdoor Program, offer a broad range of coordinated activities for individuals and groups that promote health awareness, a sense of community and a lifelong appreciation for wellness and recreational activities. Supporting the value of student development, our programs strive to offer opportunities to students that develop leadership skills and promote responsibility while maintaining a balance between personal, professional, and academic pursuits.

Wellness Center

Half Acre Recreation and Wellness Center, First Floor

Phone: (307) 766-9355

An exciting new addition to the Campus Recreation Department, the UW Wellness Center is a network of people, programs, services, and policies that work together to create and support a culture of health and wellness at UW. The UW Wellness Center works collaboratively with various campus departments to provide education, services, and programs that address health needs such as stress relief, nutrition, fitness, mental health, sexual health, safety, and alcohol and tobacco use. Some of the Wellness Center offerings include: athletic training, massage therapy, personal training, sleep assessments, blood pressure checks, and weekly educational workshops. The Wellness Center is located in the southwest portion of Half Acre, in the "free zone," which does not require gym membership to access. The Wellness Center is open to students as well as members of the University community. Most offerings are free, however there are a few services that charge a competitive rate. Visit the Wellness Center to learn more about these programs and services aimed at improving your overall wellness.

Open Recreation

Half Acre Recreation and Wellness Center, First Floor

Phone: (307) 766-5586

The Open Recreation Program is housed primarily in the newly renovated Half Acre Recreation and Wellness Center with additional recreational opportunities in the Corbett building on the east campus. UW's Open Recreation Program, available to the entire student population, faculty, staff and spouses, provides quality equipment for individuals to participate in non-organized, informal activities such as basketball, volleyball, racquetball, or badminton. Patrons can also take advantage of swimming, weight training, aerobic training, personal training services, and group fitness and instructional classes. For more information on the Open Recreation Program, stop by the front desk in the lobby of Half Acre, pick up a Campus Recreation brochure, or visit the Campus Recreation website.

Intramural Sports

Half Acre Recreation and Wellness Center, Second Floor

Phone: (307) 766-4175

UW's Intramural Sports Program offers organized individual and team competitive sport events in men's, women's, and co-recreational leagues. Students and employees can participate in organized recreation level sport competition in approximately 30 activities per semester such as flag football, soccer, inner-tube water polo, wrestling, badminton, basketball, volleyball, or table tennis. Information is available from the Rec Sports Office or on the Campus Recreation website. Every member of the university community is encouraged to become familiar with the many aspects of intramural sports, which are designed to encourage participation and socialization regardless of previous experiences, sport skills, or group affiliation. Come alone or with a group to sign up for a fun time.

Club Sports

Half Acre Recreation and Wellness Center, Second Floor

Phone: (307) 766-4175

The Club Sports Program offers a higher level of athletic sport competition than Open Recreation and Intramural Sports to UW students. Some of the current UW Club Sport teams for men and women include badminton, baseball, volleyball, soccer, ice hockey, rugby, cycling, Nordic ski racing, lacrosse, softball, racquetball, fencing, cricket, water polo, tennis, triathlon and equestrian. UW faculty or staff with an interest in coaching or officiating a Club Sport should contact the Rec Sports office. Visit our website for more information on Club Sport teams and activities.

Outdoor Program

Half Acre Recreation and Wellness Center, First Floor

Phone: (307) 766-2402

UW's Outdoor Program (OP) offers a variety of outdoor experiences as well as training to use the brand new indoor climbing and bouldering wall. Participants have opportunities to develop lifetime recreational skills, gain an appreciation and concern for our natural environment, and meet new people. The OP sponsors a variety of seasonal programs and outings throughout the year. These activities range from day and weekend trips to nearby destinations to extended trips at unique destinations. The OP also runs clinics and sponsors guest speakers, presentations, and other educational programs. Activities are offered for all skill levels through such venues as back country ski outings, trail running, snowshoe outings, back country hiking and camping trips, or rock climbing. The OP provides an extensive line of rental equipment to the campus community. The Outdoor Program staff is ready to expose the university community to a whole new realm of experiences not available anywhere else on campus. Visit the office or our website for more information on OP activities and services.

Dean of Students Office

Ryan O'Neil, Dean of Students
128 Knight Hall, (307) 766-3296
Web site: www.uwyo.edu/DOS

The Dean of Students Office (DOS) provides a variety of UW student support services. The staff in DOS work to enhance the quality of life for all UW students. Assistance with situational needs and student life concerns of individual students and groups of students regarding their personal, academic, and/or social welfare are coordinated by the DOS staff.

Several offices and programs comprise the Dean of Students Office. These include the Dean of Students, STOP Violence Program, welfare check, and Student Judicial Affairs, all located in Knight Hall. The Center for Student Involvement and Leadership (CSIL) is also under the Dean of Students and is primarily located in the Wyoming Union.

Services available through the Dean of Students Office include individual advisement and consultation regarding situational student life concerns; referral coordination with other university and community services; conflict resolution and consultation regarding student conduct, rights, and responsibilities; advisement in grievance procedures, due process, and student appeals of disputed decisions; official university withdrawals; and authorized absences and emergency contacts.

The professional staff provide direct assistance to students and groups at any time in the student's career at the university. Information, individual advisement and consultation, and assistance with administrative procedures are facilitated in the Knight Hall offices.

STOP Violence Program: The mission of the STOP Violence Program is to prevent domestic/relationship violence, sexual assault, and stalking on the campus of the University of Wyoming. Awareness and prevention efforts are provided by this office through outreach and educational activities. The coordinator works closely with the University Counseling Center (UCC), Campus Police (UWPD), Residence Life, and other offices to provide programs.

Another focus of the STOP Violence Program is to provide support and resources to students affected by violence. One resource is an on-campus advocate who can help a student access services through university departments and/or community agencies. Support is also offered by providing information to these students, their friends, and families, about the effects of domestic/relationship violence, stalking, or sexual assault. Walk-in hours are 10 a.m. to 4 p.m. weekdays, (307) 766-3296. For after hours emergencies, please call (307) 745-3556 (the Albany County Safe Project).

Student Conduct, Rights and Responsibilities: The Trustees, as a governing body of the university, are charged with the statutory duty and authority to make all rules and regulations including the administrative responsibility to regulate and control whatever conduct and behavior of the members of the university community impedes, obstructs, or threatens the achievement of the educational goals and mission of the university. The university community, in order to function in an orderly and creative manner, ascribes to a code of conduct to which the student must adhere. This information, entitled Student Code of Conduct, is distributed to each student who is granted admission to the university. This information and other university regulations are published in order to inform students of their rights and responsibilities and the minimum ethical standard of conduct expected of them as members of the university community. Additional copies of this information may be obtained at the Dean of Students Office or on the web.

Student Legal Services: Student Legal Services provides free, confidential legal assistance to the University of Wyoming student community through a full-time attorney. This office provides full legal service for any student need with the exception of in-court representation. The attorney can assist all fee-paying University of Wyoming students who seek advice in connection with personal legal issues. Information is readily available on a variety of subjects. This service is provided through student fees to ASUW, and there is no additional charge for the attorney's time. Student Legal Services also facilitates the effective and prompt handling of legal referrals, (307) 766-6347.

Disability Support Services: Disability Support Services (DSS) provides a variety of services for students with physical, sensory, cognitive, or psychological disabilities including printed materials in alternative format, note-taking assistance, classroom relocation, testing accommodations, access to adaptive computers, parking assistance, advocacy, sign language interpreters, real-time transcribing, mobility orientation for the blind, as well as other academic support services. UDSS assists UW to meet its legal and ethical obligations under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Services are coordinated with the efforts of the Division of Vocational Rehabilitation and Wyoming Services for the Visually Impaired, when appropriate. Students with disabilities who anticipate needing accommodations to fully participate in classes and programs at the University of Wyoming are strongly encouraged to register with UDSS and provide documentation of their disability.

Student Health Service

Mary Beth Bender, FNP-C, Interim Director
Student Health Building, (307) 766-2130
Web site: www.uwyo.edu/ShSer

The Student Health Service (SHS) provides personalized health care to eligible students by maintaining a high quality medical outpatient clinic. The clinic provides primary health care, health education, and preventive services to enable students to complete their course of study. The professional staff consists of two physicians, three nurse practitioners, a psychiatric nurse practitioner, one physician assistant, and registered nurses, in addition to other professional and administrative personnel.

Undergraduate and professional full-time students taking 12 or more credit hours and graduate students taking 9 or more hours are eligible for services at the SHS. Undergraduate and graduate part-time students who have purchased the Optional Student Fee Package are also eligible. Enrollment in, or waiver from, the University of Wyoming Student Medical Insurance program has no effect on eligibility to use the Student Health Service. Students enrolled during the summer pay a summer fee for use of the SHS. Students not enrolled for summer but who were enrolled spring semester and are pre-registered for fall semester may pay the same summer fee to use the SHS. Payment of the semester fee provides visits with clinicians and nurses at no cost. Affordable laboratory diagnostic procedures, medications, and office procedures are available. There are also nominal charges for supplies such as ace bandages, splints, crutches, and other medical devices.

The hours of the Student Health Service can be found on our web site. All students are urged to have adequate health insurance coverage for illnesses or emergency visits to the local hospital, urgent care clinic, or a physician's office when the Student Health Service is closed. Insurance coverage is also recommended for medical care that is not available at the Student Health Service, including treatment of major injuries, surgery, and hospitalization. The student is responsible for all charges for services provided by persons or institutions outside of the Student Health Service.

Student Success and Graduation Hub

Nycole Courtney, Dean of Student Success

Phone: (307) 766-4858
Web site: www.uwyo.edu/student-success/

Our mission is to provide We've created a robust support system in which students and families can become actively engaged to find solutions to navigate academic and personal struggles from adjusting to college. This self-guided hub helps you quickly find resources and guidance.

The hub exists to maximize student support and programming, personalized to their needs. All UW students have access to a support system that includes academic advising, therapeutic counseling, engagement, leadership development, mentoring, tutoring, developmental workshops and most of all - a sense of belonging.

We offer a one-stop-shop for meeting your needs and ensuring a successful college career. That's why we've grouped all of UW's student support opportunities together so you can easily identify where you need the most assistance at any given time during your college career.

University Counseling Center

Toi Geil, Ph.D., Director
341 Knight Hall, (307) 766-2187
Web site: www.uwyo.edu/UCC

The University Counseling Center (UCC) provides comprehensive, time-effective mental health services to the university students and consultation on issues with parents, staff, and faculty. The UCC is a resource center for students to enhance personal success skills in dealing with the challenging and sometimes stressful university environment. The professional UCC staff work together with students to help them find effective ways to approach concerns and problems. Students are supported in learning to make healthy lifestyle choices that promote their personal, social, and academic goals. Group and individual counseling services, in a professional and confidential atmosphere, are provided to students with personal and interpersonal concerns. Other services include crisis intervention, walk-in consultation, and education to the UW community. Individual counseling appointments are made in person during regular office hours, 8 a.m. - 5 p.m. (summer hours: 7:30 a.m. - 4:30 p.m.) Monday through Friday. The UCC offers walk-in services, various hours a day, when students may simply walk in to be seen for a brief appointment, to determine future services they might need. Counseling services are free to UW students. For after-hour emergencies, students can talk to an on-call counselor by calling 766-8989.

Campus Consultation and Outreach: UCC staff consults with academic and student services personnel, student leaders, and university administration regarding counseling and mental health issues and ways to better the UW living/learning environment. Outreach programs can be initiated by student or staff request or by UCC staff bringing issues of concern to various campus populations. Some current issues include destigmatizing mental health, suicide prevention, respect for diversity, sexual orientation issues, and stress management. Generally, UCC asks for a minimum of two weeks notice for an outreach presentation; however, in urgent situations triggered by trauma, outreach programs will be offered on a shorter notice. The Center hosts the Lifesavers Coalition - a group of campus and community partners who have an interest in training others in the skills of suicide prevention, and also have a focus on how to be proactive with wellness.

UCC collaborates closely with the STOP Violence Program in the Dean of Students Office by providing counseling support to students who are victims of sexual violence as well as collaborative programming regarding prevention of sexual violence and membership with Campus Coalition for the Prevention of Sexual and Relationship Violence.

AWARE (Alcohol Wellness Alternatives, Research and Education): The AWARE Program is committed to a healthy campus community and a drug-free learning environment. AWARE Program staff utilize best practices in providing drug and alcohol education and prevention programming for the University of Wyoming campus and community. The AWARE Program promotes a standard of wellness in regard to healthy choices surrounding alcohol use and the prevention of illicit drug use by college students. To achieve these goals, the AWARE Program offers a broad range of services ranging from individual interventions to consultative and educational services for campus groups and the community at large. AWARE also coordinates the Cowboy UP Peer Education group. Additionally, the AWARE Program coordinates the A-Team, a campus-community coalition dedicated to reducing underage and excessive alcohol use. For more information, please visit the web site at www.uwyo.edu/aware or feel free to contact via telephone at (307) 766-2187, email (aware@uwyo.edu), or in person by visiting 341 Knight Hall.

Residence Life Services

Katie Buell, Assistant Director, Residence Life
Taryn Wright Assistant Director
Washakie Center, Lower Level, (307) 766-3175
Web site: Residence Life & Dining Services (uwyo.edu)

Residence Life & Education is committed to providing social and collaborative opportunities that occur while living - on campus, with the belief that these elements are an essential component of a student's education, personal growth, and college experience. The social and collaborative opportunities that occur while living on-campus are unparalleled elsewhere. You will meet new people, develop relationships, and integrate living and learning. We are committed to providing an environment that supports your personal and academic success and looks forward to having you become a part of our campus community!

The university operates six furnished residence halls, a variety of furnished and unfurnished apartments, as well as Washakie Center, ten on-campus dining establishments and UW Catering and Events.

Residence Halls: The residence halls provide convenient living, studying, educational programming, social activities and dining accommodations for the university community. Various living environments are available. Full-time, live-in professional staff and graduate assistants live in the community, along with student resident assistants. The staff is available to all students to help make residence hall living an enjoyable and productive part of campus life. We have five residence halls for students:

- Downey Hall
- Honors House
- McIntryre Hall
- Orr Hall
- White Hall

The residence halls also provide several additional services to our students:

- Laundry facilities on-site in each hall
- On-site computer labs and study rooms
- Mail service
- Free tutoring in the Student Learning Center
- 24-hour emergency custodial & maintenance services
- Upgraded cable TV that includes channels like ESPN U, HBO, The Sundance Channel, and your own HBO GO account

Room assignments are made according to the date the completed contract form is received. The housing deposit is included in the enrollment confirmation deposit paid by new UW students. Students returning to UW who wish to live in the residence halls must pay the housing deposit when they complete their housing contract. Hall, roommate, and other preferences may be indicated on the contract and will be considered. Students wishing to room together should submit contracts together prior to the posted deadline of May 1.

New Student Live-in Policy: The UW Trustees have established a policy requiring all new students to live in the UW residence halls during their first academic year on campus and to take a minimum of the 12-accesses-per-week dining plan. The policy is based on extensive student development research indicating that a student's chance of academic success and satisfaction with the college experience greatly improves through the residential living experience.

For a student to be considered for an exemption to the policy, a request with appropriate documentation must be submitted. Students will be considered exempt from the policy if they can provide documentation for one of the following:

- 21 years of age or older
- Married
- Single parent with custody of child(ren)

- Reside with parent(s) or legal guardian(s) within a 60-mile radius of Laramie or in a property purchased by parent(s) or legal guardian(s)
- Completion of two semesters as a full-time student or the equivalent credit hours at UW, or another university or college
- Have documented medical or health conditions prohibiting residence hall living

Students must apply for exemption prior to 5 p.m. the day before the halls open for the semester (August 25, 2016 for the fall 2016 semester). Housing accommodations at the University Apartments may be available for students who have children or minors living with them or students of sophomore status or above.

For additional information about the residence halls, dining plans, or university apartments visit www.uwyo.edu/reslife-dining; call toll free (866) 653-0212; or if in Laramie, (307) 766-3175 (residence halls) or 766-3176 (university apartments); FAX (307) 766-3613 or email reslife-dining@uwyo.edu. Information may also be obtained by writing to Residence Life & Dining Services, Dept. 3394, 1000 E. University Ave., Laramie, WY 82071.

Center for Student Involvement and Leadership (CSIL)

Jeremy Davis, Director
326 Wyoming Union, (307) 766-4008
Web site: www.uwyo.edu/CSIL

The Center for Student Involvement and Leadership (CSIL), located in the Wyoming Union, seeks to provide opportunities for on campus engagement through inclusive student-centered programs, communities, services, and experiential learning opportunities to complement the academic experience. Through CSIL, students can join or create a Registered Student Organization; volunteer for local, national, or international service projects; obtain on-campus employment; serve as a student government leader; participate in fun activities; and find community among those who are similar and different.

Associated Students of the University of Wyoming (ASUW)

020 Wyoming Union, (307) 766-5204
Web site: www.uwyo.edu/ASUW

The Associated Students of the University of Wyoming (ASUW) is comprised of three branches: the Executive, Legislative, and Judicial. All full-time, fee-paying students are members of ASUW. Officers and 32 senators are elected annually by the students, and each senator represents one of the colleges or schools. They meet weekly to consider areas of concern to students.

The ASUW student government represents student opinion to the administration, faculty, staff, and State of Wyoming legislature. ASUW participation across the university ensures that university policies are made with the concerns of students in mind. In addition, the ASUW president serves as an ex-officio (non-voting) member of the University of Wyoming Board of Trustees and conveys student opinion to the institution's highest governing body. ASUW also provides their own programs and services for students. Included in these programs are ASTEC (technical services), located in the Wyoming Union; Student Legal Services in Knight Hall; and several councils: First-Year Senate, Non-Traditional Student Council, and the United Multicultural Council.

Campus Activities Center

Erik Kahl, Associate Director
Center for Student Involvement and Leadership

The Campus Activities Center (CAC) serves as the hub of student activities on campus. Professional staff in the office offer guidance and assistance for programming committees, late-night programming efforts, more than 250 recognized student organizations (RSOs), and student leadership development. Recognized student organizations at UW are established to promote a learning and social experience for individuals who share common interests. Students are encouraged to join and are free to organize associations that will provide opportunities to participate in educational, academic, cultural, and social activities. CAC staff are available to help students develop organizations, sponsor activities, and coordinate efforts with other entities on campus. A complete listing and descriptive classification of all current recognized student organizations is available from the CAC and online at www.uwyo.edu/rso. The CAC is also home to 7220 Entertainment, a student-run organization that plans and implements social, recreational, cultural, and educational programs for the campus community. 7220 Entertainment is composed of five committees.

Fraternity and Sorority Life

Erik Kahl, Associate Director
Center for Student Involvement and Leadership

The fraternities and sororities at UW provide a living/learning environment designed to support the development and experience of their members. Through intentional programs, members build connections among fellow brothers/sisters and alumni, grow and develop as students and leaders, give back through services, and lead with integrity. Countless leadership opportunities can be found within each chapter, governing council, and broader FSL community.

Multicultural Affairs

Center for Student Involvement & Leadership (CSIL)
103 Wyoming Union, uwma@uwyo.edu

Multicultural Affairs serves to enhance the personal and academic growth of students through programs, services, policies, and procedures. Our focus is to advocate with and for marginalized students to develop a positive sense of self, create strong community connections, and thrive in all aspects of student life.

A variety of events, workshops, support groups, and trainings are offered throughout the academic year to support students. Multicultural Affairs also offers the Multicultural Resource Center and Rainbow Resource Center in the Wyoming Union.

The Multicultural Resource Center, located in room 103, is a place for students from marginalized and underrepresented backgrounds to find community and support. Programs and additional resources are offered throughout the year, as well as computers, printers and workstations. The Rainbow Resource Room, located in room 106, is a supportive space for our LGBTQIA students to find community and a network of support. Computers, printers, and workstations are also available in this center as well as programmatic offerings throughout the year. More information can be found at: <http://www.uwyo.edu/oma/>.

Student Media

Center for Student Involvement & Leadership (CSIL)
001 Wyoming Union, (307)766-6190

The Student Media Office is partially funded by student fees. It meets the informative, educational, and cultural needs of the university community through such publications as The Branding Iron (the daily student newspaper published

Tuesday-Friday and weekly during the summer session), the literary magazine Owen Wister Review (published spring semester), and the feature magazine Frontiers (published fall and spring semesters) which are published under the auspices of the Board for Student Media.

The board is composed of students, faculty, staff, and selected members of the Wyoming Press Association. These publications provide an excellent opportunity for students to gain valuable experience in newspaper, magazine, advertising, sales, and production. More information can be found at: <http://www.uwyo.edu/studentmedia/index.html>.

Union Events

Center for Student Involvement & Leadership (CSIL)
210 Wyoming Union, (307)766-3161

The Wyoming Union is the community center for campus life, enhancing and complementing out-of-class educational experiences. Open daily, the Union provides facilities, services, and various activities to all of the campus community. Through the Union Events office, reservations can be made for spaces in the building including meeting rooms, ballrooms, or tables in the breezeway. The Information Desk offers campus and community information and ticket sales. For reservations and information on these services, contact the Union Events Office or make a reservation online: <https://www.uwyo.edu/union/reservations/>.

Veterans Services Center

Marty Martinez
Center for Student Involvement & Leadership (CSIL)
300 Wyoming Union, (307)766-6908

Located on the 3rd floor of the Wyoming Union, the Veterans Services Center has resources, computers, and a lounge area where veterans and their dependents, spouses, and friends can meet and support each other. Special events, programs, and student groups are coordinated out of the center. The staff works to improve access to and success in college for students who are veterans. For more information, call (307) 766-6908 or visit the web site at <http://www.uwyo.edu/vetservices/>.

Service, Leadership, and Community Engagement Office (SLCE)

Center for Student Involvement & Leadership (CSIL)
033 Wyoming Union, (307)766-3117

The Service, Leadership, and Community Engagement Office (SLCE) is located on the lower level of the Wyoming Union. SLCE is predicated on the notion that universities have a responsibility to prepare all students for active citizenship. A healthy American democracy demands ethical, engaged leadership, and SLCE seeks to cultivate these ideals among our UW students. A complete listing of all the programs and events the SLCE Office offers can be found at www.uwyo.edu/slce/. Students are invited and encouraged to visit the office in Room 033 in the Wyoming Union to explore the many opportunities available, including:

- First Year Institute
- Alternative Breaks
- Local and national days of service
- Good Mule Project

- The Big Event
- Leadership development programs
- Community engagement programs

FERPA

- General Statement
- Access
- Release of Information
- Public or Directory Information
- Letters of Appraisal/Recommendation
- Challenges to the Record
- Exception to the Policy
- Release of Personally Identifiable Information in a Deceased Student's Education Record
- Rights of Students

Family Educational Rights and Privacy Act (PL-380)

General Statement

The University of Wyoming has the responsibility for effectively supervising any access to and/or release of official data/information related to the education records of its students. Certain items of information about individual students are fundamental to the educational process and must be recorded. This recorded information concerning students must be used only for clearly-defined purposes, must be safeguarded and controlled to avoid violations of personal privacy, and must be appropriately disposed of when the justification for its collection and retention no longer exists.

In this regard, the university is committed to protecting, to the maximum extent possible, the right of privacy of all individuals about whom it holds information, records, and files. Access to, and release of, such records is restricted to the student concerned, to parents of dependent students, to others with the student's written consent, to officials within the university, to a court of competent jurisdiction, and otherwise pursuant to law.

Access

All official information collected and maintained in the university identifiable with an individual student will be made available for inspection and review at the written request of that student subject to certain exceptions.

For purposes of access to records at the University of Wyoming, students enrolled (or formerly enrolled) for academic credit or audit at the university shall have access to official records concerning themselves.

A request for general access to all official records, files, and data maintained by the university must be made in writing to the registrar or to other person(s) as designated by the university officer in charge of the unit maintaining records. A request for access to official data maintained in a particular office may be made to the administrative head of the office.

When students (or former students) appear at a given office and request access to the university record about themselves:

1. The student must provide proper identification verifying that he or she is the person whose record is being accessed.

2. The designated staff person(s) must supervise the review of the contents of the record with the student.
3. Inspection and review shall be permitted within a period not to exceed 45 days from the date of the student's request.
4. Students will be free to make notes concerning the contents, but no material will be removed from the record at the time.

Recordkeeping personnel and members of the faculty and staff with administrative assignment may have access to records and files for internal educational purposes as well as for routine necessary clerical, administrative, and statistical purposes as required by the duties of their jobs. The name and position of the official responsible for the maintenance of each type of education record may be obtained from the registrar of the university.

Any other access allowed by law must be recorded showing the legitimate educational or other purpose and the signature of the person gaining access. The student concerned shall be entitled to review this information.

Release of Information

No personally identifiable information shall be disclosed to any individual (including parents, spouse, or other students) or organization except as follows:

1. Disclosure is authorized in writing by the student.
2. Disclosure is to university officers or employees who need to know so as to accomplish legitimate university purposes related to their functions.
3. Disclosure is to a governmental agency, educational organization, parent of a dependent student, or other entity as described by federal regulations or otherwise required by state or federal law. Custodians of records should obtain interpretations whenever third parties request personally identifiable information.
4. To authorized educational authorities at the local, state, and federal level.
5. When disclosure of any personally identifiable data/information from university records about a student is demanded pursuant to court order or lawfully issued subpoena, the staff member receiving such order shall, if possible, immediately notify the student concerned in writing prior to compliance with such order or subpoena. (NOTE: In fulfillment of its responsibilities to monitor certain state benefit and entitlement programs, the Wyoming state auditor may issue to the university from time to time an administrative subpoena for a listing of currently enrolled full-time students, the students' social security numbers, and information relating to the nature and amount of any educational financial aid being received by such students. Upon being served with such a subpoena, the university will provide the information requested without further notice.)
6. Data/information from university records about students will be released for approved research purposes only if the identity of the student involved is fully protected, or if the research is related to official university business and not publicly disseminated.
7. Information from university records may be released to appropriate persons in connection with an emergency if the knowledge of such information is necessary to protect the health or safety of a student or other persons.

The university officer responsible for the records from which information is released shall maintain with the student's record a listing of disclosures of personally identifiable information, except disclosures in accordance with items 1 and 2 above for which no record need be kept. The listing shall identify the parties who requested or obtained information and the legitimate interests these parties had in making the request.

Public or Directory Information

The following items are considered public data/information and may be disclosed by the university in response to inquiries concerning individual students, whether the inquiries are in person, in writing, or over the telephone:

1. Name;
2. Affirmation of whether currently enrolled;

3. Campus location.

Unless students have officially filed a written request with the university registrar within ten working days after the first day of classes for a semester that disclosure not be made without their written permission, the following items, in addition to those above, are considered public/ directory information; may be included in appropriate university/campus directories and publications; and may be disclosed by designated staff members in response to inquiries concerning individual students, whether the inquiries are in person, in writing, or over the telephone:

1. School, college, department, major, or division;
2. Dates of enrollment;
3. Degrees received;
4. Honors received;
5. Local address and phone number;
6. Home address (permanent);
7. Email address;
8. Participation in officially recognized activities and sports;
9. Weight and height of members of athletic teams;
10. Full-time or part-time enrollment.

Letters of Appraisal/Recommendation

Candid appraisals and evaluations of performance and potential are an essential part of the educational process. Clearly, the providing of such information to prospective employers, to other educational institutions, or to other legitimately concerned outside individuals and agencies is necessary and in the interest of the particular student.

Data/information which was part of university records prior to January 1, 1975 and which was collected and maintained as confidential information will not be disclosed to students. Should a student desire access to a confidential letter of appraisal received prior to January 1, 1975, the student shall be advised to have the writer of that appraisal notify, in writing, the concerned records custodian of the decision as to whether or not the writer is willing to have the appraisal made available for the student's review. Unless a written response is received approving a change of status in the letter, the treatment of the letter as a confidential document shall continue.

Documents of appraisal relating to students and collected by the university or any department or office of the university on or after January 1, 1975, will be maintained confidentially only if a waiver of the right of access has been executed by the student. In the absence of such a waiver, all such documents will be available for the student's inspection and review.

If a student files a written waiver with the department or office concerned, letters of appraisal received pursuant to that waiver will be maintained confidentially. Forms will be available for this purpose.

Challenges to the Record

All students shall have the opportunity to challenge any item in their file which they consider to be inaccurate, misleading, or otherwise inappropriate. A student shall initiate a challenge by submitting a request in writing for the deletion or correction of the particular item. The request shall be made to the custodian of the particular record in question.

If the custodian and the student involved are unable to resolve the matter to the satisfaction of both parties, the written request for deletion or correction shall be submitted by the student to such person as designated by the president of the university who shall serve as the hearing officer. The student shall be given the opportunity for a hearing at which the student may present oral or written justification for the request for deletion or correction. The hearing officer may obtain such other information as he or she deems appropriate for use in the hearing and shall give the student a written decision on the matter within 30 days from the conclusion of the hearing. If the decision of the hearing officer is to

deny the deletion or correction of an item in the student's file, the student shall be entitled to submit a written statement presenting the student's position with regard to the item to the hearing officer. Both the written decision of the hearing officer and the statement submitted by the student shall be inserted in the student's file. The decision of the hearing officer shall be final.

Grades may be challenged under this procedure only on the basis of the accuracy of their transcription or posting.

Exception to the Policy

It is the position of the university that certain data/information maintained in various offices of the university is not subject to the provisions of this policy with regard to inspection, review, challenge, correction, or deletion. Exceptions to "education records" include: alumni records, employment records, law enforcement records, medical records, sole possession records, and university disciplinary records.

1. Statements submitted by parent(s)/guardian or spouse in support of financial aid or residency determinations are considered to be confidential between those persons and the university and are not subject to the provisions of this policy except with the written consent of the persons involved. Such documents are not regarded as part of the student's official record.
2. University employment records of students are not included in this policy, except as provided under the Wyoming Public Records Act.
3. With regard to general health data, only that data/information which is used by the university in making a decision regarding the student's status is subject to review by the student under this policy. Written psychiatric or psychological case notes which form the basis for diagnoses, recommendations, or treatment plans remain privileged information not accessible to the student. Such case notes are not considered to be part of official university records. To ensure the availability of correct and helpful interpretations of any psychological test scores, notes, or other evaluative or medical materials, the contents of these files for an individual student may be reviewed by that student only in consultation with a professional staff member of the specific department involved. Records that are subject to FERPA are not subject to the HIPAA Privacy Rule.
4. Records relating to a continuing or active criminal investigation by the University of Wyoming Police Department, or records of said office not relating to the student's status with the university, are not subject to this policy.
5. No student is entitled to see information or records that pertain to another student, to parents, or to other third parties. A student is entitled to review only that portion of an official record or file that pertains to him or her.
6. The personal files, or sole possession records, of members of the faculty and staff which concern students, including private correspondence, and notes which refer to students, are not regarded as official records of the university. This includes notes intended for the personal use of the faculty and never intended to be official records of the university. In order to be sole possession records, they cannot be shared with anyone else.

Release of Personally Identifiable Information in a Deceased Student's Education Record

The Family Educational Rights and Privacy Act (FERPA)'s protection of personally identifiable information in a student's education record ends at the time of a student's death. The University of Wyoming's policy on the release of a deceased student's records is as follows:

Within the first year following the death of a student, the University will release the educational records of the decedent to the following individuals:

- If the student submitted a signed Authorization to Release Educational Records form which designated the person(s) eligible to request and/or receive educational records, the information will be released to the individual on that form.
- The decedent's next of kin. The request must be accompanied by official documentation.
- The individual designated as the personal representative of the decedent's estate. The request must be accompanied by official documentation.
- Members of the family or other persons with the written approval from the decedent's next of kin or the personal representative of the decedent's estate. Absent written approval from the family or representative of the estate, only directory information will be disclosed.
- In response to a subpoena or court order.
- To any other individual, if determined by the University to be in the best interest of the decedent or the University.

After one year has elapsed following the death of an individual student, the University may release the educational records of the decedent at the University's discretion.

Rights of Students

Students are hereby notified that controlling provisions of federal law are contained in Sec. 438, Pub. L.90-247, Title IV, as amended, 88 Stat. 571-574 (U.S.C. 1232g) and regulations set forth in the code of Federal Regulations, 34 C.F.R. sections 99.1 to 99.67 (1981). Complaints of institutional noncompliance may be made to the Department of Education as provided in the regulations.

Grading System

- Grade Points
- Semester (or Term) Grade Point Average
- Cumulative Grade Point Average
- Repeating a Course
- Incompletes (I)
- General Information on S/U Grading
- End of Semester Grade Reports
- Grade Appeal
- Academic Transcripts
- Honor Roll
- Academic Probation and Suspension

Students are evaluated according to the following grading system:

Grade	Pts.	Definition
A	4.000	Exceptional
B	3.000	Very good
C	2.000	Fair
D	1.000	Poor

F	0.000	Failure (may be assigned as a grade for failure to attend or to indicate failure to formally withdraw)
I		Incomplete (temporary mark pending coursework completion as agreed in a signed document). See section on incompletes below for details.
W		Withdrawal (from the individual course or all courses), only if the student follows the official withdrawal procedure. If a student enrolls in a course and then abandons it (stops attending) without following the official withdrawal procedure, a grade of F will be assigned.
S		Satisfactory (equivalent to a C or better [B or better in courses numbered 5000 or above]; see general information on S/U grading below)
U		Unsatisfactory (see general information on S/U grading below)
UK		Unable to compute grades (for midterm grades only)

Grade Points

Each letter-graded course carries a grade point value computed as: the total credit hours earned in the course multiplied by the point value of the letter grade earned. For example: a student earning an A (point value of 4) in a 3 credit-hour course would earn 12 grade points for the course.

Semester (or Term) Grade Point Average

The semester grade point average (GPA) is the sum of all grade points earned in a semester or term divided by all credit hours attempted for letter grade. Credit hours in courses in which marks of I, W, S, or U were assigned, as well as developmental courses, are excluded.

Cumulative Grade Point Average

The average of all grade points earned by a student below is termed the cumulative grade point average. It is used for determining activity eligibility, honors, probation, suspension, graduation, and for all comparisons or purposes requiring measurement of academic standing.

The cumulative grade point average is defined as the sum of all grade points earned in University of Wyoming residence, correspondence, or Distance Education, divided by all credit hours attempted for letter grade, with the following exceptions:

1. The credit hours shall not be counted in courses in which marks of W, S, or U were assigned, or in which marks of I (for incomplete) are still in effect.
2. For repeated courses:
 - a. First repeat: only the second credit and grade is used to determine earned hours and to calculate the cumulative grade point average.

- b. If repeated more than once, only the last credit and grade earned is used to determine earned hours and to calculate the cumulative grade point average.
 - c. A student is limited to a maximum of three (3) attempts, including withdrawals, in any course at the University of Wyoming.
 - d. If a mark of W, S, or U is assigned in a repeated course, the previous grade assigned will stand except when an S or U is earned repeating a previous S or U.
 - e. Courses applied towards one completed degree may be repeated as part of a second degree; however, the grade and grade point average in the original degree will not be changed.
3. Transfer grades are not counted in the UW grade point average. If a course taken at UW is repeated at another institution, the credits and grade earned at UW will be deleted from computation of the UW cumulative grade point average if credit for the repeated course is transferred to UW.
4. For graduate students, courses numbered below 4000 are not added in to the semester and cumulative totals, nor computed into the GPA.

Repeating a Course

Students may repeat course work; however, credit earned in any given course (or equivalent course) is applicable toward a degree requirement only once. All grade entries remain on the student's record, but only the last grade earned will be calculated in the UW cumulative grade point average. Refer to the Cumulative Grade Point Average section of this catalog for further information. Variable-credit courses are not considered as repeats unless the department head provides written certification that the course content was, in fact, repeated. Courses repeated will remain as entries on the academic transcript. Courses applied towards one completed degree may be repeated as part of a second degree; however, the grade and grade point average in the original degree will not be changed. A student is limited to a maximum of three (3) attempts in any course at the University of Wyoming. An "attempt" includes any instance in which the student earns a grade for the course or withdraws from the course. The three-attempt limit does not apply to courses identified in the University Catalog as being appropriate for students to take multiple times. A student can petition for exceptions to this limitation through established university procedures (UW Regulation 2-204). See the University Regulations online for the most up-to-date version.

Incompletes (I)

A grade of "I" (incomplete) is a temporary grade assigned to students who, due to unforeseen circumstances, were unable to complete all work required for a course. Information regarding authorization and processing of incomplete grades may be obtained from the Office of the Registrar. An incomplete should not be assigned in lieu of a failing grade (e.g. if student never attended). Incomplete grades are not a student privilege. They can be issued only at the discretion of the assigned instructor. (UW Regulation 6-720) See the University Regulations online for the most up-to-date version.

Time allowed for completing course requirements will normally not exceed 120 calendar days beyond the end of the semester in which the I was given. The dean of a college may designate certain research courses where the 120-day limit may be extended by the instructor; however, the completion date even in these courses should not be later than the time of graduation for the student unless the student is reserving the particular course for graduate credit.

If the final grade for the course is not received in the Office of the Registrar by the date indicated on the authorization, the I will revert to an F. Should graduation occur in the interim, the I will stand permanently. The student's GPA at graduation with all associated honors will stand as computed. (UW Regulation 6-720) See the University Regulations online for the most up-to-date version.

General Information on S/U Grading

The grade of S (satisfactory) is interpreted to include grades A through C and the grade of U (unsatisfactory) to include grades C-through F on the conventional grade scale for courses numbered less than 5000 (for courses 5000 or above, the grade of S is interpreted to include grades A and B). Credit hours of S/U courses are counted as hours attempted toward graduation. However, neither the S nor U grade carries grade points and neither will be included in the calculation of the cumulative grade point average.

Students may not take a course for S/U credit to satisfy University Studies Program requirements, unless the course is offered for S/U only; (e.g., POLS 1000, or the equivalent history or economics courses, may not be taken for S/U).

If a mark of S or U is assigned in a repeated course, the previous grade assigned will stand except when an S or U is earned repeating a previous S or U.

Students must signify at the time of registration or schedule modification whether they are taking any course for S/U grades.

The faculties of the various colleges and interdisciplinary programs shall determine the number of credit hours of S that may be used to satisfy degree requirements in their programs. They may also place restrictions upon the use of S credits to satisfy college or major requirements. In addition, they may designate particular courses in their colleges as courses to be offered for S/U only.

A student who changes majors within a college or who transfers to a different college may petition for the acceptance of S credits previously earned if such credits are in conflict with faculty-established regulations for the new major or college.

Mid-Term Grades

Mid-term grades for all courses numbered below 5000 are to be submitted by instructors through WyoRecords the week following midsemester. Grades which can be assigned by faculty are:

Grade	Definition
D	Poor
F	Failure (may also be assigned as a grade for failure to attend or to indicate failure to formally withdraw)
S	Satisfactory (equivalent to a C or better) in cases where the class is offered for S/U or the student has elected the S/U option
U	Unsatisfactory (equivalent to a D or F) in cases where the class is offered for S/U or the student had elected the S/U option
UK	Unknown; unable to compute grade

The UK grade may be assigned if, due to lack of performance assessments such as exams, papers, homework, etc., a faculty member is unable to make a determination of a midterm grade.

Please note that the midsemester grade received in any particular class reflects the assessment of student performance during the first portion of the semester only.

Mid-term grades are available through WyoRecords.

End of Semester Grade Reports

Final grades are available through WyoRecords as soon as possible (usually five working days) after the close of the semester or term.

At the end of the semester, final grades are available to students through WyoRecords within one day after being submitted by faculty. Final grades are due from faculty by noon (12:00 p.m.) of the fourth business day after the end of finals week (or after the last day of the summer semester).

Definitions

1. Cumulative semester hours attempted shall be the total of all credit hours attempted through the University of Wyoming, except for credit hours attempted in repeating a course, those in which marks of W were assigned, and those accepted in transfer from other institutions.
2. The cumulative grade point average is defined as the sum of all grade points earned through the University of Wyoming divided by the sum of all credit hours attempted through the university, except for credit hours in which marks of W, S, U, or I are assigned or those of an initial course which has been repeated. When a course has been repeated, only the last grade points and credit hours assigned for repeats of the course shall be entered in the computation of the cumulative grade point average.

Grade Appeal

A recorded grade may be changed through established appeal processes within individual colleges. Contact your department for further information about appealing a grade.

Academic Transcripts

Official transcripts of individual academic records at UW are sent from the Office of the Registrar upon written authorization signed by the individual. Individuals may also authorize the release of their academic transcripts through WyoRecords. All financial obligations to the university must be cleared before a transcript may be released or viewed on WyoRecords.

Transcripts are produced on a first-come, first-served basis and one to two business days must be allowed. Usually, 10-15 days are needed at the close of a semester to record semester grades. Same-day transcript service is available for a \$10 fee (limit of 2 transcripts).

Partial transcripts are not issued. Each transcript includes the complete academic record at the University of Wyoming and the number of credits from other institutions accepted by UW.

Official transcripts of credit earned at other institutions which have been presented for admission or evaluation of credit become the property of the University of Wyoming and are not reissued or copied for distribution. This includes high school records and any other type of supporting documents. Transcripts of work completed at other institutions should be obtained directly from the issuing institution.

Applicability of transfer credit toward any degree is dependent on the curriculum pursued by the student.

In preparing transcripts for graduate students or second bachelor's degree candidates whose undergraduate work was taken elsewhere, the University of Wyoming includes on its transcripts no detailed reference to that undergraduate work, mention being limited to designation of the degree and date received and the name of the institution granting the degree.

Honor Roll

Undergraduate and law students who achieve high scholastic grades are honored by being placed on the President's Honor Roll, the academic Dean's Honor Roll, or the Provost's Honor Roll.

The requirements to be met to attain these honors are:

For President's or Dean's Honor Roll:

1. Undergraduate students must complete a minimum of 12 UW semester hours on a basis of A-F. Exception: if a student is student teaching, the student must be enrolled in a minimum of 12 UW semester hours, at least 7 of which must be graded on the basis of A-F with no semester grade of I. Courses taken for audit do not count for honor roll purposes.
2. A GPA of 4.000 for the President's Honor Roll.
3. A GPA of 3.250 or better for the academic Dean's Freshman Honor Roll.
4. A GPA of 3.400 or better for the academic Dean's Honor Roll for undergraduates above freshman standing.
5. In the College of Law, students are eligible for the academic Dean's Honor Roll when enrolled in a minimum of 13 UW semester hours of law courses. In the College of Law, a grade point average of 3.250 or better is required for first year students and a GPA of 3.400 or better is required for second and third-year students for the academic Dean's Honor Roll.
6. Students having consortium agreements with other institutions are not considered to be full-time for honor roll purposes.

For the Provost's List:

1. Undergraduate students must complete a minimum of 6 UW semester hours, but fewer than 12 UW semester hours, of which at least 6 UW semester hours must be graded on the basis of A-F with no semester grade of I. Courses taken for audit do not count for honor roll purposes.
2. A GPA of 3.500 or better.

Graduate Students

Graduate Students are not eligible for the President's Honor Roll, the academic Dean's Honor Roll, or the Provost's List.

Academic Probation and Suspension

Undergraduate Students

Academic Status

- In order to graduate, every student is expected to maintain satisfactory academic progress, which is based on scholastic performance. Current academic status will be indicated on internal documents and grade reports as:
- good standing
- academic probation
- academic suspension: normally not eligible to petition for reinstatement until one full semester, exclusive of summer term, has elapsed. The dean of the college in which a suspended person wishes to continue may waive the four-month delay if the dean is assured that the person has made suitable progress toward resolving the academic deficiencies.

Undergraduate Academic Probation

1. Academic probation shall constitute notice that a student is not progressing satisfactorily toward the bachelor's degree or Pharm.D.
2. A student enrolled at the University shall be placed on academic probation at the end of the semester or summer term when his/ her cumulative GPA at UW falls below a 2.000.
3. A student placed on academic probation will be so notified by email. This information is also available on WyoRecords.
4. A student shall be removed from academic probation at the end of the semester or summer term in which his/her cumulative GPA is 2.000 or above.
5. Students who fail to remove themselves from probation or earn a semester grade point average below 2.000 in the next semester or summer term attempted at the University of Wyoming will be placed on academic suspension for not maintaining the criteria for satisfactory academic progress. For probation purposes, completing a semester or summer term shall mean that the student has earned a grade in at least one course.

Undergraduate Academic Suspension

1. Academic suspension is the dismissal of a student from the University due to the student not making satisfactory academic progress toward the bachelor's degree.
2. A student who is suspended for unsatisfactory academic performance should not be permitted to petition for reinstatement until one full semester, exclusive of summer term, has elapsed. Students may petition once per semester for reinstatement, and, if denied by any college or the Center for Advising and Career Services, cannot petition for reinstatement until the next fall or spring semester, unless there are documented extenuating circumstances justifying immediate reinstatement.
3. A suspended student may not enroll for any University of Wyoming credit classes (including on-campus, online, and distance).
4. Credit earned at another accredited college or university while a student is suspended from the University may be accepted under the usual regulations governing the transfer of credit after the student has been reinstated.
5. A student placed on academic suspension will be so notified by letter.

Undergraduate Academic Reinstatement

1. A college may have an academic reinstatement policy that is more restrictive than the general university policy.
2. Academic reinstatement is the readmission of a suspended student to the University. The student is eligible to be considered for readmission. The reinstated student will be on academic probation during his/her first semester or summer term of reinstatement after which he/she may be removed from this probation.
3. A petition for reinstatement must be submitted no later than 15 days before the beginning of the semester or summer term in which the student wishes to register. A petition received after this deadline may not be processed until after the regular registration period.
4. The decision on a petition for reinstatement will be made by the dean (or designee) of the college in which the student wishes to enroll. Undeclared students should contact the Director of the Center for Advising and Career Services. A student who has been reinstated must remain in the college in which he/she has been reinstated for that semester.
5. Students placed on academic suspension are eligible for a maximum of three reinstatements. Any student placed on academic suspension for the fourth time is not eligible for reinstatement for a minimum of five years from the end of the last term of attendance.
6. Students who are suspended as a result of spring semester grades will have the suspension invoked at the beginning of the summer term.

Exceptions

Upon the request of a person placed on academic suspension or denied reinstatement, the vice president for academic affairs may review the circumstances and reverse the decision of the dean if the vice president for academic affairs deems it necessary to prevent a gross injustice.

Academic Renewal

An undergraduate student who returns to the University and who has not completed or withdrawn from a college course at UW during the previous five years will have the option of continuing his or her earlier UW cumulative GPA or commencing a new cumulative GPA under the Academic Renewal policy. The student must submit the Academic Renewal Application Form (which may be obtained from the Office of the Registrar) to the registrar no later than ten class days before the last day of classes of the semester in which the student returns to UW.

The entire UW transcript will remain intact. A note indicating the policy will precede the new part of the UW transcript if the student opts for academic renewal. At the discretion of the academic department in which the student is enrolled, credit hours for which the student earned the grade of C or better may be applied toward the completion of the degree requirements. The list of any departmentally-approved courses must be indicated on the Academic Renewal Application Form when initially submitted to the registrar. No further changes may be requested.

A student's GPA and completed courses that were applied to a baccalaureate degree are not eligible for academic renewal.

Graduate students are not eligible for academic renewal.

Graduate Students

A graduate student enrolled at the university will be placed on academic probation at the end of a semester or summer session when his or her graduate cumulative UW grade point average in 4000-level or higher courses is below 3.000. Students who fail to bring their graduate GPA to 3.000 and remove themselves from probation after one semester or summer session will be suspended from the university. A suspended student may petition his/her academic program for reinstatement to the same degree program. A reinstated student will be on probation and may be subject to other performance criteria as specified by the dean of the affected department.

The above GPA requirement is considered to be a minimum requirement. Individual departments or programs may require higher standards than these minimum performance standards and establish department- or program-specific criteria for satisfactory academic progress. A graduate student may be dismissed from a degree program for lack of satisfactory academic progress, as determined by the department or program offering the degree.

The above regulations governing academic probation, suspension, and reinstatement do not apply to students enrolled in the College of Law.

Graduate Student Regulations and Policies

- Admission Regulations
- Coursework Applied to Graduate Degree
- Guidelines for Satisfactory Academic Progress
- Steps Required for Degree Completion
- Examinations
- Final Steps in Completion of Degree Requirements
- Overview of Graduate Degrees Awarded
- Miscellaneous Regulations

- Armed Services
- International Students

All regulations are subject to change without notice by action of various administrative officers, the University of Wyoming Board of Trustees, and the appropriate departments and divisions. Published regulations are the minimum requirements for any advanced degree.

School of Graduate Education

James Ahern, Vice Provost and Dean

Kam Ng, Chair, Graduate Council

Saman Aryana, Chair-Elect, Graduate Council

Michele Peck, Executive Business Manager

Phone: (307) 766-6478

Website: <https://www.uwyo.edu/uwgrad/>

Location: Knight Hall room 250

Founded in 2022, the School of Graduate Education elevates the visibility of the University of Wyoming's advanced degree education mission and supports its broad portfolio of graduate programs and the university's research mission. The School of Graduate Education continues the essential functions performed by the previous Office of Graduate Education (2018-2022), including strategic leadership for and oversight of all UW graduate programs, allocation of graduate teaching assistantship funding, implementation and enforcement of graduate education policies and procedures, graduate student marketing and recruitment, and advocacy and support for graduate students. The school builds upon these by raising the visibility and presence of graduate education to both internal and external stakeholders and serves as the conduit through which significant improvements to UW's graduate education functioning will be made, including the re-establishment of the Graduate Faculty, the creation of a Graduate Student Council, and a clarification and elevation of the role of UW's Graduate Council. Given the broad impact of the School of Graduate Education, the school's Dean also serves as a Vice Provost in the Division of Academic Affairs.

Admission Regulations

Please see Graduate Admissions section Admission to the University

Coursework Applied to Graduate Degree

Rule of 12

The Rule of 12 regulates the number of credits a student may use as non-degree and transfer credits. With committee and college approval, a student may submit up to a total of 12 pre-admission hours that may be an accumulation of non-degree, reserved, and/or transfer hours. The maximum number of hours allowed from each category is as follows: 12 non-degree graduate, 6 reserved and 9 transfer hours. A student may elect to use a combination of the three different

areas to total the 12 credits allowed (e.g. 6 non-degree hours, 3 reserved hours, and 3 transfer hours). Please review the individual sections of the catalog that cover the specific policies for non-degree hours, reserving coursework for graduate credit, and transfer credit.

Transfer Credit Available to Graduate Students

To transfer graduate hours earned at another institution to a graduate program at UW, the student must provide an official transcript from the institution where the credits were earned. This official transcript must be part of the student's permanent file. The student must also provide evidence that the course was approved for graduate credit at the institution where the course was taken.

No more than 9 semester hours that have been transferred from another accredited institution may be used for meeting the credit hour requirements of a master's student's program. Transferred hours must carry a B (3.000) or better (A=4.000) grade and will not reduce the residence requirements. Transfer hours taken for satisfactory/unsatisfactory (or pass/ fail) grades are not acceptable on a program of study.

Coursework hours approved for transfer from another college or university are considered as part of the 12-credit-hour pre-admission course limitation for master's students.

Hours transferred from other institutions for a doctoral program must carry a letter grade of B (3.000) or better (A=4.000). Ed.D. and Ph.D. candidates may transfer up to 48 credit hours of such coursework, only four of which can be thesis or dissertation research. Transfer hours for doctoral students are not considered as part of the 12-hour pre-admission course limitation.

Non-Degree Hours

A student may request that up to 12 hours of graduate-level coursework, taken during the student's graduate, non-degree status, be used toward a program of study should the student choose to pursue a graduate degree at the University of Wyoming. This would be subject to the approval of the student's graduate committee and the college dean. These hours can be affected by other pre-admission (reserved and transfer) hours.

Once a student obtains 12 non-degree hours, they must gain admission to a graduate degree program to ensure that subsequent coursework beyond the 12 non-degree hours can apply to a graduate degree.

No student can remain in graduate status beyond 18 hours of graduate course work without admission to a degree program. Students who wish to take more than 18 hours of coursework but do not wish to pursue a graduate degree should consider declaring a second baccalaureate degree. If a non-degree graduate student anticipates attaining a graduate degree at any time in the future, they should declare and be accepted into a graduate program. Not more than 12 non-degree hours will be accepted toward a graduate degree. It is not in the interest of the student to take more than 12 hours as a non-degree student. Declaring a graduate program provides the student with the advising and support needed to make reasonable progress toward a degree.

Reserving Coursework for Graduate Credit

Approved graduate level courses taken prior to completing the baccalaureate degree, but not part of that degree's requirements, may be applied to the master's or doctoral program with the approval of the student's committee. Approval for reserving the coursework is rendered jointly by the adviser and college dean, and applies only to courses previously reserved for graduate credit.

If a course is dual listed at the 4000/5000 level, the course must be taken at the 5000 level to receive graduate credit. Each 4000-level or 5000-level course must be reserved for graduate credit by completing the Request to Reserve

Coursework for Graduate Credit form. The form must be completed and submitted to the Office of the Registrar by midterm of the semester in which the coursework is taken.

These courses will appear on the undergraduate transcript with a notation that they have been reserved for graduate credit.

Students will only be allowed to transfer six hours of coursework that has been reserved for graduate credit into their degree program.

Correspondence Courses and Credit by Examination

Correspondence courses and credit by examination courses are not acceptable on graduate programs of study.

Second Baccalaureate Degrees

A student working toward a second baccalaureate degree is subject to all regulations concerning undergraduates and is not considered a graduate student. Students requesting to reserve coursework for graduate credit must be able to complete their undergraduate degree within 12 months of the request. Only six hours of undergraduate coursework reserved for graduate credit will be allowed for consideration in a graduate degree program.

Second Graduate Degrees

All requirements for a second degree are considered separate from the first degree. Hours from the first master's degree may not be used for completing the hours toward the second master's. Hours from the first doctoral degree may not be used for completing the hours toward the second doctorate. Hours from an earned doctorate may not be used in a subsequent master's degree. (Some credits may be shared between approved joint degree programs.)

Grade Point Average

A UW cumulative grade point average of at least 3.000 is required for graduation and good standing. Hours for which a C was earned may be balanced by a corresponding number of hours for which an A was earned. Departments and divisions have the option of indicating subject areas in which they will not accept grades of C for credit regardless of accumulated grade point average. No credit will be allowed toward an advanced degree for coursework in which a grade lower than C is earned.

A graduate student enrolled at the university shall be placed on academic probation at the end of a semester or summer session when his or her graduate cumulative UW grade point average in 4000-level or higher courses is below 3.000 **or** if they have earned Unsatisfactory (U) grades or a grade in six or more graduate credit hours. Students will be suspended if they earn less than a cumulative 2.00 average at any time, or if they are on probation and earn less than a 3.00 in the next enrollment period and are full-time students, or if they earn less than a 3.00 in the next 12 attempted credits and are part-time, or if they have earned Unsatisfactory (U) grades or grade in six or more credit hours while on probation. No student in their semester of probation will be employed as a graduate assistant on the UW campus.

The 3.000 cumulative GPA requirement is considered to be a minimum requirement. Individual departments or programs may establish criteria higher than these minimum performance standards and establish department- or program-specific criteria for satisfactory academic progress. A graduate student may be dismissed from a degree program for lack of satisfactory academic progress, as determined by the department or program offering the degree. Students dismissed for lack of progress can appeal, but will necessarily direct their appeal to the department within which the degree resides. Dismissals of graduate students from degree programs are at the discretion of the department.

Please see the Guidelines for Satisfactory Academic Progress section, below.

All courses taken at the graduate level included in the GPA as listed on the academic record if the courses are numbered 4000 or above, and are used in determining probation/suspension.

Satisfactory/Unsatisfactory Grades

All courses taken to fulfill the requirements for the degree program must be taken for letter grade (A through F) except those courses given for S/U only.

The grade of S (satisfactory) is interpreted to include grades A through C and the grade of U (unsatisfactory) to include grades C- through F on the conventional grade scale for courses numbered less than 5000 (for courses 5000 or above, the grade of S is interpreted to include grades A and B). Credit hours of S/U courses are counted as hours attempted toward graduation. However, neither the S nor U grade carries grade points nor will be included in the calculation of the cumulative grade point average.

The faculties of the various colleges shall determine the number of credit hours of S that may be used to satisfy degree requirements in their programs. They may also place restrictions upon the use of S credits to satisfy college or major requirements. In addition, they may designate particular courses in their colleges as courses to be offered for S/U only.

The grade of S in thesis and dissertation research is a judgment that the student is adequately engaged in the required research objective. It in no way implies that the final thesis or the thesis defense will be judged of sufficient quality for the award of the appropriate degree.

Incomplete Grades

The incomplete grade (I) is a temporary grade used under circumstances where awarding a grade would be unjust or not reflective of the student's actual performance in a course. The assignment of an I is intended for use in unexpected circumstances; the Incomplete cannot be assigned simply to allow additional time to complete a course in the absence of unusual or unanticipated events. Graduate students who are unable to complete a course in normal class time period, and are not dealing with unusual or unexpected circumstances, should not receive an Incomplete grade. In the event of unusual circumstances, when an Incomplete grade is a reasonable alternative, the time allowed for completing course requirements will normally not exceed 120 calendar days beyond the end of the semester in which the I was given. The dean of a college may designate certain research courses where the 120-day limit may be extended by the instructor.

The I will revert to an F if the final grade for the course is not received in the Office of the Registrar by the date indicated on the authorization. Students receiving an incomplete in any course(s) listed in their program of study must have the incomplete removed by the end of the semester in which they turn in their intent to graduate. If the incomplete is not removed, the student will not graduate that semester.

Academic Dishonesty

Academic dishonesty and scholarly misconduct will not be tolerated. Academic dishonesty is an act attempted or performed that misrepresents one's involvement in an academic task in any way, or permits another student to misrepresent the latter's involvement in an academic task by assisting in the misrepresentation (www.uwyo.edu/regs-policies/index.html).

If academic dishonesty has been established, the offending student shall receive a failing grade for the course in question. If two such acts have been recorded at different times or in different courses, the student shall be suspended from the university in accordance with UW Regulations. These actions shall not preclude the imposition of other

sanctions by university officers including the loss of benefits from programs, scholarships, and other opportunities normally afforded students.

Degree Revocation

The University of Wyoming is a state higher education institution whose Trustees are legislatively empowered to confer degrees on students who have earned them, upon the recommendation of the faculty. The Board of Trustees recognizes that there may be instances where a degree is awarded to an individual who, upon review, has not properly completed all requirements for the degree. In such instances, the Board of Trustees may revoke the degree. UW Regulation 2-120 establishes the process for such revocation.

Grounds for revoking a degree include convincing evidence that the degree recipient failed to complete the requirements for the degree that were in effect at the time of the degree conferral. Included in this category is evidence that the candidate engaged in academic misconduct serious enough to negate bona fide completion of one or more substantive degree requirements. Additional information can be found at (www.uwo.edu/regs-policies/index.html).

Course Numbering for Graduate Credit

Courses offered for graduate credit are distinguished by number as follows:

4000-4999 are primarily for junior and senior students, but also may be used as part of some graduate programs of study. Not more than 12 hours of 4000-level coursework will be permitted on the graduate program of study.

5000-5999 are primarily for graduate students

Courses numbered 5000 or above may be taken by undergraduate students having the necessary prerequisites. If a course is filled, graduate students will have preference and undergraduates may be asked to relinquish their place in the course. Graduate students may enroll in courses numbered 1000-3999 to remove undergraduate deficiencies, but only those numbered 4000 and above will be computed into the graduate GPA and are allowed for graduate credit.

Dual Listed Courses

If a course is dual listed at the 4000/5000 level, the course must be taken at the 5000 level to receive graduate credit regardless of whether the course is in the student's primary program area.

The syllabus for a dual listed course must specifically differentiate expectations, outcomes and assessment between the 4000 and 5000-level components, clearly describing the additional effort needed for graduate level credit. Students enrolled in the 5000-level course will be expected to demonstrate greater sophistication in content expertise, inquiry, creativity, communication, problem solving, analytic reasoning and/or collaborative learning compared with those enrolled in the 4000 course. Examples include (but are not limited to) intellectual skills, discipline-specific competencies and challenging learning outcomes. Students enrolled in the 5000-level course may be required to lead discussion sessions, submit a portfolio, write a paper or may be involved in a service learning component, internship or collaborative assignment designed to provide experience in applying course information in different contexts.

Courses Not Applicable Toward Advanced Degrees

Only courses at the 4000 or 5000 level may be counted for graduate credit. However, some 4000- and 5000-level courses may not be applicable toward undergraduate or graduate degrees. These courses are listed below:

**** 5959. Enrichment Studies in _____. (Any course numbered 5959 is not applicable toward UW degrees.)
EDUC 4740. Field Studies in _____. (Any course in the College of Education numbered 4740 is not applicable toward UW degrees.)
KIN/HLED 4074. Field Studies in _____.
**** 5920 Continuous Registration: On Campus
**** 5940 Continuous Registration: Off Campus

Distance Education Courses

Distance Education to carry graduate credit, must satisfy achievement criteria acceptable to Academic Affairs and must be taken under the auspices of UW. Distance Education delivery of existing graduate on-campus graduate courses (hybrid courses) are acceptable examples.

In-Residence Coursework (Residency)

In-residence coursework includes courses and/or research work on the UW Laramie or Casper campuses (including distance/online), at an approved UW off-campus course site, and/or research work done for credit in the field under the direction of a UW faculty member.

The minimum number of semester credit hours that must be earned on a UW campus or at an approved UW setting for a particular degree program shall be determined by the individual colleges. In no case shall these minimum numbers of credit hours be less than 21 hours beyond the bachelor's degree for the master's degree, 21 hours beyond the master's degree for the doctoral degree, or 24 hours beyond the bachelor's degree for the doctoral degree.

In computing the in-residence requirements for the Plan A thesis and doctoral degrees, credit earned working on the thesis or dissertation shall apply.

Repetition of Courses

No more than two courses (total of six credit hours) available for graduate credit may be repeated by students at the graduate level. This regulation does not apply to those courses carrying variable credit (e.g., research or independent study). Variable credit courses are considered repeated only when so certified in writing by the instructor and the registrar.

Continuous Enrollment

Once admitted, all degree seeking graduate students must maintain continuous enrollment. Unless a formal leave of absence is approved, all students must maintain at least one hour of continuous enrollment, including in the semester or session they expect to receive the degree. Students should maintain enrollment for two of the three academic semesters. Readmission will be required if the student has not enrolled in classes within the previous 12 months. Readmitted students should contact their department to learn more about their status. The department will contact the Office of the Registrar to initiate reactivation. Students who have been inactive for a long span of time should also investigate the status of their committees, programs of study, and time to degree status. International students' enrollment status is monitored by the Office of International Students and Scholars and the office should be contacted for more information. Only students not supported on a Graduate Assistantship are eligible to enroll in Continuous Registration.

Time Allowance and Limitations

Master's students have six calendar years to complete their degrees from the beginning of the first course taken and listed on the program of study, including any transfer courses. Doctoral candidates have four calendar years after the successful completion of their preliminary examination to complete their degree and they must complete their degree within eight years of the first course taken and listed on their program of study, including any transfer courses.

Guidelines for Satisfactory Academic Progress

Graduate students should undergo annual reviews within their academic unit to document and verify their progress and faculty expectations for them in attaining their degree. Students that do not meet the following guidelines for Satisfactory Academic Progress may be subject to dismissal by the academic degree-granting unit, contingent upon a joint review by the Department Head and Committee Chair. Dismissal of a student for lack of satisfactory academic progress requires that the student's deficiencies are clearly documented and the potential dismissal documentation must be provided to the student for response. Once presented with the potential dismissal, the student must be allowed one academic semester to rectify inadequate progress. At the conclusion of that semester, the Committee Chair and Department Head must jointly concur that the student progress is either satisfactory for retention or that the student should be dismissed from the degree program. For the purposes of determining satisfactory progress, the student must demonstrate successful performance of their duties and completion rates under a specific timeline (specified in the proposed dismissal document). If the student cannot meet the maximum timeframe and completion rates below, they may receive a maximum of one 1-year extension of time to completion (specified in a document of retention), and only if the student holds academic standing to continue enrollment. Final decisions for dismissal or retention require agreement of both the Committee Chair and Department Head. Retention in the program requires that the Chair and Department Head document for the student all requirements for retention that clearly defines the path to successful degree completion within a specific time period. Retention requires that the student cannot drop or withdraw from any subsequent courses or enroll in coursework that is not identified in their Program of Study.

Maximum Credits

Students must graduate before attempting more than 150% of the hours required for their degree program (e.g. 45 hours for a 30-hour Master's degree program or 108 hours for a 72-hour Doctoral program.) Repeated courses (up to 6 hours) will accrue hours only once for the purposes of this calculation. Courses dropped in the drop/add period will not be included in attempted hours or the maximum credit calculations. Hours accumulated in one graduate program will count toward the maximum timeframe should the student initiate a new graduate degree program without completing their initial graduate degree.

Degree Status

Students must have an academic standing that allows for continued enrollment (i.e. 3.000 GPA in their graduate coursework and any other specific requirements of the degree program).

Research or project outcomes

Students must demonstrate delivery of research or creative products in disciplines for which they are required to attain the graduate degree. Research activity in itself should not be confused with products and outcomes. For example, an approved research proposal, a thesis, a dissertation, peer-reviewed publications, external project reports, performances or professional presentations are outcomes whereas writing, conducting a literature review, attending meetings etc., although important, are research activity but are not outcomes.

Petitions and Appeals

The University of Wyoming, as a fully-accredited public institution of higher education, must comply with general laws, regulations, and principles of fairness, uniformity, and accountability. Exceptions to uniform application of general regulations are justified only in extraordinary circumstances. Exceptions to regulations may be petitioned by submitting the appropriate form to the Vice Provost of Graduation Education. Regardless of the signer's recommendations, the Registrar may deny the exception. If the petition is denied by the Registrar, the student may elect to pursue the petition with the Provost.

The Graduate Student Appeals Board (GSAB) was established to provide an appellate body to review appeals of graduate students concerning retention in graduate programs, employment as graduate assistants, and charges of academic dishonesty or scientific misconduct. The GSAB members are faculty and graduate students from the Graduate Council and represent campus-wide disciplines. The GSAB will not hear appeals of course grades or charges of academic dishonesty associated with a course (these appeals will be handled by the procedures of the college in which the course is offered). Appeals emanating from Plan B, thesis, or dissertation research will be heard by the GSAB. The GSAB will hear appeals of course grades or charges of academic dishonesty associated with a research course (i.e. thesis, non-thesis, or dissertation research). Policies and procedures for graduate student appeals may be found on the U.W. Graduate Education website ([http:// www.uwo.edu/uwgrad/](http://www.uwo.edu/uwgrad/)).

Steps Required for Degree Completion

Once a student enters a graduate program, it is critical to initiate a committee to guide course selection and the graduate program. Clear guidance from the department and the graduate committee, especially the committee chair, facilitate steady progress toward a graduate degree. A student's graduate committee requires approval by the Department Head/Interdisciplinary Program Director, the College Dean (or VP for Graduate Education in the case of interdisciplinary programs), and the Vice Provost for Graduate Education. The committee functions to guide the student in coursework selection, the degree project construction, and in fulfilling the requirements to complete the degree.

It is the responsibility of the graduate student, in consultation with their major advisor (usually the Committee Chair) to form a viable committee within the first two semesters of their graduate program. The graduate committee must be on file with the Registrar before a Program of Study will be approved.

The committee will serve in an advisory capacity for development of the student's coursework and research programs and must approve the official program of study form filed with the Office of the Registrar. The committee will also determine pass or fail on the preliminary examination, approve or disapprove the project, thesis, or dissertation documents, and will conduct the final examination.

Changes in committee membership or faculty assignments can be requested at any time by the student, in consultation with the Committee members and the department/division head. Committee changes require the written acknowledgement of faculty who are either added or removed from the committee, accomplished with the Change of Committee form.

Committee Formation

Every committee must be designed to best support the student project or research, facilitate a timely and effective graduate program, and to document fulfillment of all requirements of the graduate degree sought; committees should be formed by the end of the student's second semester. Committees are formed to guide the student and the research or project to ensure a rigorous and fair process. Students must weigh the expertise of the committee membership against the number of members they select, to insure good mentorship and to facilitate meeting function and effectiveness. More detailed information on committee formation is available on the Office of Graduate Education Policies page (www.uwo.edu/uwgrad/policies/).

The graduate committee consists of at least three members for master's and Ed.D. and five members for doctoral degrees: the chair of the committee (the major professor) from the degree-granting department or division, an outside faculty member of a department or division other than the one awarding the degree, and additional required members. Committees that include a co-chair may indicate the co-chair as the third member.

Membership Roles on Graduate Committees-Required members:

All committees must include a majority of members from UW faculty. All members of a committee hold equivalent voting rights except when a tie vote occurs. In the case of tied votes the Chair, with the concurrence with the outside member will determine the outcome.

Chair- All committees will have at least one member from the degree-awarding department/division as chairperson. The chair should closely direct the student's project or research and guide the student to form their graduate committee. In most cases, annually appointed academic faculty (temporary, visiting research professor and clinical professor) should not generally be chairs of graduate committees. The Chair guides timely progression of the student throughout their program and assessment of that progress.

Outside member- A critical committee member usually is a tenured faculty from outside the major department/division who serves as the Outside member. The outside member is defined as a tenured or tenure-track UW faculty member holding an appointment in a division or college other than the one from which the candidate will receive the degree. It is the role of the Outside member to assist the student, in consultation with the Chair to work to resolve any issues that may arise during the student's graduate program. Their role lies in protection of fairness. The outside member also reviews the student and their graduate program to ensure academic rigor. The Outside member provides assessment of the graduate student's learning and of the program rigor and fairness. Untenured tenure-track faculty members may serve as the Outside member if they have demonstrated experience mentoring graduate students and if the Committee Chair has no role in evaluation of the untenured faculty member.

Additional Required Members- a third faculty committee member (Masters and Ed.D.) and third and fourth required members (Ph.D.) can be selected from the student's home department, program, or division, although discipline requirements differ. If there is a committee co-chair, they may be considered the third member on a master's committee. The fifth member of doctoral committees may be an external member.

Added members- (members in addition to the required members on any committee). Additional members may be placed on a committee either from within or outside the department or program. Members of the UW faculty who are extended term with appropriate academic roles can serve. Additional faculty including annually appointed academic faculty, can be added to any committee for their expertise as desired. Students should be conservative in the total number of members on their committee.

Optional committee members:

Co-Chair- in some cases, two faculty may be closely directing the project and graduate student. In such cases, one may serve as a co-chair. A co-chair can be considered the third member on master's committees.

External member- An individual with an off-campus affiliation may serve as an external member. The external member of the committee is a faculty member at a peer institution or an individual holding professional expertise that will contribute to the committee. Such an appointment assumes that the external member participates fully in the essential components of the degree-granting process and holds full voting privileges. Often, external Adjunct faculty serve as external members. The external member cannot replace the outside member.

Other members- Faculty members leaving UW more than a semester prior to the students intended date of completion must be replaced with a UW faculty member on the graduate committee to ensure effective mentoring. The departing faculty may remain on the committee as an external member

Program of Study

Following formation of the committee, each student must submit a program of study to the Office of the Registrar for approval. The Program of Study form details the minimum coursework and credits that will apply in fulfillment of the graduate degree. The program of study form is available online at, http://www.uwo.edu/registrar/graduate_students/Graduate_Student_Forms.html.

The completed form should be returned with all required attachments to the Office of the Registrar. Degree Analysts will transcribe the program into a degree evaluation, which constitutes an agreement between the student, the student's committee, and the university wherein the minimum coursework requirements for that student's degree are listed. The program should be filed no later than the beginning of the student's third semester (or second Summer Session if enrolling only in summers). No master's student will be a candidate for a degree until his/her program is approved by the appropriate Department Head/Interdisciplinary Program Director and College Dean/Vice Provost. Master's degree candidacy coincides with the approval of the program of study.

The program of study must include the minimum number of appropriate semester hours of graduate credit required by the degree granting unit. Some degree programs require more than the minimum hours of credit required by the university. Students must consult with their advisers and all departmental guidance documents including this catalog. It is the responsibility of the student to insure that their program of study complies with degree fulfillment requirements. Changes to an approved program must be submitted to the Registrar, using the Request for Change in Graduate Program form.

Language or Other Tool Requirements for Doctoral Candidates

The prospective Ph.D. student should refer to the specific department in which he/she desires to major to ascertain what languages or research tools are required. Certification of a language or tool, if required, will be made by the appropriate agency or department of the university to the Office of the Registrar when proficiency requirements have been met to fulfill the tool requirements. Students may demonstrate proficiency on a standardized language examination prepared by the Educational Testing Service, or by receiving at least a grade of B in a course (or courses) specified by a department on this campus or on a reading test administered by the department. It will be each student's responsibility to see that certification of proficiency for tool requirements is made. Coursework certification may be made from transcripts filed by the student with the Office of the Registrar.

Examinations

Examinations may be required of any graduate student or advanced-degree candidate at such time or of such nature as the department or the student's graduate committee may require. It is standard procedure for doctoral students (Ph.D. and Ed.D. students) to be given a preliminary examination, and for final examinations to be conducted for both masters and doctoral students. It is common for the nature of these exams to differ from one academic unit to another.

Preliminary Examination

Candidacy in the doctorate occurs upon certification of successful completion of the preliminary examination. The preliminary examination will be held at least 15 weeks prior to the final examination. The preliminary examination may not be given before: (a) the research tool requirements, if any, have been met and certification approved; (b) at least 30 hours of coursework have been completed; and (c) the doctoral program of study has been approved. The format and conduct of this examination shall be the responsibility of the student's committee, in accordance with any departmental policies (see specific departmental guidelines).

Following the completion of the departmental preliminary examination, the Report on Preliminary Examination must be submitted to the Office of the Registrar, regardless of whether the student passed or failed. The favorable vote of the majority of the student's graduate committee members, including the Chair and Outside member, will be accepted as

passing. In case of failure, the student may repeat the examination once only, after 120 days have passed but not more than four semesters have elapsed. When the preliminary examination has been successfully completed, and the report of the committee is filed in the Office of the Registrar, the doctoral student is admitted to candidacy for the degree. At this time, the doctoral candidate has four years from the semester of the preliminary exam to complete the degree process.

Admission to Candidacy

Time spent in graduate study or accumulation of credit hours will not necessarily allow a student to become a candidate for an advanced degree. Admission to candidacy is an expression of the judgment of those who have observed the work and reviewed the credentials of the student, and deem the student worthy of the opportunity to complete the work for an advanced degree. Admission to candidacy for an advanced degree requires a specified procedure for specific degrees.

Final Examination

The final examination may not be held until after the beginning of the semester or session in which coursework is completed. The date, time, and place of the examination must be announced to the public a minimum of two weeks before the final examination is held. The committee may require the candidate to take a written examination as well as an oral examination. The thesis or dissertation document must be submitted to the candidate's committee at least three weeks prior to the final exam. The thesis or dissertation must be available for inspection by any other member of the faculty who may wish to examine it.

The oral and/or written examination should be held by the student's graduate committee at least 10 calendar days before the end of the term of graduation (last day of finals). A student failing his/her final examination may retake the examination once only in the following minimum of one and not more than three semesters to allow the student to address any deficiencies identified by the committee during the initial testing.

Following the student's defense, the student will submit a signed Report on Final Examination form to the Office of the Registrar. The written vote of each member of a candidate's committee must be on record in the Office of the Registrar on the Report of Final Examination form. Committee signatures must indicate that the majority of the committee approve recommendation of the student to receive the advanced degree. Any majority of committee member signatures on this form that includes both the Chair and the Outside member will be received by the Registrar as indication that the degree should be awarded. The form also provides documentation from the student's committee that the student has passed the Final Examination/Defense and that the committee has approved the final version of the thesis or dissertation that will be publicly available. The Registrar requires the student to make the document publicly available via ProQuest. All students whose programs require a Thesis/Dissertation must submit the document to ProQuest before the last day of classes in the semester they plan to graduate. Once the final examination is passed and reported, a Degree Analyst will review the degree evaluation to verify that any discrepancies have been corrected, confirm that final grades on any remaining coursework have been posted, and that all required forms and documents have been submitted. Once all requirements have been met, the degree will be awarded.

Declaring a Graduation Date

An Anticipated Graduation Date form must be submitted for the semester in which graduation is planned. This form puts the student on the list for graduation. If graduation does not occur during the projected semester, the student must contact the Office of the Registrar to change their anticipated graduation date. Students who are entering their semester of graduation should:

1. Log into WyoRecords to declare their Anticipated Graduation Date. Instructions are available on the Office of the Registrar's page (http://www.uwyo.edu/registrar/graduate_students/Graduate_Student_Forms.html).
2. Pay their associated graduation fee, which will appear as a charge on their account within a few days following submission in WyoRecords.

If discrepancies are found during the degree check, the Degree Analyst in the Office of the Registrar will contact the student/chair with instructions for resolution.

Final Steps in Completion of Degree Requirements

Thesis or Dissertation Documents

The candidate shall submit an electronic thesis or dissertation demonstrating the candidate's ability to communicate the outcomes of their graduate program.

The master's thesis and doctoral dissertation are integral components of graduate education. For many disciplines, publication of student research in peer-reviewed journals is a hallmark of successful graduate education that validates the scholarly results. The university encourages the use of published papers in the final document, subject to some guidelines.

Publications included within a thesis or dissertation must have been submitted for publication in scholarly peer-reviewed journals. The citation for any published papers must appear within the introductory chapter. The publications must be written by the student. Editorial oversight by the mentor and committee is desirable; however, the mentor and committee have the responsibility to ensure that the student is the main author of the thesis or dissertation. For multi-authored journal articles included in the thesis or dissertation, the contribution of each author must be clearly stated in the preface or introduction to the thesis or dissertation and in a footnote on the first page of the article. If more than one publication is included, the articles must be joined into a coherent whole, having a clear focus of inquiry. In addition to the journal papers, a thesis or dissertation must include comprehensive introduction and discussion chapters that unite the document and provide context for the journal papers. A thesis or dissertation is not evaluated relative to accumulated credit hours. The thesis or dissertation document and all appendices must be provided in an electronic format for upload into ProQuest following the format of standards established by the University Libraries, ProQuest Information and Learning.

Digitizing and ProQuest Upload Requirement

All graduate students accept as a condition of enrollment that completed theses and dissertations will be published through ProQuest Information and Learning. This involves a special fee. The appropriate form for submitting the thesis/dissertation is available when submitting the project electronically through ProQuest Information and Learning.

Survey of Earned Doctorates

The university requires the Survey of Earned Doctorates and the Report on Final Examination form be submitted on or before the last day of classes in the semester the student plans to graduate. The survey is available on the Office of the Registrar's Graduate Student Forms page (http://www.uwyo.edu/registrar/graduate_students/Graduate_Student_Forms.html). All Ph.D. students must complete this survey.

Patenting or Copyright by UW

In some cases, where significant university funds or resources have been used in dissertation research, the university may claim an interest in patenting or copyrighting the results. When this seems likely, the student (or the student's major professor) should consult with the college dean or the vice president for research.

Classified or Proprietary Research

The process of research in graduate education is one of free and open inquiry involving the student and faculty. Final examinations for graduate degrees are open to all faculty, and theses and dissertations are accessible to the public upon acceptance by the university unless embargoed as approved in advance.

For the purposes of this policy, classified research is defined as research that has a security classification established by a federal agency. Classified research projects also require approval of the trustees before being initiated. Classified research cannot be used for a thesis or dissertation.

Proprietary research is defined as research for which the sponsor requires a delay in publication. Given these clarifications, the following policies are used for theses and dissertations. Proprietary research may be used for theses and dissertations. However, any delay caused by the proprietary nature of the research must be alleviated before the thesis or dissertation is submitted to the Office of the Registrar. Such delays cannot exceed six months without the approval of the college dean. Delays greater than 12 months in length will be approved only in unusual circumstances unless embargoed as approved in advance by the college dean. Sponsors of proprietary research should be aware that theses and dissertations are accessible to the public upon acceptance.

Embargo

An embargo on a thesis/dissertation is an intentional delay in the publication of its results. Because the university places high value on the open dissemination of knowledge and the professional advancement of its graduates, such embargos are strongly discouraged. Any embargo request must include compelling written justification and a proposed embargo period not to exceed one year. All embargo requests are subject to approval by U.W. Graduate Education. In cases where justification involves intellectual property or prior contractual agreement, embargo requests also require approval by the Office of Research and Economic Development.

Overview of Graduate Degrees Awarded

In all cases, graduate students should confirm the departmental guidelines for the degree they seek. The information presented here is intended to provide only a general overview of the graduate degrees. Individual colleges and departments may apply more rigorous requirements for their graduate degrees than the minimal requirements described here.

Master's Candidates

The standard master's degrees are the Master of Arts (M.A.) and the Master of Science (M.S.). Generally, Master of Arts degrees are more common in the arts, humanities and social sciences, while Master of Science degrees are more common in the health, natural and physical sciences, business and engineering. The program of study includes a declaration that the student will pursue a particular project plan: either a Plan A thesis or a Plan B non-thesis. Once the program of study has been approved for a master's student, the student advances to candidacy. The master's program of study, whether a declared thesis or non-thesis project plan, must include a minimum of 30 hours of graduate credit.

A culminating defense is required for the Plan A and the Plan B master's programs. The final defense is an essential component of all graduate degree programs.

The defense structure and format is flexible but it should allow opportunity for the student to demonstrate content comprehension and application, critical and quantitative analysis, creative thinking, problem solving, synthesis, and evaluation.

Following the defense, regardless of the outcome, the student will submit a Report of Final Examination form to the Office of the Registrar. This form is available at http://www.uwyo.edu/registrar/students/graduate_student_forms.html.

Plan A Master's

This program type must reflect a minimum of 26 hours of acceptable graduate coursework and four hours of Thesis Research credit (course number 5960; course number 5980 may also count). The Plan A thesis option accommodates original research, although the degree of originality and the definition thereof is sometimes program-specific. The planning, development, and production of the thesis is guided by the committee chair and the graduate committee.

The thesis is the final, written product of the project. General required guidelines for preparing a thesis are available in the "Thesis and Dissertation Format Guide." The thesis must be submitted to the student's committee at least three weeks before the intended date of final examination.

The electronic copy must meet the standards established by the faculty and those of the University Libraries. Each student normally submits at least three copies of his/her thesis: one for the thesis director, one for the department, and one to retain for personal use.

Plan B Master's

The Plan B non-thesis program differs from the thesis program in that it includes additional hours of coursework instead of thesis hours. It permits a wider distribution of courses and permits a wider array of possible final products than the Plan A thesis program. The non-thesis project may take the form of a business plan or a professional portfolio. Each academic unit that engages in Plan B non-thesis activities often has its own set of principles that guide students in degree requirements. It is the responsibility of the student to consult with their committee chair to clarify specific guidelines for the Plan B Master's degree in their discipline.

Most, but by no means all, of the academic units that have students pursuing master's degrees in the Plan B non-thesis category have the students prepare a paper, or sometimes two papers, as their final project. In the selection of a subject and preparation of the paper(s), the student shall be guided by the committee, or adviser or, in some academic units, by the instructor(s) in charge of the course(s) connected to the paper(s). The paper(s) should present the results of study at a level of scholastic quality commensurate with a Plan A thesis project. The student and his or her adviser often, but not always, decide if a project will be Plan A or Plan B. Academic units have principles that guide students in this selection. Many units have rules that precisely dictate the type of program and project a student can conduct.

The format for the Plan B non-thesis paper should follow that of the Plan A thesis. However, Plan B non-thesis paper titles do not appear on the student's transcript, whereas, Plan A thesis titles do. Plan B non-thesis papers are not filed in the University Libraries and they are not submitted to ProQuest. They are filed with the major academic unit.

Master of Arts in Teaching (M.A.T.) and Master of Science in Teaching (M.S.T.)

Candidates for the M.A.T. or the M.S.T. should have completed the requirements for teacher certification prior to application for admission to graduate study. The M.A.T./M.S.T. program is completely separate from State certification requirements. Hours used to meet certification requirements cannot be applied toward the M.A.T./M.S.T. degrees.

The M.A.T./M.S.T. degrees are only modifications of the Plan B non-thesis option and are subject to the requirements of the admitting department and the general requirements of the faculty.

At least 24 of the 30 semester hours required must be in a particular teaching area (e.g., chemistry, history), with at least 12 hours in one department. A student working jointly in two departments must take at least 12 hours from each department.

The M.S.T. is designed for one teaching area and must include 18 hours in, or the total required by, that area. A program designed for two teaching areas must include 12 hours in, or required by, each of the specified two areas. Courses offered by the Science and Mathematics Teaching Center do not constitute a separate area in themselves but may be applied to an appropriate area. A program designed for two teaching areas must be approved by the heads of both departments, and the graduate committee for this program must include one member from each department. The M.S.T. is intended for individuals teaching at the secondary level. The program should represent the student's needs.

Master of Business Administration (M.B.A.)

The Master of Business Administration degree is offered to qualified students who wish to pursue a professional and highly applied degree program. Offerings include full-time, on-campus programs of study and part-time, online programs of study.

The U.W. M.B.A. program delivers professional management education that connects principles, concepts, and intense case analysis with real-world experience as tools for making business decisions. Students will develop leadership and managerial skills and will possess the education and training needed to compete in today's rapidly changing global business environment. The total program experience, inside and outside the classroom, is designed to provide experiential learning along with access to powerful networks. Satisfactory completion of at least 47 semester hours and participation in all MBA activities are required. Please see the Master of Business Administration section for specific requirements (<http://www.uwyo.edu/mba/>).

Master of Music in Performance (M.M.)

The Master of Music in Performance (M.M.) is intended for the student who wishes to pursue a career as a performer, to prepare for doctoral study, or to improve his or her performance ability. Students must pass an entrance audition for admission to the program. The entrance audition should be performed the semester prior to admission. Graduate Placement Examinations in history and theory will be administered the week prior to the commencement of classes and will determine if a student may advance to graduate level coursework. Failure of one or more sections will require a refresher course in the fall (Graduate Fundamentals). Major area studies consist of courses appropriate to the student's area of concentration. A minimum of 50% of courses taken must be deemed "graduate level only" (5000-level). Satisfactory completion of at least 30 semester hours and a Plan B paper or lecture-recital are required. Please see the Department of Music section for specific requirements (http://www.uwyo.edu/music/graduate_students/index.html).

Master of Music Education (M.M.E.)

The Master of Music Education is intended for those students who wish to improve their teaching abilities for the public school environment or to enable them to teach at the college and/or university level. Graduate Placement Examinations in history and theory will be administered the week prior to the commencement of classes and will determine if a student may advance to graduate level coursework. Satisfactory completion of at least 30 semester hours is required. Either Plan A (thesis) or Plan B (non-thesis) options are available. Please see the Department of Music section for specific requirements (http://www.uwyo.edu/music/graduate_students/index.html).

Master of Public Administration (M.P.A.)

The M.P.A. degree is designed for both pre-career and mid-career students who seek leadership positions in public service. The program is designed to meet the needs of place-based working professionals through distance education technology, while full-time traditional graduate students can pursue their coursework in-person, on campus. At least three years of successful professional experience is required to be classified as "mid-career." For traditional graduate applicants, an internship is required at some phase of their studies on campus. Satisfactory completion of at least 39 semester hours is required. Please see the Political Science section for specific requirements (<http://www.uwyo.edu/mpa/index.html>).

Master of Social Work (M.S.W.)

The Master of Social Work is designed to prepare graduate students for advanced level social work practice and leadership positions in human service organizations with an emphasis on social justice and anti-oppressive perspectives. The M.S.W. program is focused on an advanced generalist curriculum and rural social work that relies on the problem-solving method and is based on the values, knowledge, and skills of the profession. The M.S.W. is a full time, campus-based program that utilizes different course delivery methods to accommodate its widespread student population. Satisfactory completion of at least 69 credit hours for the standard two-year program and 38 credit hours for the advanced standing M.S.W. program is required. Either Plan A (thesis) or Plan B (non-thesis) options are available. Please see the Division of Social Work section for specific requirements (<http://www.uwyo.edu/socialwork/prospective-students/msw-admissions/>).

Doctor of Nursing Practice (D.N.P.)

The Doctor of Nursing Practice degree is the terminal academic preparation for nursing practice. UW's DNP program prepares family nurse practitioners (FNPs) and psychiatric mental health nurse practitioners (PMHNPs) to engage in evidence-based practice to optimize health outcomes and engage in leadership activities to promote excellence in rural health care. Both the FNP and PMHNP programs of study require 3 years of full-time study, which includes 84 credit hours and a minimum of 1140 clock hours of clinical practica experiences. During their final year in the program, students conduct a capstone quality improvement project in conjunction with a clinical agency. Please see the School of Nursing section for specific requirements (<http://www.uwyo.edu/nursing/programs/DNP/index.html>).

Doctor of Pharmacy (Pharm.D.)

The University of Wyoming School of Pharmacy offers a four-year program of study leading to the Doctor of Pharmacy (Pharm.D.) degree as the only entry-level professional degree in pharmacy. Students are admitted to the professional program following a preprofessional program of not less than two years in length with a total of at least 67 semester credit hours. The Doctor of Pharmacy degree requires satisfactory completion of 146 hours of coursework taken over a four-year period. Please see the School of Pharmacy section for specific requirements (<http://www.uwyo.edu/pharmacy/doctor-of-pharmacy-program/index.html>).

Doctor of Education (Ed.D.)

The degree of doctor of education (Ed.D.) is offered to competent students who wish to pursue a program of study and to participate in appropriate activities in preparation for professional service in teaching, administrative, and supervisory positions in education. The program is designed to meet the needs of those for whom intensive research is not a practical prerequisite to vocational goals. Doctoral students are expected to participate not only in organized coursework but also in informal types of activities that will insure breadth of outlook and technical competence.

Each student admitted into the Ed.D. program must furnish satisfactory evidence of having had three years of successful professional experience. This experience may be in teaching or administration or both. The student's graduate committee will determine what experience shall be required and when this requirement has been satisfied.

At least 36 semester hours must be earned in the major field. The degree requires a minimum of 72 graduate hours (beyond the bachelor's degree) to complete all requirements. In addition to the program of studies in organized coursework, the doctoral student will be required to complete and publicly defend an approved applied project report or dissertation within the major field of professional specialization. The project or dissertation can be a collaborative work conducted among multiple (typically two or three) graduate students in the same program area.

A student who has taken a major part of his/her undergraduate and graduate training at UW may be required by his/her graduate committee to do a specified portion of graduate work at some other institution. Please see the College of Education entry for specific requirements (<http://www.uwyo.edu/education/current-students/graduate-education/index.html>).

Doctor of Philosophy (Ph.D.)

The doctor of philosophy degree does not represent a specified amount of work over a definite period of time but rather the attainment of independent and comprehensive scholarship in a particular field. Such scholarship will be manifest in a thorough acquaintance with present knowledge and a demonstrated capacity for research. The fulfilling of the following requirements suggests, therefore, only the minimum task one must undertake to earn the doctor of philosophy degree. No amount of time spent in graduate study or accumulation of credit hours entitles the student to become a candidate for this degree.

The program of study must include a minimum of 72 semester hours of credit at the 4000 level or above from UW or equivalent levels from another approved university. This 72-hour requirement may include graduate credits earned while working toward the master's degree in the same area, but at least 42 hours (of the 72) must be earned in formal coursework. Additional credits toward the 72-hour requirement may include additional formal course credits, Dissertation Research credits (5980 course number; course number 5960 credits may also be applied), or Internship credits (5990 course numbers). The program of study must be on file in the Office of the Registrar before the preliminary examination can be scheduled.

Miscellaneous Regulations

QuickStart Programs

QuickStart programs allow a qualified student to complete bachelor's and master's degrees in as little as five years. In addition to applying up to six hours of reserved graduate credit, approved QuickStart programs allow students to double-count up to six hours of 4000/5000-level coursework toward the bachelor's and master's degrees. QuickStart students only become classified as graduate students once they have completed all requirements of the bachelor's degree, usually in year five.

Readmission

When a student is not registered at UW for one or more years, without an approved leave of absence, the student is automatically reclassified as inactive and must reapply for admission.

Students wishing to pursue direct entry into a doctoral program following their bachelor's degree

The requirements for entry into a doctoral program are determined by the departmental faculty. In some cases, students may enter a doctoral program without having attained a master's degree. These decisions are made on an individual basis. Such students must fulfill all the requirements of a doctoral degree but may be limited in the number of graduate hours they hold in application to the 72 hour minimum. Careful planning with the graduate program and committee is needed to assure that the student makes clear progress to the degree. One consideration of the student is whether they will obtain a master's degree on the way to the doctorate. If so, the student should be considered a master's degree student until that degree is accomplished, or until the preliminary exam is passed. Once the preliminary exam is passed, the student may be considered a candidate for the doctoral degree, just as other students would. Students who do not hold a master's degree cannot be considered a candidate for the doctoral degree until they have passed their preliminary exam.

New Parent Accommodation Policy

The University of Wyoming is dedicated to ensuring optimal success for all graduate students. However, new parents are frequently forced to interrupt their education cycle, sometimes in a transient manner but often permanently.

The New Parent Accommodation policy is designed to allow new parents to maintain full-time, registered student status and facilitate their return to full participation in graduate activities in a seamless manner without penalty. The policy applies to full-time students enrolled in a graduate program. If both members of the new parent partnership are UW graduate students, one but not both will be eligible for the full accommodation. However, the university encourages accommodation of schedules for exams, assignments and programs of study for the graduate student partner. This accommodation does not apply to part-time students.

A student anticipating becoming a new parent is eligible for accommodation consideration for a period of up to one semester. The exact accommodation period will begin on the date specified on the New Parent Accommodation petition approved by the college dean. This petition must be filed and approved prior to the actual date of childbirth or adoption. Additional information can be found at <http://www.uwyo.edu/uwgrad/policies/>.

Armed Services

Time spent in the armed services is not computed in the total time allowed to complete the requirements for an advanced degree; however, students who are eligible and wish to use this time exclusion must file the leave of absence petition.

International Students

Upon arriving at the University of Wyoming, international students are required to visit the International Students and Scholars (ISS) office. This office:

- Provides support and counsel for UW's international students and scholars population regarding aspects of immigration regulations and procedures;
- orients this population to the policies and expectations of the university, the educational system, and the U.S. culture;

- hosts a mandatory orientation program for all new international students before the beginning of each semester.

Please see the ISS website for detailed information (<https://www.uwyo.edu/iss/>).

International graduate assistants with teaching responsibilities must demonstrate sufficient English Oral Proficiency (https://www.uwyo.edu/study-iep-esl/grad-ta-support/more_opi_information.html/).

Graduation Requirements and Procedures

- Graduation Requirements
- Adjustment to Changing Requirements
- Scholarship Standards
- Semester Hour Requirements
- University Baccalaureate Requirements
- Assessment Requirement
- Second Bachelor's Degree
- Concurrent Majors
- Dual Degrees
- Graduate Student Requirements
- Degree Evaluation/Declaring a Graduation Date
- Graduation Fee
- Grades
- Final Approval
- Participation in Commencement Exercises
- Graduation with Honors

Graduation Requirements

Students are personally responsible for knowing degree requirements and enrolling in courses that fulfill their degree program. Students, with the help of their advisers, design their program to satisfy their needs and aims. Students will be required to complete assessment activities as determined by the university prior to the awarding of degrees. Students are likewise held responsible for knowing regulations governing the standard of work required for continuance in the university involving academic probation and suspension.

Although this catalog is intended to set forth the various provisions for study and requirements for the awarding of degrees, periodic revisions of the provisions for study and degree requirements are appropriate (because of advances in knowledge, changes in occupational requirements, academic preparation of students, and in faculty and facilities at the university). In order for the catalog to be available in spring of each year, publication must begin the previous October. This is almost a year before the requirements specified therein become effective the following fall and almost five years before a student entering at that time could graduate. Accordingly, the university cannot guarantee the awarding of a degree based on the unchanged requirements as set forth in a particular catalog.

Adjustment to Changing Requirements

Students are expected to inform themselves of changes in degree requirements by reviewing the catalogs that are published annually and their Degree Evaluation reports; then, when necessary, adjust their degree plans accordingly.

If university or college requirements are changed, students are encouraged to adopt the new requirements; however, students will have the option of graduating under the requirements in effect when they entered the university or one of Wyoming's community colleges, provided the courses are still available. The student must accept either the new requirements or the requirements in effect when they entered the university or one of Wyoming's community colleges in their entirety, not a combination from each. Students changing colleges within the university or reentering the university after one or more years away are expected to adopt the requirements in effect at the time of the reentry. Any substitution to the above must be approved in writing by the student's adviser and the college dean and added to the student's advising folder in the department or college.

If departmental requirements are changed, students will ordinarily be permitted to continue under the requirements in effect when they entered that major department provided there has not been an interruption in their education for a year or more; however, students are encouraged to adopt the new requirements. Notice of changes will be available from departmental offices and advisers. It is the responsibility of students to keep in touch with their major departments, to learn of changes in requirements, and to plan ahead so that necessary courses can be taken by the expected time of completing a degree. Many courses are not given every semester and some not every year.

If required prerequisites for a course are changed, notice may be obtained from the department offices. The university cannot continue two courses, one with and one without a newly-adopted prerequisite. The student must therefore meet the new prerequisite or obtain permission from the instructor to enroll in the course. In the event of any doubt as to the adequacy of preparation for a course, the student should consult with the instructor or an adviser in the department as far in advance as possible. Independent study, if approved, may be accepted in lieu of a specific course prerequisite.

Scholarship Standards

A UW cumulative grade point average (GPA) of at least 2.000 is required for undergraduate degrees and 3.000 for graduate degrees. The cumulative grade point average is defined as the sum of all grade points earned in residence, via Distance Education at the University of Wyoming, with the following exceptions:

1. The credit hours shall not be counted in courses in which marks of W, S, or U were assigned, or in which marks of I (for incomplete) are still in effect.
2. For repeated courses:
 - a. First repeat: only the second credit and grade is used to calculate the cumulative GPA.
 - b. If repeated more than once, only the last grade is used to calculate the cumulative GPA.
 - c. If a mark of W, S, or U is assigned in a repeated course, the previous grade assigned will stand except when an S or U is earned repeating a previous S or U.
 - d. Courses applied towards one completed undergraduate degree may be repeated as part of a second degree; however, the grade and GPA in the original degree will not be changed.
3. Transfer grades are not counted in the UW GPA. If a course taken at UW is repeated for the first time at another institution, the credits and grade earned at UW will be deleted from the UW cumulative GPA if credit for the repeated course is transferred to UW.
4. For graduate students, courses numbered below 4000 are not added into the semester and cumulative totals, nor computed into the GPA.

Semester Hour Requirements

Completion of the total minimum credit hours for undergraduate degrees from the various colleges is indicated below:

College of Agriculture and Natural Resources	120-128 hours
College of Arts and Sciences	120-128 hours

College of Business	120 hours
College of Education	120-128 hours
College of Engineering and Applied Science	120-132 hours
College of Health Sciences	120-123 hours
School of Energy Resources	120 hours

These minimum hour requirements are in line with the Higher Learning Commission's criteria for accreditation.

The total minimum credit hours for graduate degrees depends on the degree earned. Masters degrees require 30 credit hours and Doctoral degrees require 72 credit hours. See the Graduate Student Regulations and Policies for more details.

University Baccalaureate Requirements

1. A cumulative GPA of 2.000 or better from the University of Wyoming;
2. Satisfactory completion of the prescribed curriculum in which the degree is sought, including fulfillment of the entrance requirements in the college concerned;
3. Satisfactory completion of the University Studies Program: Students who entered the University of Wyoming, one of Wyoming's community colleges, or an out-of-state academic institution fall 2015 or later, are required to complete the University Studies Program 2015, a university-wide program in general education. The detailed requirements for the University Studies Program are provided in this catalog on page 53.
4. Students must complete a minimum of 42 upper division (junior/ senior) or graduate-level semester credit hours, 30 of which must be earned from the University of Wyoming. Credit by examination does not count towards the required 30 hours of residency credit;
5. Not more than 24 semester hours of correspondence study courses may be used toward fulfilling requirements for a bachelor's degree;
6. Not more than 4 semester hours of credit in physical activity courses can count toward the minimum credit hour requirement for a bachelor's degree;
7. The last credit applicable to degree requirements must be earned from the University of Wyoming with the following exception: students of senior standing may complete degree requirements elsewhere by obtaining special permission of the department head, adviser, and college dean, and declaring an anticipated graduation date with the Office of the Registrar;
8. Native language credit: students are not allowed university credit for language courses below the 4000-level in their native language.

Assessment Requirement

Students may be required to complete assessment activities as determined by the university prior to the awarding of degrees.

Second Bachelor's Degree

Students seeking a second bachelor's degree must meet all of the university and college requirements as prescribed for a first bachelor's degree. Students whose first degree was received from an institution where English is not the predominant language must complete the University Studies Communication I (COM1) and Communication II

(COM2) requirements. The second bachelor's degree may have the same title as the first degree and may be in the same college as the first degree; but if in the same college it must be in a different major. Grades earned in all undergraduate course work (including courses applied towards a previous UW bachelor's degree) are included in the calculation of the cumulative GPA.

The minimum study requirement for a second bachelor's degree is 30 additional semester hours earned from the University of Wyoming, 12 of which must be in upper division (junior/senior-level) or graduate-level courses. However, a student must also fulfill all of the college and major requirements for the second degree. Credit by examination does not count toward UW residency. The 30 hours is in addition to the study requirement for the first degree for those students earning the first degree from the University of Wyoming. The 30 additional hours would be added to the degree requiring the least number of hours. Both degrees may be awarded at the same commencement.

Courses applied towards one completed degree may be repeated as part of a second degree; however, the grade and GPA in the original degree will not be changed.

Students with a bachelor's degree from an accredited U.S. institution will be considered to have met the UW University Studies (USP) program requirements, with the exception of the US and Wyoming Constitution requirement, unless previously completed.

Second Bachelor's Degree Transfer Policy

Typically, undergraduate coursework from other collegiate institutions will not be loaded individually into the University of Wyoming student database after a bachelor's degree has been earned for the student. In situations in which a student who has previously earned one bachelor's degree from the University of Wyoming is subsequently required to take coursework from another collegiate institution to fulfill major and overall hour requirements for a second degree from the university, the student's department can ask the Office of the Registrar to load selected courses into the student's record. As with all students who wish to earn two bachelor's degrees from the university, the student will be required to successfully complete the following requirements:

- Major requirements for the major of the second degree
- College requirements for the college which will award the second degree
- A minimum of 30 additional semester hours over the minimum required for the student's first degree
- At least 60 earned semester hours from the University of Wyoming (30 required hours for first degree, 30 additional hours required for second degree)
- At least 54 earned semester hours of upper division (3000+- or junior/senior- level) credit (42 required upper division hours for first degree, 12 additional upper division hours required for second degree)
- At least 42 earned semester hours of upper division (3000+- or junior/senior- level) credit from the University of Wyoming (30 required upper division hours from UW for first degree, 12 additional upper division hours from UW required for second degree)

Concurrent Majors

Students may pursue a concurrent major in one or more colleges. Only one degree (BA, BS, etc.) will be awarded from the college of the primary major. All university curricular requirements, including the University Studies Program requirements, must be met only once. Requirements for secondary major(s) will be established by the academic departments and may include college requirements, in addition to all major requirements. An academic adviser in each major is required and each adviser must review requirements. The degree will be granted on one date only and only one diploma will be awarded. Both majors will be indicated on the academic transcript and diploma.

Dual Degrees

It is possible to pursue degrees in one or more colleges. The university requirements and University Studies Program requirements must be met only once. Students must meet the all college and major requirements of both majors. Students must complete an additional 30 semester hours from the University of Wyoming, 12 of which must be in upper-division (junior/senior-level) or graduate-level courses beyond the credit hour requirement for the degree with the minimum number of credit hours required. An academic adviser in each major is required and each adviser must review requirements. Multiple degrees and multiple diplomas will be awarded; however, the completion date must be the same. Both colleges, degrees, and majors will be indicated on the academic transcript.

Graduate Student Requirements

Graduate students must have a Committee Assignment (if required), a Program of Study, and Preliminary Examination Results forms (doctoral students only) on file before they may submit an Anticipated Graduation Date form. Upon receipt of the form, the Degree Analyst in the Office of the Registrar will verify that all course requirements have been met. If discrepancies are found, the Degree Analyst will contact the student with instructions on how to resolve them. The Degree Analyst will also verify that the student has registered for a minimum of one semester hour for the current semester. If there are questions, the student should contact the appropriate Degree Analyst.

Before the Defense

A formal public announcement of thesis and dissertation defenses is required. Students should contact their department for specific procedures.

Prior to the defense, the student should complete the Report of Final Examination form and take it to the defense.

After the Defense

Following the defense and when all committee signatures have been secured, the student should submit the Report of Final Examination Results form to the Office of the Registrar (note: committee chairs may delay signature until all necessary changes to the thesis/dissertation/ non-thesis paperwork have been made and approved).

After submission of the Report of Final Examination Results form which indicates all changes/revisions have been made and the thesis/ dissertation is approved for final submission, the student will submit the document for format review and final electronic publication to ProQuest. The student will be advised if additional corrections are required.

Ph.D. students will need to complete the NORC Survey of Earned Doctorates through the procedure noted on the Graduate Student Graduation page of the Office of the Registrar website.

Degree Evaluation/Declaring a Graduation Date

All students have an electronic degree evaluation available through WyoWeb that shows requirements of the degree program and the progress that the student is making toward meeting those requirements. Any discrepancies should be reported to a degree analyst in the Office of the Registrar as soon as possible.

Students are responsible for notifying their degree analyst of their anticipated date of graduation with an Anticipated Graduation Date form. Students are encouraged to submit the Anticipated Graduation Date form as early as possible in the expected term of graduation. Delaying this action could affect graduation, as requirements indicated on the degree evaluation must be met prior to a student being cleared for graduation.

Graduation Fee

Payment of the graduation fee of \$30.00 for each degree or certificate to be earned is due by the last day of classes from all students planning to graduate.

Grades

Final grades covering completion of course work in Distance Education, transfer, special examinations, and incomplete work from previous attendance must be submitted to the Office of the Registrar no later than the deadline for submission of final UW grades for the term in which the degree is to be conferred.

Final Approval

Final recommendation of the faculty and approval of the University Trustees for conferral of degrees is required. The trustees may, for good cause, decline to confer a degree upon any candidate.

Participation in Commencement Exercises

Commencement is not the same thing as graduation. All academic colleges hold commencement exercises on the May graduation date. Several of the colleges also have commencement exercises in December. Check the appropriate college dean's office for specific information. Students in their final year of study who have declared graduation dates are considered candidates for graduation. Students in certificate programs do not participate in commencement.

Participation in the exercise does not automatically confer degrees. Confirmation of graduation will occur after a review of final course work.

The official graduation dates for the 2023-2024 academic year are December 9, 2023 and May 11, 2024. Please note that commencement ceremonies might be held on days other than the official date. To be eligible for a graduation date, all work must be completed prior to that date.

Commencement exercises are a historical academic custom involving participation by all segments of the university and attendance by members of the graduate's families and friends as well as the general public. Those students who participate in commencement exercises are expected to wear appropriate traditional academic regalia.

Graduation with Honors

Designations of summa cum laude, magna cum laude, and cum laude will be added to the baccalaureate academic transcripts and diplomas of graduating undergraduate students earning at least 48 credit hours from the University of Wyoming (of which 45 hours must be for A-F grades) based on the following percentages:

Top 1%	summa cum laude
Next 4%	magna cum laude
Next 5%	cum laude

as computed from the GPAs of graduating undergraduate students in each college. Honors graduates will be identified by comparison to a 5-year rolling grade point distribution computed for each college, to be recomputed annually each spring semester.

These designations are effective with the fall 2000 semester and are not retroactive.

Honor graduation will be granted for students in the College of Law upon successful completion of 56 hours in the college with a cumulative GPA of 3.400 or better based on University of Wyoming College of Law courses.

A Doctor of Pharmacy is awarded with honor by the university to a student who graduates with scholarship in pharmacy of unusual excellence as defined by the School of Pharmacy.

Honor Societies and Programs

- All Academic Disciplines
- College of Agriculture and Natural Resources
- College of Arts and Sciences
- College of Business
- College of Education
- College of Engineering and Applied Science
- College of Health Sciences
- University Honors College
- College of Law

All Academic Disciplines

Phi Beta Kappa has been one of the most respected societies in the world for more than 200 years. Phi Beta Kappa was founded in 1776 at the College of William and Mary, Virginia. Within a decade, chapters arose at Yale, Harvard, and Dartmouth. The Wyoming chapter received its charter in 1940, and today fewer than 270 colleges and universities in the United States meet the strict qualifications for housing a chapter. UW faculty and administrators annually elect to membership fewer than one-tenth of the leading scholars of the senior class, candidates for the degrees of Bachelor of Arts and Bachelor of Science. In exceptional cases a junior may be elected. In addition to having a distinguished academic record, a student eligible for Phi Beta Kappa must pursue a balanced and broad course of study, which includes a foreign language as well as courses in math, the sciences, and the humanities. At least 90 hours of the student's course work must be in the liberal arts and sciences. Students are reviewed for eligibility and are notified by mail the spring of their election. Phi Beta Kappa promotes the ideal of a community of scholarship, and every year the Chapter sponsors an eminent visiting lecturer for the entire university.

The national honor society of Phi Kappa Phi, founded in 1897, recognizes and encourages superior scholarship in all curricula of the colleges and divisions of the university. No other honor society has higher academic standards for admission. Good character is also an essential supporting attribute for those scholars elected to membership. The University of Wyoming chapter of Phi Kappa Phi sets minimum cumulative grade point requirements at 3.500 for seniors, 3.800 for juniors and 3.900 for graduate students. In addition, there are minimum requirements in terms of hours completed at UW. Since the chapter may initiate no more than ten percent of the number of seniors in each college, the actual grade point cutoff is often higher than these minimums. In the spring of each year, students' records are reviewed and letters of invitation are sent to those eligible for election to the society. Supplementing the work of its chapter, the national society awards fellowships for graduate study. The UW Phi Kappa Phi chapter is administered by the Honors College.

College of Agriculture and Natural Resources

Agriculture majors - *Alpha Zeta* is a national honorary for students in agriculture who demonstrate academic excellence, character and leadership. Applications for membership are sent to eligible students. *Gamma Sigma Delta* is a national honor society open to students in agriculture. Potential members are invited to membership based upon academic excellence. *Phi Upsilon Omicron* is a national honor society in family and consumer sciences. Potential members are invited to membership based on academic excellence and leadership. *Pi Alpha Xi* is a national honorary horticulture society, open to UW students with a minor in horticulture. Students are invited to join based upon academic excellence and leadership.

College of Arts and Sciences

Art - A *Bachelor of Fine Arts* in art is considered honorary.

Biology and Botany - This Honors Program is for students majoring in biology or botany with strong interests in independent research with a focus in ecology, evolution, systematics, bioinformatics, biostatistics or data science. Application to the biology or botany honors program may be made after completion of the sophomore year with a cumulative grade point average of 3.300.

Chemistry - *American Chemical Society* - The Department of Chemistry is closely associated with the Local Wyoming Chapter of the American Chemical Society. The American Chemical Society (ACS) is one of the largest scientific societies in the world - its purpose is to promote chemistry and educate the public on the impacts of the chemical profession on the economy, technology, and education. The ACS organizes both national and regional scientific meetings; our local section supports student travel to these meetings. The chemistry department also sponsors a Student Affiliates section of the ACS, which is mentored by a UW chemistry faculty member and serves the needs of our chemistry majors.

Communication - *Lambda Pi Eta* recognizes, fosters, and rewards outstanding scholastic achievement while stimulating interest in the communication discipline.

Criminal Justice - *Alpha Phi Sigma - Epsilon Omega Chapter*, criminal justice honorary. A national honorary society for Criminal Justice that recognizes the academic excellence of Criminal Justice students. Alpha Phi Sigma is a collaboration with the Academy of Criminal Justice Sciences.

English - *English Honors Program* enables junior and senior English majors who carry a grade point average of 3.500 or better in their English courses to intensify and enhance their studies by working closely with a supervising faculty member to develop a senior honors project, a piece of writing on a topic in English studies. *Sigma Tau Delta - Alpha Mu Omicron Chapter*, international English honor society.

Gender and Women's Studies - *National Women's Studies Association*; one of its primary objectives promoting and supporting the production and dissemination of knowledge about women and gender through teaching, learning, research and service in academic and other settings.

Geography - *Gamma Theta Upsilon - Eta Eta Chapter* candidates must have completed three semesters of college coursework and three courses in Geography, with a grade point average of 3.000 or higher for these courses. Contact department Department of Geology and Geophysics/ Geography Program for more information.

Geology - Eligible students are Bachelor of Science degree holders with honors, majoring in geology or geophysics. They must meet an overall grade point average of 3.200, a grade point average of 3.200 in the major, and successful completion of an independent research project. Contact department Department of Geology and Geophysics/ Geography Program for more information.

History - *Phi Alpha Theta* is a professional society whose mission is to promote the study of history through the encouragement of research, good teaching, publication, and the exchange of learning and ideas among historians. It seeks to bring students and teachers together for intellectual and social exchanges, which promote and assist historical research and publication by our members in a variety of ways. The society currently has over 400,000 members, with some 9,000 new members joining each year through 970 chapters nationwide.

International Studies - *Sigma Iota Rho*: The purpose of Sigma Iota Rho is to promote and reward scholarship and service among students and practitioners of international studies, international affairs, and global studies and to foster integrity and creative performances in the conduct of world affairs. Membership provides public recognition of the best and the brightest students in the International Studies major and highlights the importance of contributing to the global community.

Journalism - *Society of Professional Journalists, Sigma Delta Chi*

Languages - The Department of Modern and Classical Languages sponsors chapters of two nationally recognized Honor Societies in Spanish.

Alpha of Wyoming Chapter of Sigma Delta Pi - To honor those who attain excellence in the study of the Spanish language and in the study of the literature and culture of the Spanish-speaking peoples; to honor those who have made the Hispanic contributions to modern culture better known in the English-speaking world; to encourage college and university students to acquire a greater interest in and a deeper understanding of Hispanic culture; to foster friendly relations and mutual respect between the nations of Hispanic speech and those of English speech; to serve its membership in ways which will contribute to the attainment of the goals and ideals of the society.

Sigma Delta Pi National Spanish Honorary Society celebrates its 100th anniversary in 2019. Our very active UW chapter was recognized in 2011 as a national honor chapter. Each semester we initiate new members who meet high academic standards and are dedicated to the study and teaching of Spanish. Chapter awards and student scholarships include study abroad opportunities and recognition of outstanding scholarly research and writing.

Music - *Presser Award* is conferred by vote of the department faculty for outstanding senior in music. *Pi Kappa Lambda*, selected by faculty on the basis of outstanding scholarship and musical accomplishments.

Physics and Astronomy - *Sigma Pi Sigma*: Sigma Pi Sigma (sigmapisigma.org) exists to honor outstanding scholarship in physics, to encourage interest in physics among students at all levels, to promote an attitude of service, and to provide a fellowship of persons who have excelled in physics.

American Physical Society (APS): The American Physical Society (www.aps.org) is a non-profit membership organization working to advance and diffuse the knowledge of physics through its outstanding research journals, scientific meetings, and education, outreach, advocacy and international activities. APS represents over 50,000 members, including physicists in academia, national laboratories and industry in the United States and throughout the world. Society offices are located in College Park, MD (Headquarters), Ridge, NY, and Washington, DC.

American Astronomical Society (AAS): The American Astronomical Society (aas.org) is the major organization of professional astronomers in North America. The mission of the American Astronomical Society is to enhance and share humanity's scientific understanding of the universe.

Political Science - *Pi Sigma Alpha, Epsilon Beta Chapter* seeks "to stimulate scholarship and intelligent interest in political science." The society sponsors programs and events of value to the profession and teaching of political science. Membership provides public recognition of the best and brightest students in the Political Science major. Each chapter is encouraged to provide a framework for enriching the exposure of its members and the wider university community to the study of government and issues of public concern.

Pi Alpha Alpha, national public administration honorary. The purpose of Pi Alpha Alpha is to encourage and recognize outstanding scholarship and accomplishment in public affairs and administration. Its objectives, such as fostering integrity, professionalism, and effective performance, promote the advancement of quality in the education and practice

of the art and science of public affairs and administration. PAA membership identifies those with the highest performance levels in educational programs preparing them for public service careers.

Psychology - Psi Chi - The Psychology Department supports a chapter of Psi Chi, the International Honor Society in Psychology. This local Psi Chi group functions within a larger Psychology Club that serves undergraduates interested in Psychology. The chapter and club are jointly involved in many activities, including community service projects, peer advising and graduation festivities.

Sociology - Alpha Kappa Delta, the international honorary society for sociology. In addition, sociology majors with a 3.2 overall GPA, a 3.500 GPA in sociology courses and two 5000-level sociology classes graduate with honors in sociology.

College of Business

Accounting - Beta Alpha Psi, Delta Alpha Chapter, is the UW chapter of the national accounting honorary. Membership in this very active student honorary is awarded only to the very best accounting students.

Business Administration - Beta Gamma Sigma is the national scholastic honor society. It is the arm of the accrediting group, AACSB International. Membership is very selective and based on class rank and grade point average.

College of Education

Kappa Delta Pi - Alpha Mu Chapter is the university chapter of the international honor society in education. The purpose of the society is to promote excellence in and recognize outstanding contributions to education. Invitation for membership is extended to those persons who exhibit commendable professional qualities, worthy educational ideals and sound scholarship.

Mu Nu Tau Chapter of Chi Sigma Iota is a Counseling Academic and Professional Honor Society International for counselors-in-training, counselor educators, and professional counselors. The mission of Chi Sigma Iota is to promote scholarship, research, professionalism, leadership, and excellence in counseling, and to recognize high attainment in the pursuit of academic and clinical excellence in the field of counseling. The CSI International homepage can be found at www.csi-net.org/index.cfm. The local chapter, Mu Nu Tau, encourages the furtherance of high standards of scholarship and professional practice through study groups, speaker programs, workshops, colloquia awards, social activities, and networking opportunities.

College of Engineering and Applied Science

Engineering majors - Tau Beta Pi is a national honor society for all engineering majors. The purposes of the society are to honor outstanding student scholarship and to provide a spirit of liberal culture in the College of Engineering and Applied Science. Membership is offered to outstanding junior, senior and graduate engineering students of high scholastic ability and exemplary character.

College of Health Sciences

Kinesiology - Phi Epsilon Kappa is a national professional fraternity dedicated to enhancing education, promotion of student research, community outreach, and professional development for persons pursuing careers in health, physical education, recreation, and other related fields.

Nursing - Sigma Theta Tau - academic leadership honorary. The mission of the Honor Society of Nursing, Sigma Theta Tau International is advancing world health and celebrating nursing excellence in scholarship, leadership, and service.

Pharmacy - Rho Chi Society, Academic Honorary. The Rho Chi Society encourages and recognizes excellence in intellectual achievement and advocates critical inquiry in all aspects of pharmacy. The Society further encourages high standards of conduct and character and fosters fellowship among its members; Phi Lambda Sigma, Pharmacy Leadership Society - to support pharmacy leadership commitment by recognizing leaders and fostering leadership development.

Social Work - Phi Alpha. The purpose of the Epsilon Delta Chapter of the Phi Alpha Social Work National Honor Society at the University of Wyoming Division of Social Work is to provide a closer bond among students of social work and promote humanitarian goals and ideals. Phi Alpha fosters high standards of education for social workers and invites into membership those who have attained excellence in scholarship and achievement in social work. The goals of Phi Alpha include the provision of service to the campus, local, and state communities in Wyoming; the promotion of social, economic and environmental justice on campus and in the community; and the development of student leadership skills.

University Honors College

The UW Honors College provides recognition and awards for select students, faculty and administrators via *The National Collegiate Honors Council* and *The Western Regional Honors Council* in the areas of academic achievement, civic responsibility, and personal development. The Honors College also administers the University of Wyoming chapter of *Phi Kappa Phi*. In the spring of each year, students' records are reviewed and letters of invitation are sent to those eligible for election to the honor society. Supplementing the work of its chapter, the national honor society awards fellowships for graduate study.

College of Law

Law majors - *Order of the Coif* is an honorary society which recognizes legal scholastic excellence. Each year, the chapter may initiate into membership those students who graduate in the highest ten percent of their class.

Other University Services

- Distance Credit Programs

University Store

Misty Eaton, Manager

Wyoming Union, 1-800-370-2676, (307) 766-3264,

TTY: (307) 766-3267

Web site: www.uwystore.com; www.facebook.com/uwystore

The University Store is a self-supporting university department founded in 1921. It provides students, faculty, staff, and campus visitors with a variety of products and services. In order to fulfill its primary mission, the store stocks new and used textbooks, textbook rentals, e-textbooks, general books, school supplies, office products, educationally priced computer software, fine art supplies and electronics. The University Store is an authorized Lenovo distributor and an Apple Authorized campus store offering a full line of Apple products and accessories. As a convenience, the store also stocks additional items such as gifts, insignia gifts and clothing, greeting cards, candy and sundries. Services the store provides include prepaid textbook reservations, bookbinding, special order book service, cap and gown rental, used book buyback, and postage stamps, as well as UPS, FAX and Federal Express.

The University Store is located on the main level of the Wyoming Union. Hours of operation during the academic year are: 7:30 a.m. to 5:00 p.m., Monday through Friday; TBA Saturday.

Music

J.Scott Turpen, Department Head
2049 Buchanan Center for the Performing Arts, (307) 766-5242
Web site: www.uwyo.edu/music

The Department of Music offers many opportunities for students to participate in musical activities, as well as, to hear concerts by faculty artists, student ensembles and visiting artists. All qualified students within the university, no matter their major, are invited to participate for credit in any of the following: Marching Band, Symphonic Band, Wind Ensemble, Symphony Orchestra, Chamber Orchestra, Collegiate Chorale, Jazz Ensemble, Bel Canto, Singing Statesmen, Civic Chorus, and the many smaller ensembles such as string ensembles, brass ensembles, percussion ensemble, and various chamber groups. Note: some ensembles are by audition only. Private lessons on any instrument and voice are available at a fee to all interested students.

Summer offerings may include lessons, workshops, seminars, and regular courses. A summer music camp for students in grades 7 through 12 is also offered which includes band, choral, orchestral and keyboard experiences culminating in gala concerts. For further information, please write to the Department of Music, Dept. 3037, 1000 E. University Ave., Laramie, WY 82071 or musicdpt@uwyo.edu.

Theatre and Dance

Leigh Selting, Department Head
2099 Buchanan Center for the Performing Arts, (307) 766-5100

Theatre and Dance at the University of Wyoming offers students an excellent opportunity to participate in all aspects of theatre and dance arts. Auditions for productions are open to all qualified students within the university regardless of major or college. The production program provides opportunities for students to participate in technical theatre stage crews, set construction, costuming, lighting and sound. There are also opportunities to perform dance, drama, musicals and operas. Playwriting, screen writing, directing and choreography are available through upper-division courses. The BCPA contains a proscenium theatre, an experimental theatre, a thrust theatre, an acting for the camera studio and two dance studios, plus full support facilities for scene and costume construction. Full-time university students may purchase tickets through the Fine Arts Ticket Office at a greatly reduced price.

University Police Department

Mike Samp, Chief of Police
1426 E.Flint, (307) 766-5179
Web site: www.uwyo.edu/UWPD

The University Police Department is responsible for crime prevention, public safety, and law enforcement in the UW community. The department is staffed by 15 certified peace officers, five security guards, and eight full-time staff members. All officers are fully trained and have arrest authority. The department operates 24 hours per day, 365 days a year. To keep members of the UW community aware of police activity on campus, the department maintains a chronological log of all incidents reported to the department. This log is open for public inspection through the UWPD web site. University crime reports are also included annually in the United States Department of Justice publication, Crime in the United States. Crime statistics, as well as other public safety information, are included in the Annual Security/Clery Report, which is available online. Department personnel present public safety programs upon request to any group or organization. Further information is available through the UWPD World Wide Web site.

Bicycle Regulations The University of Wyoming Bicycle Program was developed to promote an environment in which bicycles, pedestrians, and motor vehicles can safely co-exist. Persons riding bicycles are asked to familiarize themselves with the regulations and bike paths described in the pamphlet *Safe Cycling at UW*, which is available on the University Police Department web site. All bicycles must be registered.

University of Wyoming Alumni Association

Keener Fry, Executive Director
222 South 22nd Street, (307) 766-4166
Web site: www.uwyo.edu/alumni

The University of Wyoming Alumni Association has served the university and alumni since the association was first organized in 1895. Our purpose is to provide the pathways to share the legacy, spirit and pride of UW worldwide. The primary role of the UWAA is to connect and reconnect alumni to the institution and each other through effective communication and meaningful engagement. The Alumni Association creates partnerships that advance UW and enrich the lives of students and alumni worldwide.

The Alumni Association currently serves over 131,000 former students of the University of Wyoming. Daily operations include high performing programs which include the admitted student writing project, employer engagement through full time job opportunities and internships, Cowboy 2 Cowboy Informational interviews, chapter and network gatherings, campus partnerships and donor cultivation and stewardship. The scholarship program services Wyoming and out-of-state high school seniors, undergraduate and graduate students, non-traditional students, Wyoming community college transfer students, US Veterans, and multicultural and Native American students with a commitment of over \$187,000 annually.

The UWAA sponsors the UW Homecoming Parade and senior send-off.

The Alumni Association is located in the Alumni Center at the Marian H. Rochelle Gateway Center.

Cowboy Parents

Division of Student Affairs
408 Old Main, (307) 766-5123
Web Site: www.uwyo.edu/cowboyparents

Cowboy Parents is an organization that provides parents and families with their own University of Wyoming connection serving as a conduit for information and assistance. Cowboy Parents offers opportunities for families to get involved with the goal of promoting student success while also providing the institution with a unique perspective from parents and families. Cowboy Parents provides email updates, frequent and timely publications, volunteer opportunities, and much more.

University of Wyoming Extension

Kelly K.Crane, Associate Dean, Director
103 Agriculture Building, (307) 766-5124

The 1914 Smith-Lever Act created the University of Wyoming Extension, stating that its purpose was to "provide instruction and practical demonstrations in agriculture, home economics and related subjects." The University of Wyoming Extension is part of a national educational network which establishes partnerships with the United States Department of Agriculture, the state of Wyoming, the University of Wyoming, and county and tribal governments. UW Extension maintains offices in 27 Wyoming communities.

The mission of the University of Wyoming Extension is to provide lifelong learning opportunities for the people of Wyoming and empower them to make choices that enhance their quality of life. To accomplish its mission, the UW Extension continually updates its programs to meet the changing priorities, organizational structures and external relationships of Wyoming and its citizens. It is a dynamic organization pledged to providing educational programs which enable Wyoming citizens to improve their lives and communities through partnerships that put experience and research knowledge to work. The UW Extension delivers university research-based knowledge to Wyoming consumers through the broad program areas of Ag and Hort, 4-H Youth Development, Nutrition and Food Safety, Rangeland, and Community Development Education. Programs include a wide range of topic areas, including food and nutrition, water quality, wildlife, crop production, resource management, and energy related issues.

UW Extension can be accessed on campus through its administrative offices in the College of Agriculture and Natural Resources. In the state, UW Extension offices are found in each county and serve as resources to the county, while also representing a major connection between the university and the people of Wyoming.

Office of Distance Education

Web site: www.uwyo.edu/distance

For over a century UW has embraced the land grant mission by sending its faculty across the state to meet with citizens, students, teachers, business owners, ranchers, and farmers to help them learn. Currently and in partnership with the university's colleges and departments, UW extends the university learning experience to students across the state, region and nation by offering over 40 academic programs at the certificate, endorsement, bachelor, master, and doctorate award level. Career credentials are also available, mostly concentrated for K-12 educators. The programs feature two different delivery methods both requiring high speed Internet connectivity. Web conferencing courses are "real time" interactive courses that meet regularly throughout the semester. Courses can be delivered to your mobile devices or computers if you have a webcam and a microphone. Fully online courses are available anywhere and at any time. These courses are delivered via WyoCourses and may also use additional online communication and collaborative tools.

Special Programs and Facilities for Research and Study

- The Libraries
- Library Faculty:
- Centennial Complex
- American Heritage Center
- American Heritage Center Faculty:
- Art Museum
- Art Museum Faculty
- Anthropology Museum
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The Libraries

Ivan Gaetz, Dean

William Robertson Coe Library, (307) 766-3279

The University Libraries include the William Robertson Coe Library, the Emmett Chisum Special Collection; the Library Annex, located in the basement of the Biological Science Building, housing government publications and older journals; the Brinkerhoff Earth Resources Information Center, located in the S.H. Knight Geology Building; the Learning Resource Center, located in the Education Building; the Rocky Mountain Herbarium Research Collection, located in the Aven Nelson Building; and the National Park Service Research Center collection in Jackson, Wyoming. UW-Casper is served by the Casper College Goodstein Foundation Library.

The libraries' cataloged collections total over 1.6 million volumes, with over 33,000 volumes added annually. 14,000 active periodical and serial titles are supplemented with access to over 90,000 unique electronic journals and over 800,000 ebooks. In addition, the libraries provide extensive microforms collections and a library of over 175,000 maps, and serve as a depository for United States government publications.

Through participation in the Wyoming Libraries Database (WYLD), Colorado Alliance of Research Libraries ("Alliance"), the Greater Western Library Alliance (GWLA), Hathi Trust, OCLC, the Network of National Libraries of Medicine, on-line information retrieval systems, and the interlibrary loan network, access is provided to other library resources from throughout the nation and the world.

The College of Law maintains a separate Law Library.

Library Faculty:

STEPHEN C. BOSS, B.M. Simpson College 1983; B.A. 1984; M.L.S. University of Denver 1985; M.A. 1986; Associate Librarian, University Libraries 2008, 2002.

DAVID BROWN, B.A. University of Redlands 2002; M.A. Columbia University 2003, 2006; Ed.D. 2007; M.L.I.S. Wayne State University 2015; Assistant Librarian, University Libraries 2020.

KAIJSA CALKINS, B.A. University of Washington, Bothell 2001; M.L.I.S. University of Washington, Seattle 2004; Associate Librarian, University Libraries 2012, 2006.

IVAN GAETZ, B.A. University of Alberta 1975; M. Div. University of Saskatchewan 1978; Th. M. Regis College, University of Toronto 1985; M.L.S. University of Alberta 1988; M. Ed. 1991; Ph.D. University of British Columbia 2004; Dean, University Libraries 2016.

TAMSEN L. HERT, B.A. Colorado State University 1979; M.L.S. Emporia State University 1984; M.A. 1988; Librarian, University Libraries 2014, 1986.

CYNTHIA D. HUGHES, B.A. The College of William and Mary 1994; M.L.I.S. University of Illinois at Urbana-Champaign 1996; Associate Librarian, University Libraries 2020, 2014.

CHAD E. HUTCHENS, B.A. University of Colorado, Boulder 1999; M.A. 2001; M.L.I.S. University of Texas at Austin 2004; Associate Librarian, University Libraries 2014, 2008.

DAVID D. KRUGER, B.S. South Dakota State University 1991; B.S.Ed. Minot State University 1994; M.A. Kansas State University 1996; M.L.S. University of Missouri 1998; Librarian, University Libraries 2016, 1998.

CASSANDRA KVENILD, B.A. University of Wyoming 1996; M.L.I.S. University of Washington, Seattle 2000; Librarian, University Libraries 2018, 2008.

PAULA MARTIN, B.A. Truman State University 1994; M.L.I.S. University of Missouri 2007; Associate Librarian, University Libraries 2020.

DEBORAH McCARTHY, B.A. Lycoming College 1983; M.L.S. Texas Woman's University 1989; M.B.A. New Mexico State University 2003; Associate Librarian 2009, 2004.

SAMANTHA PETER, B.A. University of Wyoming 2016; M.S.I.S. University of Texas at Austin 2018; Assistant Librarian, University Libraries 2018.

BRYAN RICUPERO, B.A. Boston University 1996; M.L.I.S. University of Kentucky 2012; Associate Librarian, University Libraries 2020, 2014.

LAWRENCE O. SCHMIDT, B.S. Montana State University 1987; M.S. 1995; M.L.S. Emporia State University 2002; Librarian, University Libraries 2020, 2008, 2002.

SUSAN C. WYNNE B.A. Clemson University 1995; M.L.I.S. University of South Carolina 2004; Assistant Librarian, University Libraries 2020.

Centennial Complex

Designed by internationally prominent architect Antoine Predock to represent both an "archival mountain" and a town at the foot of the mountain, this dramatic building contains the collections of the American Heritage Center and the UW Art Museum. It is located at 2111 Willett Drive, just north of the Arena Auditorium and War Memorial Stadium.

American Heritage Center

Paul Flesher, Director

(307) 766-4114

Web site: <http://ahc.uwyo.edu>

The American Heritage Center (AHC) is the university's repository of manuscripts collections, its rare books library, and its official archives. The Center is one of the largest and most consulted non-governmental repositories in the United States. In 2010 it was recognized as one of the most distinguished archives in the nation when it received the Society of American Archivists' Distinguished Service Award.

The Center places service to UW undergraduates, graduate students, and faculty as its highest priority. However, because the AHC's collections are known worldwide, UW undergraduates using the Center's holdings might be working alongside scholars from Japan or Nigeria or the producers of PBS's *American Experience*.

The AHC's collections are of interest to far more than history majors. Each year Center archivists work with students in more than two dozen disciplines at UW: Art, African-American Studies, Agricultural Education, American Indian Studies, American Studies, Anthropology, Botany, Business Administration, Civil Engineering, Creative Writing, Energy Law, Geography and Recreation, History, International Studies, Lab School, English, Music, Nursing, Pharmacy, Political Science, Religious Studies, Secondary Education, Sociology, University Studies, Women's Studies, Zoology. The AHC also works with a dozen public school classes annually.

- Like most major university repositories, the AHC collects both regionally and nationally in select areas. Major subject concentrations of the 75,000 cubic foot manuscript collections include Wyoming and the American West, the mining and petroleum industries, Western politics and leadership, conservation, journalism, transportation, and 20th century entertainment such as popular music, radio, television, and film.
- The Toppan Library is the University's rare book center. More than 50,000 items range from medieval illuminated manuscripts to the 21st century. Subject strengths include the American West, British and American literature, early exploration of North America, religion, hunting and fishing, natural history, women authors, and the book arts. Unlike most rare book libraries, it is an active teaching site and welcomes both undergraduates and the public.

The AHC website has earned several national awards. Our digital collections contain 100,000+ photos and historical documents: <http://digitalcollections.uwyo.edu>.

The faculty archivists of the AHC are state, regional, national, and international leaders in their fields, speaking and publishing on historical, archival, and library topics. Several teach national workshops. The Center's reference archivists are leaders in their profession in undergraduate outreach and instruction. Students and faculty are encouraged to visit and make use of the collections - no appointments are necessary. The American Heritage Center hours are: Reading Room (M, 10am-7pm; Tu-F, 8am-5pm) / Toppan Library (M-F, 8:30am-5pm) / Building (M-F, 8am-5pm).

American Heritage Center Faculty:

SARA C. DAVIS, B.A. University of Wyoming 2005; 2012; M.S.L.S. Simmons College 2016; Associate Archivist 2018.

RACHEL GATTERMEYER, B.A. The Ohio State University 2013; M.L.I.S. University of Illinois Urbana-Champaign 2015; Assistant Archivist 2018.

GINNY KILANDER, B.A. Indiana University 1992; M.A. University of Wyoming 1998; Archivist 2017, 1999.

MOLLY MARCUSSE, B.A. University of Michigan 2010; M.L.S. University of Maryland 2013; Assistant Archivist 2015.

LESLIE C. WAGGENER, B.A. University of Texas, Austin 1995; M.L.I.S. 2000; Archivist 2018, 2000.

D. CLAUDIA THOMPSON, B.A. Metropolitan State College, Denver 1977; M.A. University of Denver 1978; Archivist 2016, 1995.

JOHN WAGGENER, B.A. University of Wyoming 1994; M.A. 2001; Archivist 2018, 2000.

Art Museum

Marianne Eileen Wardle, Director

(307) 766-6622

Web site: <http://www.uwyo.edu/artmuseum>

Located on the eastside of campus in the award-winning Centennial Complex, the Art Museum was established to "bring the world of art to Wyoming." As an academic museum and a leader in the arts, the Art Museum collects, preserves, exhibits and interprets art to inspire creativity and nurture lifelong learning for the people of Wyoming.

The Art Museum's permanent collection comprises over 8,000 objects, including European and American paintings, prints, sculpture and drawings, special collections of 18th and 19th century Japanese Ukiyo-e prints, 15th through 19th century Persian and Indian miniature paintings, 20th century Haitian art, 20th century Japanese netsuke, 20th century and contemporary photography, and Rapa Nui, Papua New Guinea, African, and Native American artifacts. Exhibitions are curated from the permanent collection, contemporary art by regional, national and international artists, and art from the American West to support the academic mission of the University of Wyoming, provide original resource material for students of all ages, and enhance the cultural life of Wyoming's citizens and visitors. The Art Museum provides extensive education programs for all ages, including preschool through 12th grade, university community and life-long learners. Museum experiences can be scheduled for all ages and are based on the model of observe, question, explore, create, and reflect. These experiences are active learning and often involved time in the galleries and studios planned and facilitated by a trained educator or curator. Each visit is tailored to group needs and can be tied to curriculum goals or group outcomes as needed.

The museum's statewide outreach programs include the Ann Simpson Artmobile and the Regional Touring Exhibition Service, which provide art-filled and creative opportunities to Wyoming people in even the most remote communities and underserved situations. The Artmobile brings original art and programming delivered by a professionally trained museum educator to schools, community centers, libraries, art spaces and adult-living centers. For a small one-way shipping fee, the Regional Touring Exhibition Service circulates exhibitions of original art from the permanent collection to venues across the state. Curriculum guides and interpretive materials are included.

The Art Museum is free to all and is open Tuesday through Saturday, 10:00 a.m.-5:00 p.m. Hours are extended to include Thursdays until 7 pm during the academic year. Additional information on the Art Museum is available on its webpage, www.uwyo.edu/artmuseum; Facebook (University of Wyoming Art Museum), Instagram (#uwartmuseum) and YouTube (uwartmuseum).

Art Museum Faculty

KATIE CHRISTENSEN, B.F.A. University of Wyoming 2003; M.F.A. Bowling Green State University 2011; Curator of Education and Statewide Engagement/Assistant Lecturer 2015.

RAEHEL COOK, B.A. University of Northern Colorado 2010; M.F.A. Kansas State University 2014; Curator of Academic Engagement/Assistant Lecturer 2018.

NICOLE CRAWFORD, B.A. University of Nebraska 1997; M.A. 2005; Chief Curator/Associate Lecturer 2017, 2009.

SARITA TALUSANI KELLER, B.F.A. University of Houston 1997; M.Ed. 2002; Ph.D. University of North Texas 2014; Artmobile Educator/Assistant Lecturer 2018.

MARIANNE EILEEN WARDLE, B.A. Utah State University 1992; M.A. Brigham Young University 1997; Ph.D. Duke University 2010; Director 2018.

Anthropology Museum

The museum offers exhibits related to the four subfields of anthropology: archaeology, biological, linguistic, and cultural. The main gallery follows the "Human Odyssey," from the evolution of humans in Africa several million years ago to the spread of our species throughout the world, and on to the Late Pleistocene entry into the Americas. The Colby Mammoth Site, the Vore buffalo jump and other Wyoming archaeology sites are featured, with much of the

museum devoted to a celebration of the rich Native American heritage of the Plains and Rocky Mountains. Other displays featuring archaeological research and world cultural diversity can be found in hallway displays throughout the building.

The Anthropology Museum is open 8 a.m. to 5 p.m. Monday through Friday during the academic year. During the summer, hours are from 7:30 a.m. to 4:30 p.m. Monday through Friday.

Division of Information Technology

Robert Aylward, Vice President for Information Technology

IT Center, Room 372, (307) 766-4860

Web site: www.uwyo.edu/InfoTech

The Division of Information Technology provides students, faculty and staff with technology infrastructure and support services- -computing systems, networking, technical support for systems and applications, computer support, academic and classroom technology support, training, telecommunications services, and research computing support including high performance computing. Use of these University computing and data facilities is governed by UW Regulation 3-690, Ethical Use of Computers and Data Communications Facilities.

The office of the Vice President of the Division of Information Technology is located in room 372 of the Information Technology Center and is open during normal business hours. Those in need of assistance are encouraged to call the Client Support Help Desk at 766-4357, option 1.

IT Service Center: provides technology support during normal business hours. The fastest way to contact the UWIT Service Center is to browse our Service Catalog and Knowledge Base at uwit.uwyo.edu. Our Knowledge Base contains self-help documents and videos, as well as information on IT services we provide to our campus community. Other options to contact the help desk are to email userhelp@uwyo.edu or call 307-766-HELP (4357), option 1. You can also chat with the Service Center at support.uwyo.edu. IT Service Center hours are posted at www.uwyo.edu/InfoTech/services/helpdesk/.

IT Walk-In Service Center and Resnet: provides help to students, faculty, and staff with personal computers and mobile devices. The Walk-In Service Center is located in the ITC building room 160 and is typically open Monday - Friday, 9am - 4pm with reduced hours during breaks and the summer months. The Walk-In Service Center is closed during all University holidays.

One of the primary goals of the Service Center while helping with personal computing devices is to teach customers. Therefore, Information Technology does not allow devices to be dropped off to be repaired. IT requests its customers to take an active role and remain with their device while any repair work is underway. The IT Walk-In Service Center also provides one-on-one consulting if help is needed in purchasing a new personal computer or mobile device. More information on the Walk-In Service Center can be found at www.uwyo.edu/resnet.

Telecom Services: provides a range of telecommunications services including phone and data connections, long distance and voice mail. Contact Information Technology's Telecom Help Desk by calling 766-HELP (4357), option 2, or email teledesk@uwyo.edu to request these services.

Internet and Network Access: an extensive campus-wide data network provides connectivity to the Internet in all occupied campus buildings, computer labs across campus, and university housing. Wireless Ethernet (Wi-Fi) is available in most campus locations. Students, faculty, and staff should connect to the UWyo wireless network, since it is a faster, more secure connection than UWguest. More information can be found at www.uwyo.edu/askit or call the IT Help Desk at 766-HELP (4357), option 1.

Computer Labs: are located throughout campus for students, faculty, and staff use. The computer labs contain computers with a wide variety of software and computing equipment. Some labs are staffed by student lab assistants who are able to answer questions. Computer labs in Coe Library and the Information Technology Center are open and

staffed 24 hours during the normal academic year. The UWStudent Remote Lab System is a collection of lab machines that are designed to be accessed from off campus networks. The remote lab is configured similar to the UWStudent labs found on campus.

More information, including a link to the UW Student Remote Lab System, a complete listing of labs, lab schedules, and software policies, is available online at microlab.uwyo.edu. For questions and assistance, please e-mail userhelp@uwyo.edu or call the Help Desk at 766-HELP (4357), option 1.

Classroom Technology Support (CTS): provides support and maintenance for audio visual and other technology used in classrooms and technology spaces across campus. For immediate assistance when teaching in a general pool classroom, pick up the phone; the phone will automatically connect to the UW IT Help Desk at the top of the queue. If the issue cannot be resolved over the phone, someone will arrive promptly to provide assistance. If you are in a room other than a general pool classroom, call the help desk at 766-4357 or press the help icon on the lectern touch panel. Please let them know if you require immediate help or if you do not want your class interrupted. Workshops for classroom technologies are available by request. Call 766-2872 for more information. Please go to www.uwyo.edu/centralscheduling/classroom-building/training.html for further details. Lecture capture technology (Wyocast) is available in several classrooms on campus. For more information on this popular technology please visit <http://www.uwyo.edu/infotech/services/multimedia/wyocast/>.

Data Center Operations (DC Ops): manages and operates the 6,000 ft² University Data Center, located in the Information Technology Center. The Data Center provides a state of the art, highly redundant infrastructure space for university IT equipment. University departments may apply for co-location space in the Data Center to house production computing equipment. For more information on co-location, contact Data Center Operations at operate-it@uwyo.edu.

Computer Maintenance: provides repair and general hardware support for PCs, laser printers, and other equipment as well as manufacturer warranty repair support for most Apple, HP, Dell, and Lenovo products. Computer repair requests may be submitted by filling out the web form at uwyo.teamdynamix.com/TDClient/Requests/ServiceCatalog?CategoryID=3285 or by contacting the Help Desk at 766-HELP (4357), option 1.

Software Sales: provides Adobe, Microsoft and statistical software to eligible faculty, staff, and students. For more information on available software and licensing information, please visit uwyo.teamdynamix.com/TDClient/Requests/ServiceCatalog?CategoryID=3091.

Geological Museum

Hours: Mon.-Sat. (10:00am-4:00pm), closed holidays

(307) 766-2646

E-mail: geolmus@uwyo.edu

Web site: www.uwyo.edu/geomuseum

The Geological Museum, in the east wing of the S.H. Knight Geology Building, exhibits the story of ancient Wyoming. Highlight exhibits include: a fully mounted skeleton of the well-known dinosaur *Apatosaurus (Brontosaurus)*; a mounted skeletal cast of the world-renowned "Big Al" the *Allosaurus*; a 50-million-year-old garfish from Wyoming's Green River Formation (one of the largest complete freshwater fossil fish on display in the world); casts of skulls of Wyoming's state dinosaur, *Triceratops*; and its contemporary, *Tyrannosaurus rex*; mounted skeletons of Miocene rhinos and camels; an interactive augmented reality sandbox, our fossil prep-lab, and a fluorescent mineral room, featuring specimens from Wyoming and the world. The museum maintains important display collections (particularly vertebrate and invertebrate fossils) that are available for study by students, as well as scientists from other institutions. The museum provides unique opportunities for undergraduate and graduate students to pursue research and display projects in Wyoming paleontology, and for students minoring in museum studies to gain valuable experience with natural history museums and collections.

William D. Ruckelshaus Institute of Environment and Natural Resources

Position currently vacant, Director

Bim Kendall House

804 E. Fremont St.

Laramie, Wyoming 82072

Phone: (307) 766-5080, Fax: (307) 766-5099

Email: ruckelshaus@uwyo.edu

Web site: www.uwyo.edu/haub/ruckelshaus-institute

The William D. Ruckelshaus Institute supports effective environment and natural resource decision making through compelling communication, applied research, and collaborative decision-making approaches. The Ruckelshaus Institute is housed within the Haub School of Environment and Natural Resources at the University of Wyoming, whose mission is to advance understanding and resolution of complex environmental and natural resource challenges.

Science Communication and Outreach: The Ruckelshaus Institute makes research available to stakeholders through accessible publications and by convening conferences on critical natural resource issues. The institute's annual magazine, *Western Confluence*, communicates university research on natural resource questions to a range of environmental and natural resource stakeholders. The institute also shares stories of new research findings relevant to environment and natural resource decision-making through a range of media formats including reports, press releases, films, social media, and more to engage the public on complex natural resource issues.

Applied Research: The Ruckelshaus Institute conducts surveys, spatial data analysis, information synthesis, and other methods to address questions related to such topic areas as private land conservation, wildlife management, energy development, and others.

Collaborative Solutions: The Ruckelshaus Institute supports sound, inclusive approaches to environmental conflict resolution by facilitating and convening collaborative processes, offering trainings in collaborative decision making for natural resource professionals, and teaching courses in negotiation theory and practice for UW students. The Collaboration Program in Natural Resources is a yearlong professional development series to train natural resource professionals in negotiation, facilitation, and collaborative processes.

Wyoming Geographic Information Science Center

Jeff Hamerlinck, Director

Agriculture C, Room 337 (307) 766-2532

E-mail: wygisc@uwyo.edu

Web site: www.uwyo.edu/wygisc

The Wyoming Geographic Information Science Center (WyGISC) has a mission to advance the understanding and application of geographic information science through basic and applied research, education and training, information and technology transfer, and by promoting utilization of geospatial technologies for science, management, and decision making within the University and throughout the state and region. Examples of geospatial technologies include geographic information systems, geographic cartography and visualization, Global Positioning System-based mapping, and image processing of remotely-sensed Earth resource data derived from aircraft or satellites. Broad applications areas exist in both environmental and social sciences, as well as agriculture, engineering and business.

Established in 2001, WyGISC operates under the Office of Academic Affairs and in close coordination with the Office of Research and Economic Development, providing assistance to all units on campus and to numerous private, local,

state, and federal entities in Wyoming and the Rocky Mountain region. Services include research collaboration, technical expertise, geospatial technology short course training, and geospatial data dissemination.

GIST Curriculum:

Beginning in fall 2019, WyGISC began offering undergraduate and graduate courses and credentials in geospatial information science and technology under the GIST prefix. Credentials include undergraduate certificates in GIS and Remote Sensing, a Professional Master's Degree (online with no thesis), a Research Master's Degree (with thesis), and graduate certificates in GIS, Remote Sensing, and Unmanned Aerial Systems (UAS). These courses and credentials provide fundamental education in geographic information systems and remote sensing to students from across disciplines at UW.

WyGISC encourages undergraduate and graduate student participation in its research projects and has sponsored students from the McNair Scholars Program and other student research apprentice programs, as well as graduate students affiliated with participating departments and research centers. Part-time employment and internship opportunities are often available. Inquiries may be directed to the center using the contact information provided above.

Statistical Consulting Center

Ken Gerow, Director

337 Ross Hall, (307) 766-6600

The Statistical Consulting Center, a unit of the Department of Statistics, exists to coordinate the statistical knowledge and skills available within the department with the subject-matter expertise of other scientists throughout the university, and to bring that combination to bear on applied research problems in diverse areas. The center can provide assistance in research design, sampling, data collection, and/or data analysis for the full range of research needs. The initial consultation is free. Thereafter, a variety of mechanisms are available to acknowledge the contributions of statistical consulting to a given research project, including co-authorship on a scholarly publication, membership on a thesis or dissertation committee, direct compensation to the consultant at private consulting rates, subcontracting with the center on a grant project, etc. On occasion, the center can also offer paid employment and internships to graduate students who have appropriate training and skills to assist other researchers. For further information about any of the services available through the Statistical Consulting Center, please contact the center via the contact information above.

Wyoming Survey & Analysis Center

Tiffany Comer Cook, Interim Executive Director

UW Office Annex, Second Floor

Dept. 3925; 1000 E. University Ave.

Laramie, Wyoming 82071

Phone: (307) 766-2189, Fax: (307)766-2759

Email: wysac@uwoyo.edu

Web site: www.uwoyo.edu/wysac

The Wyoming Survey & Analysis Center at the University of Wyoming seeks to provide clear, accurate, and useful information to decision-makers through applied social science research, scientific polling, information technology services, and rigorous program evaluation. Without bias and with the highest standards of validity, WYSAC collects, manages, analyzes, and reports data for public and private sectors in Wyoming and throughout the nation.

WYSAC has four research areas. By Executive Order, WYSAC serves as Wyoming's statistical analysis center for criminal justice research. The Center for Criminal Justice Research (CJR) at WYSAC collects and analyzes criminal

justice data to enable effective planning, practice, and policy development for the State of Wyoming. The CJR is also active nationally as a member of the Justice Research and Statistics Association.

The Center for Information Technology Services specializes in web-based applications, database management, and website development. We create case management programs, desktop applications for data management, prevention and evaluation data entry systems, and interactive online data visualizations.

The Center for Research and Evaluation conducts studies to inform programming, funding, and policy decisions, especially in the areas of public health, substance abuse prevention, and education. We collect qualitative and quantitative data, compile administrative records, conduct statistical analyses, interpret findings, write reports and fact sheets, conduct needs assessments, create evaluation plans and logic models, and write grant applications.

The Survey Research Center (SRC) specializes in survey design, administration, sampling, and data analysis. The SRC conducts phone, mail, internet, and mixed-mode surveys using current technologies and WYSAC's in-house call center. The SRC has expertise in weighting survey data, conducting statistical analysis of the collected data, and creating technical reports and PowerPoint presentations of the results.

WYSAC offers paid employment for students who are looking for experience in social science research. Contact us for additional information, or search for current job openings on UW's website.

UW National Park Service Research Center

(307) 766-4227

Web site: www.uwyo.edu/uwnps

The research center operates in a field station at the historic AMK Ranch in Grand Teton National Park, located 65 km north of Jackson, Wyoming. The field station provides scientists abundant research opportunities in the diverse terrestrial and aquatic environments of Grand Teton and Yellowstone National Parks as well as the surrounding National Forests and Wilderness areas that make up the entire Greater Yellowstone area (GYA). The station has housing for up to 60 researchers and provides terrestrial and aquatic laboratories, boats, field equipment, conference rooms, internet service and a library, all on site. A small grants program provides funding yearly for individual proposals up to \$5,000 as well as scholarship and intern funding for projects conducted in the GYA. Field courses and conference are accommodated in the spring and fall seasons. A weekly seminar series with a barbecue dinner is presented throughout the summer.

Inquiries concerning the UW-NPS Research Center program should be addressed to: Director, University of Wyoming-National Park Service Research Center, Dept. 3166, 1000 E. University Ave., Laramie, WY 82071 or emailed to uwnps@uwyo.edu.

Red Buttes Environmental Biology Laboratory

Within a few miles of Laramie, the Department of Zoology and Physiology operates the Red Buttes Environmental Biology Laboratory, a 9,600-square-foot facility equipped to handle both aquatic and terrestrial vertebrates. An aquatic ecology and toxicology laboratory, uniquely designed to accommodate a wide range of test conditions of water flow, temperature and composition, is available within the facility. Animal holding and surgical rooms are specifically constructed to accommodate experimentation on small (e.g. mice, squirrels), medium (e.g. coyote, badger) and large (e.g. elk, bighorn sheep) mammals. Outdoor corrals and fish runs are also available on the 400-acre site.

Inquiries concerning the Red Buttes Environmental Biology Laboratory should be addressed to the Department Head, Department of Zoology and Physiology, Dept. 3166, 1000 E. University Ave., Laramie, WY 82071, or (307) 766-3333.

Rocky Mountain Herbarium

Located in the Aven Nelson Building, the Rocky Mountain Herbarium and the associated U.S. Forest Service National Herbarium contain more than 1,250,000 plant specimens. The primary functions of the herbarium are to (1) serve as a source of information on the flora of the Rocky Mountain region in general and Wyoming in particular; (2) aid in the identification of plants submitted by ranchers, farmers, county agents, and state and federal agencies throughout the region; and (3) serve as a source of research and teaching material in systematic and ecological botany. Thousands of specimens are loaned each year to recognized institutions throughout the United States where research requires a knowledge of western plants. The web site (www.rmh.uwyo.edu) contains data on more than 700,000 specimens as well as thousands of specimen images and interactive distribution maps.

Open to university students and other qualified researchers, the herbarium invites queries regarding the identification of plants. Those persons wishing assistance in the identification of a plant should send two specimens to the herbarium. Inquiries should be addressed to The Curator, Rocky Mountain Herbarium, Department of Botany, Dept. 3165, 1000 E. University Ave., Laramie, WY 82071.

University of Wyoming Museum of Vertebrates

(307) 766-6227 & (307) 766-6169

Email: ewommack@uwyo.edu & mcarling@uwyo.edu

Web site: www.uwymv.org

The mission of the University of Wyoming Museum of Vertebrates (UWYMV) is to document and understand regional and global biodiversity through acquisition and investigation of collections to advance academic knowledge and public appreciation of the natural world. While its holdings primarily contain vertebrates found in the Rocky Mountain Region, the museum also houses specimens from all across the world. Although the UWYMV has no formal exhibits and is not regularly open to the public, its collections are widely used by researchers, educators, and for outreach activities.

To learn more about the UWYMV, including how to access our collections or schedule a tour, please visit www.uwymv.org.

Collections Location: The UWYMV collections can be found on the ground floor of the Berry Biodiversity Conservation Center, rooms 133 and 119.

Wilhelm G. Solheim Mycological Herbarium

The Wilhelm G. Solheim Mycological Herbarium, housed on the third floor of the Aven Nelson Building, facilitates the study of symbiotic and biotrophic fungi. The herbarium contains approximately 50,000 specimens of fungi from around the world and the largest collection of fungi in the Rocky Mountain Region. These collections are available for study by qualified students and researchers. Specimens may be borrowed by institutions without charge for a one-year period. Inquiries should be addressed to The Curator, Solheim Mycological Herbarium, Department of Botany, Dept. 3165, 1000 E. University Ave., Laramie, WY 82071.

Louis O. and Terua P. Williams Conservatory

Hours: Monday-Friday 10:00am-2:00pm, closed holidays

(307) 766-4336

Web site: www.uwyo.edu/conservatory

Email: conservatory@uwyo.edu

The Williams Conservatory is a year-round multipurpose facility that has promoted botanical research, education, and outreach since 1994. Located in the Aven Nelson building at the University of Wyoming, our greenhouse is home to over 600 tropical, neotropical, temperate, and arid species from around the world. Conservatory facilities are used by researchers, educators, students in both K-12 and post-secondary levels, artists, horticulture enthusiasts, and the general public. Walk-ins are welcome, or contact us in advance to schedule a guided tour.

Wyoming Cooperative Fish & Wildlife Research Unit

(307) 766-5415

Web site: www.coopunits.org/Wyoming

Email: wyo-coop@uwyo.edu

The Wyoming Cooperative Fish and Wildlife Research Unit is supported by the University of Wyoming, the Wyoming Game and Fish Department, the U.S. Geological Survey and the Wildlife Management Institute. The three permanent unit leaders serve as full faculty in the Department of Zoology and Physiology.

The Unit conducts research on many types of fish and wildlife issues. A primary emphasis is on evaluating the ecology and management of fish and wildlife in the northern Rocky Mountain region. Much of the Wyoming Game and Fish Department's field research is conducted through the Unit. Both students hired as technicians as well as graduate assistants are involved in Unit research. Additional details of the Unit's research program can be found at www.wyocoopunit.org.

For further information contact the Wyoming Cooperative Research Unit, Dept. 3166, 1000 E. University Ave., Laramie, WY 82071, or wyo-coop@uwyo.edu.

Wyoming State Veterinary Laboratory

1174 Snowy Range Road, (307) 766-9925

E-mail: vetrec@uwyo.edu

Web site: wyovet.uwyo.edu

Located west of campus and operated by the Department of Veterinary Sciences, the Wyoming State Veterinary Laboratory (WSVL) is responsible for diagnosis and reporting of animal diseases. Areas of expertise include morphological and clinical pathology, bacteriology, virology, toxicology, parasitology, electron microscopy, molecular diagnostics, and serology.

Cooperative diagnostic and research activities are conducted with various state and federal agencies. The WSVL building also houses a UW classroom, laboratories for the Wyoming Game and Fish Department, and Wyoming Department of Agriculture Analytical Services Laboratory. Students are encouraged to conduct domestic and wildlife disease research in an interdisciplinary setting.

For further information contact WSVL, 1174 Snowy Range Road, Laramie, WY 82070.

Scholarships and Financial Aid

- Eligibility Requirements
- Enrollment Requirements
- Satisfactory Academic Progress (SAP)
- Financial Aid Federal Return of Funds Policy
- Funds Distribution
- Veterans Educational Benefits
- National Guard Benefit

The Office of Scholarships and Financial Aid (OSFA) coordinates all student financial assistance available at UW. Available aid includes scholarships, grants (Hathaway Scholarships, Federal Pell, Federal SEOG, TEACH, Iraq and Afghanistan Service Grant), loans (Federal Direct, Federal PLUS and private) and employment (Federal Work-Study).

OSFA will help all qualified applicants to secure aid, but resources are limited. Aid is offered first to those applicants whose materials are completed and received by February 1 prior to the academic year for which aid is sought. Federal Pell Grants and Federal Direct Loans are available to qualified applicants throughout the year.

Unless another deadline is specified, prospective students seeking scholarships should send an application for admission, the nonrefundable application fee and a copy of their current high school or college transcript to the UW Admissions Office by March 1. Students who have attended another college must have that college submit an academic transcript to the UW Admissions Office.

Students seeking federal aid or assistance based on their financial need must file a Free Application for Federal Student Aid (FAFSA). Applicants may do so at studentaid.gov. Allow one week for processing. UW recommends using IRS Data Retrieval when completing the FAFSA. Final responsibility for ensuring that all required documents are received in a timely manner rests with the applicant. The FAFSA will be available October 1 for completion.

Eligibility Requirements

To receive federal financial aid (such as Federal Pell, Federal SEOG and Federal TEACH, Iraq and Afghanistan Service grants, Federal Work Study, Federal Direct [subsidized or unsubsidized], and Federal Direct PLUS loans) you must meet the following conditions and provide supporting documentation when requested to do so: have a high school diploma or its equivalent, be enrolled or accepted for admission as a regular student at UW, not be concurrently enrolled in an elementary or a secondary school, be enrolled in a degree program, be a U.S. citizen or eligible non-citizen, have a demonstrated financial need if required, be prepared to prove attendance, maintain satisfactory academic progress (SAP), not be in default on a federal student loan or owe an overpayment of a federal grant at any institution (or, if so, have made satisfactory arrangements to repay or otherwise resolve the overpayment or default), not have borrowed in excess of the annual or aggregate loan limits of a federal loan program (loan borrowers only), agree to use funds received only for educational costs.

Enrollment Requirements

Students must attend classes to be eligible for federal financial aid or be prepared to pay all the money back. Most scholarships require the recipient to be enrolled full time. Hathaway Scholarships, Federal Pell Grants, and veteran's benefits may be pro-rated for part-time enrollment and Federal Direct Loans may only be borrowed by students enrolled for at least half time (a minimum of 6 hours for undergraduate and pharmacy students; a minimum of 4.5 hours for graduate and law students). Federal Pell Grants and Federal SEOG Grants are available to undergraduate students who have not completed the requirements for their first undergraduate degree. Classes for audit are not acceptable for any kind of financial aid. Generally, Federal aid is not available for continuous registration hours, or for audit hours. For details, contact the Office of Scholarships and Financial Aid.

Satisfactory Academic Progress (SAP)

The University of Wyoming Office of Scholarships & Financial Aid is responsible for ensuring that all students receiving federal financial aid meet minimum standards.

If you are looking to appeal your "**Not Eligible**" SAP status, please read and understand the below policy. Once you have read and understood the policy, please complete the SAP Appeal and Academic Plan form. Please refer to our Frequently Asked SAP Questions page for more information regarding the appeal process.

Satisfactory Academic Progress is reviewed at the end of each semester (fall, spring, and summer) and the following three areas are measured:

1. **Institutional Cumulative Grade Point Average**

- Undergraduate & Professional programs - 2.0
- Graduate programs - 3.0

2. **Completion Percentage (Pace)**

A student's earned hours must equal or exceed 67% of all cumulative attempted hours since beginning classes.

- Courses that are Failed, Withdrawn, Unsatisfactory or Incomplete are considered attempted but not earned hours.
- Audit, Correspondence, Credit by exam, Remedial and Enrichment courses do not count as attempted or earned.
- Successfully completed courses (grades of A, B, C, D, S), transfer hours accepted toward completion of student's program, academic renewal hours earned through previous enrollment, advanced placement credit, credits earned through Study Abroad and Consortium agreements, credits earned while student is not receiving federal aid and experiential learning credits are all counted as attempted and earned.
- Overall Earned Credits / Overall Attempted Credits = Pace

3. **Maximum Timeframe**

A student is eligible for financial aid until they have attempted 150% of the minimum credit hours required to earn a specific degree. The University of Wyoming sets the following maximum timeframe for student degrees:

- Undergraduate - 180 hours (150% of 120 hours)
- Master's Program - 45 hours (150% of 30 hours)
- Doctorate Program - 108 hours (150% of 72 hours)
- Law - 135 hours (150% of 90 hours)
- Pharmacy - 213 hours (150% of 142 hours)

Transfer hours are included in the calculation of the Maximum Timeframe. When pursuing multiple degrees or changing majors the maximum timeframe may be adjusted based on a student generated appeal that includes a degree audit. All attempted credit hours are considered when calculating the maximum timeframe regardless of whether or not the student received financial aid for those hours. Any student with hours over the maximum timeframe are "Not Eligible" for further federal financial aid until a SAP appeal is received and approved by the committee. There will be no warning semester. Submitting an appeal does not guarantee approval. Students awaiting a decision on their SAP appeal are responsible for paying their tuition and fees by the payment deadline.

Financial Aid Eligibility Statuses

1. **Financial Aid Warning**

Students who have not met the minimum standard requirements for the previous semester will be placed on a 'Warning' status. Students on 'Warning' status are eligible for financial aid for one additional semester. Students who do not meet minimum standard requirements at the end of their 'Warning' semester will be 'Not Eligible' for the next semester.

2. **Financial Aid Probation**

Students who have successfully appealed a status of "Not Eligible" are placed on probation and are eligible to receive federal aid for one more semester. After Probation, the student must be making SAP or successfully following their Academic Plan. Students are reviewed at the end of each semester for compliance with their Academic Plan and SAP Standards.

3. **Not Eligible**

A student who does not meet SAP requirements at the end of the warning semester, whose SAP appeal has been denied, who has not fulfilled the requirements of their academic plan or who has met their maximum timeframe will be categorized as "Not Eligible."

Reinstatement

If a student loses federal financial aid eligibility due to not meeting SAP standards or their appeal was denied, they can regain eligibility in one of the following ways:

1. Completing courses using their own resources that will satisfy the deficient SAP area.
2. Successfully appealing by submitting a SAP Appeal Form with supporting documentation.
3. Taking a minimum of 2 classes, 6 hours, no fails, no withdrawals and grades of "C" or better on their own. If successful, student can appeal for the next term.

SAP Appeal Process

A student that is "Not Eligible" for federal financial aid has the option to appeal. The student must submit a complete appeal form to the Office of Scholarships and Financial Aid by the end of the drop/add period of the term in which they are appealing. The complete appeal form including the academic plan and all supporting documentation will be presented to the SAP Appeal Committee. The SAP Appeal Form must include the following:

- an explanation of any extenuating circumstances that prevented the student from maintaining Satisfactory Academic Progress,
- an explanation of what has changed that will allow the student to succeed academically, and
- an Academic Plan signed by their academic advisor that will enable student success

All appeals are reviewed by a SAP committee. The review time for appeals may take 7-10 business days. Students will be notified of the results by email. If the appeal is granted, the notification will explain the terms of the approval. If the appeal is denied, students may request an additional review by the Director of Scholarships & Financial Aid if they have something that was not included in the original appeal to be considered. The Director's decision is final.

Items to consider:

- Being declared 'Not Eligible' for federal financial aid does not mean a student has been academically dismissed from the University of Wyoming.
- Many scholarship recipients are required to maintain a higher credit hour level or grade point average than outlined in this policy. Guidelines on the minimum acceptable credits/grade point average for scholarship recipients are outlined by donors or in acceptance notices signed by the recipient.
- Students must submit complete appeal form with academic plan and supporting documentation by the end of add/drop period. Advisor signature and certification are required on the academic plan.
- Repeated courses:
 - A student can repeat a course one time and still receive federal aid for that course. On the third attempt, federal aid will not pay for that course.
 - All repeated courses will be calculated again in attempted hours and could pull down completion percentage (pace).

Financial Aid Federal Return of Funds Policy

A student who receives federal financial aid (other than Federal Work Study pay checks) and chooses to complete less than 60% of an academic term is considered not to have earned all the federal aid he or she has been awarded.

- If aid already disbursed is equal to earned aid, no further action is required.
- If aid already disbursed is less than earned aid, additional aid may be offered to the student after he or she withdraws.
- If aid already disbursed is greater than earned aid, UW and/or the student must return some federal funds.

To determine whether federal funds have been earned or must be returned, UW follows this procedure:

1. Determine the percentage of the term the student completed. This is calculated by dividing the number of calendar days (including weekends) in a term into the number of calendar days that the student was in attendance for that term.
2. Apply the percentage of time attended to the total amount of federal aid the student was eligible to receive for the term. This is the student's "earned aid."
3. Subtract the amount of earned aid from the amount of aid actually disbursed to the student. A positive remainder is the student's "unearned aid." A negative remainder is the student's "earned aid" that may still be offered to the student.
4. Determine the amount of unearned aid remaining that must be repaid by the student. Subtract the amount of unearned aid repaid by the institution from the total amount of unearned aid.

All unearned aid will be returned to the federal student loan lender or federal aid accounts in the following order: (1) Unsubsidized Federal Direct Loan; (2) Subsidized Federal Direct Loan; (3) Federal PLUS (Parent) Loan; (4) Federal Pell Grant; (5) Federal SEOG Grant. Any amount owed by the student on a grant will be reduced by 50%.

The date of a student's withdrawal from UW will be the date of the student's notification to the Dean of Students Office of an intent to withdraw if the student has no federal aid. For students who have received federal aid, the withdrawal date will be the last date of an academically related activity as reported by their instructors. When a student fails to officially withdraw from UW and has all F's at the end of the semester, the withdrawal date will be the latest date of an academically related activity as reported by their instructors.

UW will repay the lesser of (1) the total amount of unearned aid or (2) an amount equal to the student's institutional charges multiplied by the percentage of unearned aid. "Institutional charges" is defined as charges for tuition and fees, plus room and board charges for students living in UW residence halls and apartments. It does not include such charges as bookstore charges, student health insurance premiums, parking citations, or library fines.

The amount of unearned aid owed by the student on a loan may be repaid under the normal repayment terms of the loan. The amount of unearned aid owed by the student on a grant must be repaid immediately.

Any amount of earned aid not yet disbursed to the student will be offered to the student. Such offers will cover any undisbursed grants first, followed by the undisbursed loans.

Examples of how the amount of unearned federal aid a student must return is calculated are available from a professional adviser in the OSFA. A chart detailing the percentage of earned and unearned aid, by calendar day of the semester, is provided in the term's class schedule. In brief, to determine the percentage of earned federal aid, the calculation will use the total number of calendar days in the term divided by the total number of calendar days the student attended.

Funds Distribution

Each student who registers has his or her own student account with the university. Once a qualified student has registered for classes and accepted their awards on WyoRecords, the OSFA will authorize the electronic transfer of funds from UW financial aid accounts to the student's individual account at the university.

First-time borrowers of federal student loans must participate in entrance loan counseling (view a web presentation). All student loan borrowers must participate in an exit loan interview (on the web) prior to leaving UW.

Federal Work-Study funds are paid as payroll checks or direct deposit on a bi-monthly schedule. Payroll checks may be direct deposited or mailed to the student.

The university will automatically charge a student's account for tuition and fees based on the student's enrollment. Likewise, if the student is living in a university residence hall, room and board charges will be placed on the student's account.

Any financial aid credited to a student's account will automatically pay tuition and fees first and then charges for room and board in UW residence halls. Unless directed otherwise in writing by the student, any remainder will be applied to other university charges. If a negative balance results, a credit balance will be prepared by the university and will be refunded to the student through the University's electronic refunding process, unless a student elects for the Title IV credit balance to be held until and applied to a future semester in that aid year. All outstanding refunds will be refunded at the end of each aid year's spring semester and therefore cannot be held for a summer semester.

Scholarships awarded for the academic year will be split into two equal payments to the recipient's student account with one to be paid at the beginning of each semester. Most non-UW scholarships are paid in the fall semester unless the donor or selection committee specifically directs that it be paid differently.

Students enrolled in a domestic or international exchange program or a study abroad program approved by UW for academic credit are eligible to apply for federal student financial assistance. Likewise, students concurrently enrolled in classes at two or more eligible institutions of post-secondary education may apply for federal aid. A special consortium agreement between institutions must be completed prior to each semester a concurrently enrolled student seeks aid. Those granted a Federal Work-Study allocation have opportunities to perform community services to earn their allocation.

Information describing available aid, award criteria, rights and responsibilities of aid recipients, costs of attendance or refund and repayment policies and schedules is available by writing to Office of Scholarships and Financial Aid, Dept. 3335, 1000 E. University Ave., Laramie, WY 82071, or viewing the financial aid web site at www.uwyo.edu/SFA/.

Important: Students are assumed to be full-time when their initial financial aid is determined. If you plan to attend less than full-time in any semester, your financial aid will be adjusted to reflect your true tuition costs. It is always best to make the OSFA aware of your intended enrollment prior to the start of a semester so that accurate amounts of financial aid may be applied to your account.

Financial aid policies are subject to change without notice to reflect modifications in federal, state and institutional laws and regulations.

Veterans Educational Benefits

Students who have served in the armed forces may be allowed credit for courses taken in some military schools. Students who desire to apply for credit on the basis of the military schools should submit a copy of the DD-214 Form or its equivalent to the Office of the Registrar. Individual colleges will determine whether such courses will be applicable to degree programs.

All veterans seeking educational benefits must register with the veterans' certification specialist in the Office of Scholarships and Financial Aid, 174 Knight Hall, (307) 766-2525. This includes completing a veteran's registration card each semester. Those veterans not completing a veteran's registration card by the last day of the late registration period will be dropped from VA educational assistance at the university. Class load requirements for veterans are as follows:

Undergraduate and Pharm.D. Veterans:

Full-time	12 or more credit hours
3/4 time	at least 9, but fewer than 12 hours
1/2 time	at least 6, but fewer than 9 hours
Less than 1/2	registration credit hour fee reimbursement only

Graduate and Law Veterans:

Full-time	9 or more graduate credit hours or certification by the Office of the Registrar*
3/4 time	at least 7 but fewer than 9 graduate credit hours or certification by the Office of the Registrar*
1/2 time	at least 4.5, but fewer than 7 graduate credit hours
Less than 1/2	registration credit hour fee reimbursement only

*The final responsibility for seeing that the veterans' certification specialist has a certification from the Office of the Registrar rests with the student. It must be received by the last day of scheduled registration.

If any portion of a veteran's schedule is composed of courses which are less than the full semester in length (i.e., short courses, workshops, "blocked" courses, etc.), the rate of benefit payment may be affected. If you have any questions or concerns, contact the veteran's certifying official in the OSFA, 174 Knight Hall, (307) 766-2525.

Withdrawal from a class or classes could reduce a veteran's benefits for that term. For details, contact the veteran's certifying official in the OSFA.

National Guard Benefit

Active Wyoming National Guard members in good standing and considered to be satisfactory participants may apply to participate in the Guard's Education Assistance Plan. The Plan provides 100 percent tuition and mandatory fee payment for all courses (except repeated courses) leading to one degree at UW, as long as the recipient continues to meet academic and service commitment requirements. Recipients must agree to serve in the Guard for at least two years after earning their degrees. This benefit may be used concurrently with Veterans Educational GI Bill ® Benefits. For information and application packets, please contact the Wyoming National Guard at 800-832-1959, ext. 5262.

Tuition and Fees

- Semester Tuition and Fee Schedule 2022-23 (subject to change)
- Student Benefit Package and Insurance
- Tuition and Fee Payment
- Special Course Registration Fees
- Tuition Waivers
- Financial Holds

- Billing Statements and Student Accounts
- Summer Session
- Refunds/Cancellations
- Interaction of Federal Return of Funds Policy and Institutional Refund Policy
- Student WyoOne ID Cards

Semester Tuition and Fee Schedule 2022-23 (Subject to Change)

The University of Wyoming semester tuition and fee schedules for the 2022-23 academic year, which begins with fall semester 2022, will be available in the Fee Book at <http://www.uwyo.edu/administration/financial-affairs/feebook/> or from Student Financial Services, room 172, Knight Hall. Fall charges will post to accounts in WyoRecords by the end of July, spring charges will post by the end of November, and summer charges will post to accounts by the end of April.

Full-time undergraduate refers to undergraduate students enrolled for 12 or more hours, and part-time undergraduate refers to undergraduate students enrolled for less than 12 hours. At the graduate level, nine or more hours is considered full-time and less than nine hours is classified as part-time.

Student Benefit Package and Insurance

At the beginning of each semester, the student benefits package will be added to student accounts of all part-time students who have elected to purchase UW health insurance and have not been charged the mandatory student services fee. The benefits package allows part-time students the use of Student Health Service and Half Acre Gym as well as access to athletic events.

Graduate students taking less than 4.5 credit hours should contact their academic department and also refer to the "Graduate Student Optional Fee Package Petition" document, which may be found on the Office of the Registrar's website.

Students not assessed insurance who would like to purchase the benefits package, not for full-time status purposes, can fill out a form in Student Financial Services, 172 Knight Hall, and then pay for the package at the Cashier's Office, 170 Knight Hall, or online via the student financial portal. Main campus students enrolled in less than six hours or students in online-only programs are not automatically assessed the fee but are eligible to purchase the package.

Student medical insurance is mandatory for international students. International students are automatically enrolled in the medical insurance every fall and spring semester that they enroll in classes. Students may potentially waive this requirement if they meet university regulations and provide the necessary documentation by the add/drop deadline.

Each domestic enrolling student will be required, as part of the registration process, to make a student medical insurance selection. If the eligible student selects "YES" to the question, the premium will be assessed on the student's account. If the student selects "NO," they will not be assessed for the premium. Part-time students who select yes for the health insurance will also be assessed for the Student Benefit Package.

Domestic students are eligible for insurance if they are enrolled in at least 6 hours for undergraduate or 4.5 hours for graduate students. Students are not eligible for student health insurance if online or remote only.

For questions regarding the Student Medical Insurance program, contact the Student Medical Insurance Advocate (641 Hill Hall Hall) at (307) 766-3025.

Tuition and Fee Payment

All university charges are due by September 1 (fall), February 1 (spring), and June 1 (summer).

An institutional payment plan is available for students who need extra time to pay.

A non-refundable \$50.00 payment plan extension fee is charged per semester to all students that are not paid in full by the payment dates above. The payment plan adds three monthly installments for fall and spring and two installments for summer in addition to the first due date above. These are due on the 1st of the subsequent months. Registration holds and interest of 1.5% per month may be charged on all past due amounts.

Special Course Registration Fees

Additional charges (special course, college, advising, and program fees) must be paid by students enrolling in those courses and colleges with approved special fees. Fees for these courses and colleges will be indicated in the Fee Book. Program fees, assessed to all courses under 5000 level, are by the college in which the course is held and may be different than a student's primary program.

Tuition Waivers

If an employee, spouse of an employee or cooperating agency waiver is used for payment of tuition and/or fees, the properly completed and signed waiver must be received by the Student Financial Services office by the first day of the term. All waivers will be applied to accounts after the drop deadline. To be eligible for the waiver, the student must be a benefited employee by the first day of class. Please refer to Regulation 7-11 Tuition, Fees, Scholarships and Financial Aid for details of the benefit.

Financial Holds

A student failing to pay fees, charges, fines, penalties, deposits, or short term loans as prescribed by the Trustees of the University of Wyoming shall be denied registration at the university and copies of academic transcripts until such fees, charges, fines, penalties, deposits or short term loans are paid in full. A ten-day wait is required before a student loan hold can be removed if the debt is paid with a personal check. Contact Student Financial Services via email (sfs@uwyo.edu) or in person at Knight Hall 172 for information regarding financial holds.

If payment is made on a student account and the payment is returned to the University as a result of insufficient funds or otherwise, the student will have a hold on their account until the return payment fee in addition to the original amount is paid. Registered classes secured by a returned payment are subject to cancellation.

Billing Statements and Student Accounts

Students and authorized users are billed electronically each month and it is the responsibility of the student to review the statement information via the Student Financial portal and pay within the payment deadlines. Billing notifications are sent to the student's UW email address monthly, but current account activity can be viewed at any time via the Student Financial portal or the Authorized user portal.

Summer Session

Please refer to the Summer Course Schedule and Calendar for applicable deadlines. Shorter classes will have shorter refund periods.

Refunds/Cancellations

Tuition and course fees will be canceled or refunded to a student who officially drops a class or classes, withdraws from the university through the Dean of Students Office, or changes enrollment status (i.e. non-resident to resident; full-time to part-time) in accordance with the institutional refund policy outlined below.

No tuition penalty will be assessed for dropping and adding during the drop period identified in the term's class schedule. Students who withdraw from individual courses after the end of the drop/add period will have their charges canceled in accordance with the institutional refund policy outlined below.

Mandatory fees, program fees, advising fees, course fees, or service fees are not refundable after the drop period.

The portion of tuition refund/cancellation is computed from the first day of the term, not the class meeting pattern. If a student's initial registration includes blocked classes or short courses that begin at a later date, the refund/cancellation will still be computed from the first day of the block/session. If a student's initial registration occurs during an approved late registration period, the date for computing a refund/cancellation will be the first day of the term.

Institutional Refund Schedule for Full Semester Length Classes

Before the first day of the semester	100%
Semester Class Day 1-8	100%
Semester Class Day 9-15	75%
Semester Class Day 16-20	50%
Semester Class Day 21-25	25%
Semester Class Day 26 on	0%

Examples of these calculations are available in Student Financial Services.

Interaction of Federal Return of Funds Policy and Institutional Refund Policy

When a student who receives federal financial aid withdraws from the university, they may owe a repayment of federal funds, be due a refund from UW, or owe an additional amount to UW. For details on the application of these policies to a specific situation, please consult with Scholarships & Financial Aid, 174 Knight Hall, (307) 766-2116, as well as Student Financial Services, 172 Knight Hall, (307) 766-6232.

Student WyoOne ID Cards

167 Information Technology Center, (307) 766-5268

ID cards are issued to all students during their first semester of enrollment. These cards are used throughout the student's entire career at the university.

The ID card also referred to as the WyoOne card, is needed to pick up transcripts, financial aid, cash checks, access student health services, attend athletic events, enter recreation facilities, check out library books and materials, food service access, enter residence halls, and other necessities. Visit the online card office at www.uwyo.edu/idooffice/ to make deposits, view transaction history, and access other card management features.

The WyoOne card may also be used as a debit card to make purchases at some locations on campus after the deposit account is established. Spouses, domestic partners, and dependents of students are eligible for an ID card.

University Accreditation/Membership

- University Accreditation/Membership

University Accreditation/Membership

The University of Wyoming, and all UW academic programs are accredited by The Higher Learning Commission, a commission of the North Central Association of Colleges and Schools Commission on Institutions of Higher Education, 230 South LaSalle Street, Suite 7-500, Chicago, IL 60604 or (800) 621-7440.

In addition, many individual academic programs are either approved, accredited or hold membership as indicated below.

Recognized or accredited by:

- ABET (formerly known as Accreditation Board for Engineering and Technology)
- Accreditation Association for Ambulatory Health Care, Inc.
- Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics
- Accreditation Council for Graduate Medical Education
- Accreditation Council for Pharmacy Education
- American Alliance of Museums
- American Association of Professional Landman
- American Association of Vet Lab Diagnosticians
- American Bar Association
- American Chemical Society
- American Dental Association
- American Psychological Association
- Association of American Law Schools
- Association to Advance Collegiate Schools of Business (AACSB)
- Council for Accreditation of Educator Preparation
- Commission on Collegiate Nursing Education
- Computer Science Accreditation Commission (a participating body of ABET)
- Council for Accreditation of Counseling and Related Educational Programs
- Council on Academic Accreditation in Audiology and Speech Language Pathology
- Council on Social Work Education
- International Association of Management Education
- National Association of Schools of Music

- National Association for Sport & Physical Education - Accreditation
- National Council for Accreditation of Teacher Education
- National Council on Family Relations
- Society for Range Management
- Specialized Professional Association-Licensure K12 Physical Education
- Wyoming Professional Teaching Standards Board

Holds membership in:

- American Association of Colleges of Teacher Education
- American Association of University Women
- American Council on Education
- American Society for Engineering Education
- Association for the Advancement of International Education
- Association of Academic Survey Research Organizations
- Association of American Colleges and Universities
- Council for the Advancement and Support of Education
- Council of Academic Deans from Research Education Institutions
- Council of Colleges of Arts and Sciences
- Council of Graduate Schools
- Justice Research and Statistics Association
- Greater Western Library Alliance
- Associate of Public and Land Grant Universities
- National Network for Educational Renewal
- University Professional and Continuing Education Association
- Western Association of Graduate Schools
- Western Cooperative for Educational Technology
- Western Interstate Commission for Higher Education

Assessment of Student Learning at the University of Wyoming

The University of Wyoming is committed to providing students with high quality academic programs and services. As a result, UW is actively engaged in several processes to assess student learning with the ultimate goal of continuous improvement. A university wide assessment plan and individual department plans are in various stages of implementation. The purpose of these plans is to identify and articulate student learning outcomes - the skills, abilities, and knowledge that students are expected to acquire by the completion of their programs - and the means by which these outcomes would be measured. Learning is assessed at the university, college and departmental levels. Current assessment activities include, but are not limited to, surveys, interviews, portfolios, exams and senior capstone projects. In order for UW's assessment efforts to be successful, students must become engaged in the process. As such, students are expected and/or required to complete various assessments as determined by the university or department prior to the awarding of degrees.

For more information regarding the student learning outcomes for a particular program of study, see the section on College and Division Programs. For further information about the University of Wyoming's assessment of student learning efforts, see the Assessment of Student Learning webpage at www.uwyo.edu/assessment.

The University Studies Program 2015

- Knowledge of Human Culture, the Physical & Natural World, and the U.S. & Wyoming Constitutions
- Intellectual and Practical Skills
- Personal & Social Responsibility

Students who enter the University of Wyoming or a Wyoming community college beginning in fall 2015 will be required to meet the USP 2015 requirements for graduation. Requirements of the USP are divided into categories based on the student learning outcomes. All courses are mutually exclusive of each other; no single course may count in more than one category. USP designated courses are open to all UW students (with a few exceptions for the Fall Bridge and Honors College).

Knowledge of Human Culture, the Physical & Natural World, and the U.S. & Wyoming Constitutions

Human Culture (H) Credits 6

Students will understand human behaviors, activities, ideas, and values in different situations and contexts. Complete six approved credit hours of coursework. **Approved coursework does not include courses taken within the student's major department.**

Physical and Natural World (PN) Credits 6

Students will understand the fundamental concepts of scientific and quantitative inquiry and develop the ability to understand the relevance of scientific, technological, and quantitative skills to contemporary society. Complete six approved credit hours of course work. **Approved coursework does not include courses taken from the student's major department.**

U.S. & Wyoming Constitutions (V) Credits 3

Students will demonstrate an understanding of the U.S. and Wyoming constitutions in order to develop the combination of knowledge, values, and motivation to participate in and improve the life of our local and global communities. Approved V courses fulfill both the U.S. and Wyoming Constitution requirements.

Intellectual and Practical Skills

Communication 1 (C1) Credits 3

Students will develop skills in written, oral, and digital communication as appropriate to specific disciplines and courses at the introductory, intermediate, and advanced level. Through repeated instruction, practice, and feedback, the communication sequence will emphasize and progressively develop transferable skills for students' academic work and future professions. The introductory course (C1) will emphasize foundational skills for academic writing. **Communication 1 must be completed with a C or better.**

Communication 2 (C2) Credits 3

Intermediate courses (C2) will emphasize foundational oral and digital communication skills and continue to build on writing skills. Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. **Communication 2 must be completed with a C or better.**

Communication 3 (C3) Credits 3

Advanced courses (C3) will emphasize using the discourse of a discipline or interdisciplinary field to communicate to academic or professional audiences through written, oral, and digital communication. Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the students' major department.

First-Year Seminar (FY) Credits 3

Students will critically examine and evaluate evidence, claims, beliefs, or points of view about meaningful, relevant issues. Students will be introduced to active learning, inquiry of pressing issues, and individual and collaborative processing of ideas through the First-Year Seminar curriculum. These skills will be reinforced throughout the baccalaureate experience. The First-Year Seminar will provide the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular FY class for a major. **First-Year Seminar must be completed with a C or better.**

Quantitative Reasoning (Q) Credits 3

Students will reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. All students must fulfill the Q requirement, either through successfully completing the Q course or with SAT Math 600+, ACT Math 26+, or a *proctored MPE* Level 4.

Personal & Social Responsibility

No mandatory USP courses. Students will have varied experiences depending on coursework and co-curricular activities chosen by them.

Wyoming Community colleges have defined a Common General Education Core Curriculum as a component of an associate's degree. Per transfer policy, an AA or AS or AB degree from a Wyoming community college will satisfy the lower-division requirements of the University Studies Program. Students transferring to UW from any Wyoming community college without an associate's degree will have their transcript reviewed on a course-by-course basis.

Students who enrolled at the University of Wyoming or a Wyoming community college prior to the fall of 2015 and who maintained continuous enrollment have the option of satisfying USP 2003 or USP 2015 requirements.

The following courses were approved for the University Studies Program 2015 at the time this catalog went to press. The process of course approval is ongoing. For a complete and updated list of approved courses, see the USP web site at <http://www.uwyo.edu/usp/>.

Communication

Communication 1 (C1)

ENGL 1010 College Composition and Rhetoric

ESL 1210 English Composition for International Students

HP 1020 Freshman Colloquium I

Communication 2 (C2)

AAST 2240 Introduction to African Studies

AAST 2360 African American History, 1619-Present

AAST 2450 Traditional African Religions

AIR 3010 Leading People & Effective Communication

ANTH 2000 Introduction to Linguistic Anthropology

ART 3710 Gender and Humanities

CHIN 3055 Business Chinese I

COJO 2010 Public Speaking

COJO 2095 Persuasive Arguments

CW 2200 Creativity in the 21st Century

ECON 2400 Economics of the Environment

EDSE 3100 Teacher as Practitioner & EDSE 3101 Practicum 3

ENGL 2005 Technical Writing in the Sciences

ENGL 2015 Composition & Rhetoric II: College & Career

ENGL 2020 Literature, Media, & Culture

ENGL 2025 Introduction to English Studies

ENGL 2030 Critical Reading & Writing

ENGL 2035 Writing for Public Forums

ENGL 3710 Gender and the Humanities

ENR 2000 Environment and Society

ENR 2450 Fish & Wildlife Management in the Anthropocene

ESL 3050 Advanced Academic Writing for International Students

FCSC 2200 Professionalism and Communication in Family and Consumer Sciences

FREN 3050 Third Year French I

GEOL 2220 Communication Earth Science

GERM 3050 Third Year German I

GIST 2110 Techniques in Cartography

GWST 2500 Gender and Society

GWST 3710 Gender and Humanities

HIST 2320 History of Islam

HIST 2360 African American History, 1619-Present

HP 2020 Honors Colloquium II

INST 2230 Introduction to Asian Studies

INST 2240 Introduction to African Studies

INST 2250 Introduction to Latin American Studies

KIN 3012 Teaching Laboratory I

LBRY 3020 Research as Social Capital

LIFE 2300 Scientific Communication

MKT 3310 Fundamentals of Professional & Technical Selling

ORTM 2050 Planning, Design, & Delivery

POLS 2200 Politics of Europe

POLS 3600 American Political Thought

POLS 3680 Introduction to Empirical Political Analysis

RELI 2030 Violence and Resistance

RELI 2200 Contemporary American Religion

RELI 2320 History of Islam

RELI 2450 Traditional African Religions

RELI 3245 Christianity Since Darwin

SELL 3310 Fundamentals of Professional & Technical Selling

SPAN 3030 Spanish for Heritage Speakers

SPAN 3050 Third Year Spanish I

THEA 2060 Introduction to Performance Studies

UWYO 1600 Veterans Transition Group

ZOO 2450 Fish & Wildlife Management in the Anthropocene

Communication 3 (C3)

AAST 4100 African American Religious Culture

AAST 4160 African Rhetoric

AAST 4233 Race, Ethnicity, Gender and Media

AAST 4260 Rhetoric and Social Justice

AGEC 4965 Agribusiness Entrepreneurial Management and Communication

AGEC 4970 Technical Communication for Agribusiness Majors

AGRI 4600 Developing Organizational Leaders

AIR 4010 National Security Affairs

AMST 4985 Senior Seminar

ANSC 4630 Topics and Issues in Animal Science

ANTH 3300 Ethnographic Methods

ARE 3210 Civil Engineering Materials

ART 3490 Philosophy, Theories, and Contemporary Issues in Art Education

ART 4010 Contemporary Art: Theory and Practice

ART 4600 Professional Practices and Strategies

ART 4790 Art History Seminar

BOT 4100 Scientific Communication

BOT 4101 Scientific Communication Lab

BOT 4444 Biology Capstone

CE 3210 Civil Engineering Materials

CHE 4080 Process Design II

CHEM 4010 Communication in Chemistry

COJO 3010 Business and Professional Communication

COJO 3190 Cross Cultural Communication

COJO 4061 Rhetorical Theory & Criticism

COJO 4110 Feature Writing Seminar

COJO 4160 African Rhetoric

COJO 4233 Race, Ethnicity, Gender and Media

COJO 4260 Rhetoric and Social Justice

ECON 4240 Evolution of Economic Ideas

EDEL 4109 Elementary Humanities Education

EDEL 4309 Elementary Literacy Education

EDEL 4409 Elementary Math/Science Education

EDEL 4410 Elementary Mathematics Education Method

EDSE 4270 Subject Matter Specific Methods II: Secondary English Education

EDSE 4271 Subject Matter Specific Methods II: Secondary Mathematics Education

EDSE 4273 Subject Matter Specific Methods II: Secondary Social Studies Education

EDSE 4275 Subject Matter Specific Methods II: Secondary Science Education

EDSE 4276 Subject Matter Specific Methods II: Secondary Modern Language Education

EDSE 4277 Subject Matter Specific Methods II: Secondary Pedagogy Technical Education

EDSE 4278 Subject Matter Specific Methods II: Secondary Agriculture Education

EE 4820 Senior Design I

EE 4830 Senior Design II

ENGL 3020 Culture, Communication, and the Workplace

ENGL 4000 21st Century Issues in Professional Writing

ENGL 4010 Technical Writing in the Professions

ENGL 4025 Writing for the Web

ENGL 4030 Writing for Magazines

ENGL 4040 Rhetoric, Media, and Culture

ENGL 4061 Rhetorical Theory & Criticism

ENGL 4075 Writing for Non-Profits

ENGL 4999 Senior Seminar

ENR 4900 ENR Policy in Practice

ERS 4135 Advanced Oil & Gas Law

ESL 4010 Technical Writing for International Students

ESS 4950 Exploring the Earth System

FCSC4182 Textile Industry and the Environment

GEOL 4820 Capstone

GERM 4200 Introduction to Research

GWST 4233 Race, Ethnicity, Gender and Media

GWST 4700 Feminist Theories

HIST 4030 Senior Capstone Seminar

HP 4990 Undergraduate Education Research

INST 4950 Capstone

KIN 4080 Assessment in Physical Education

MATH 4200 Analysis 2: Advanced Analysis

MATH 4510 Algebra II: Introduction to Group Theory

MGT 4800 Business Strategy & Policy

MICR 4130 Mammalian Pathobiology

MICR 4321 Microbiology Capstone

MLSK 4860 Laboratory Management

MOLB 4053 Communications in Molecular Biology

MUSC 4330 Undergraduate Seminar

MUSC 4465 Instrumental Music Methods

NURS 4055 Evidence-Based Nursing for the RN

NURS 4125 Evidence-Based Nursing

ORTM 4903 Capstone

PATB 4130 Mammalian Pathobiology

PETE 4736 Petroleum Engineering Design

PHCY 6102 Biopharmaceutics and Pharmacokinetics

PHCY 6241 Organizational and Societal Issues Within the Health Care System

PHCY 6245 Patient/Professional Interactions

PHCY 6470 Internal Medicine I

PHCY 6471 Internal Medicine II

PHCY 6473 Ambulatory Pharmaceutical Care

PHCY 6485 Reflective Learning In Pharmacy

PHYS 3650 Advanced Modern Physics Lab

PLNT 4990 Plant Sciences Capstone

POLS 4810 Seminar in Political Philosophy

POLS 4840 Seminar in Public Law

POLS 4850 Seminar in American Political Institutions

POLS 4870 Seminar in International Relations: Comparative Genocide

POLS 4890 Seminar in Comparative Government & Politics

RELI 4000 Theories in Religion

RELI 4100 African American Religious Culture

REWM 4900 Rangeland Management and Planning

SOWK 4570 Social Work Research Methods

SPAN 4200 Introduction to Research

THEA 4200 20th Century Dance

THEA 4330 History of American Musical Theatre

THEA 4930 Theatre History I

UWYO 3600 Campus to Career

UWYO 4101 Bachelor of General Studies Capstone Design

ZOO 4100 Scientific Communication

ZOO 4101 Scientific Communication Lab

First-Year Seminar

First-Year Seminar (FY)

ACES 1101 The New Geography of Jobs

AGEC 1101 Public (Mis)perceptions of Agriculture

ANSC 1101 Beyond Cowboys & Critters: The Science of Animal Agriculture

ANTH 1101 Anthropology of Monsters

ANTH 1101 Hoaxes, Myths, and Charlatans in Archaeology

ART 1101 Reading Tex(tiles): Exploring Fabric as a Vehicle for Communication

ART 1101 Build Your Own Camera

ATSC 1101 Weather, Climate, and Global Change

BOT 1101 Paleontology's Great Debates

BOT 1101 Fish & the Human Experience

BUSN 1101 Decision Making in Business

CE 1101 Engineering Earth's Water

CHIN 1101 A Taste of China: Travel, Food, and Culture

COJO 1101 Small Group Communication

COJO 1101 Trending Now: Media Literacy in the 21st Century

COJO 1101 Understanding Human Communication

COSC 1101 The Beauty and Joy of Computing

CW 1101 The Power of Story: How Narrative Shapes Our Understanding of the World

ECON 1101 Bite-Sized Economics

ECON 1101 Business of Sports

ECON 1101 Viking Economics

EDEC 1101 Borders, Barriers, and Bridges: Creating Community Across Global Issues

EDEL 1101 Race & Racism

EDST 1101 The Citizen Factory: Schooling and Democracy in the US

EE 1101 Bits & Bytes: A Taste of Electronics

ENGL 1101 Night of the Living Film: Zombies, Living Dead, Walkers... Humans

ENGL 1101 Travel Writing: From Wyoming to the World

ENR 1101 Thinking Like a Mountain: Environmental Problems, Interdisciplinary Solutions

ENTO 1101 Pests, Plagues and Plants

ERS 1101 Energy, Environment, and Economics

ES 1101 Introduction to Engineering Study

ES 1101 Innovation & Entrepreneurship

ES 1101 Mission to Mars

FCSC 1101 People, Place, Profit and Policy: Sustainability and Well-Being in the Built Environment

FIN 1101 Personal Finance

GEOG 1101 Surviving the Apocalypse: The Geography of Natural Disasters

GEOL 1101 Man and Geology: The Control of Nature

GERM 1101 Ger-Merican Dreams: The German Cultural Presence in the US

HIST 1101 Hamilton's America: Beyond the Musical

HP 1101 Calling Bull\$#!% in a science-driven world

HP 1101 Narrative of Success: Moving Beyond Achievement to Define Meaningful Success

HP 1101 The Purpose of the University

HP 1101 A Walk Across the World: Popular Film, International Inquiry, and Problem-based Learning

HP 1101 Travel Writing: From Wyoming to the World

INST 1101 Exploring the Middle East: Camels, Hookahs and Oil

INST 1101 Viking Economics

ITEC 1101 Making, Hacking, and Tinkering: Creating in the Modern World

KIN 1101 Kinesiology - the Science of Human Movement

LIFE 1101 Introduction to Ecological Research

LTST 1101 Latina/o Popular Culture: Art, Theatre, Media, Music and Sports

MATH 1101 Infinity---Beyond?

MOLB 1101 The Neanderthal and the nucleus; the molecular biology of being human

MOLB 1101 Genetic Engineering & Synthetic Biology

NEUR 1101 Think About Thinking

NURS 1101 Should Health Care Fly?

PATB 1101 One Health: People, Animals, and the Environment - Zero Degree of Separation

PATB 1101 Think About Thinking

PHCY 1101 Navigating Survival: A Compass for Campus Mental Health

PHIL 1101 Philosophy as a Way of Life

PHYS 1101 Natural History: Past, Present, & Future

PHYS 1101 What really happened: How scientific theories come about

PHYS 1101 Critical Thinking Through Science and Science Fiction

PLNT 1101 Eating as an Agricultural Act

POLS 1101 Dangerous Ideas: First Amendment Civil Liberties in Theory and Practice

RELI 1101 Worlds of Religion

RELI 1101 Gilgamesh to the Bomb

SOC 1101 The Sociology of Pets

STAT 1101 The Power of Confidence

THEA 1101 Performance as Change

UWYO 1101 Outdoor Leadership

UWYO 1101 From Home to Here, Where Cultures Meet

UWYO 1101 UW Veterans

UWYO 1101 Say "Cheese" Happiness & Well-being through the Lens of Art

ZOO 1101 The Biology of Food

ZOO 1101 Natural History: Past, Present, and Future

Human Culture

Human Culture (H)

AAST 3000 African American Music

AAST 3260 African Spirits in the New World

AAST 3933 African Philosophy

AGEC 1010 Principles of Macro Economics

AGEC 1020 Principles of Micro Economics

AGEC 3860 World, Food, Agriculture, and Development

AGEC 4600 Community Economic Analysis

AMST 2010 Introduction to American Studies

AMST 2110 Cultural Diversity in America

AMST 4430 Queer Theory

ANTH 1200 Introduction to Cultural Anthropology

ANTH 1325 Wyoming Archaeology

ANTH 1450 World Archaeology

ANTH 2600 Forgotten Africa: Introduction to African Civilizations

ANTH 3400 Hunters & Gatherers

ARBC 1010 First Year Arabic I

ARBC 1020 First Year Arabic II

ARE 3030 History of Architecture

ART 1001 Art & Human Culture

ART 2010 Art History Survey I

ART 2020 Art History Survey II

ART 3030 History of Architecture

CHIN 1010 First Year Chinese I

CHIN 1020 First Year Chinese II

CHIN 3160 See Movies, Touch China

CLAS 2020 Classical Greek Civilization

COJO 1000 Introduction to Mass Media

COJO 1030 Interpersonal Communication

COJO 1040 Introduction to Human Communication Theory

ECON 1000 Global Economic Issues

ECON 1010 Principles of Macro Economics

ECON 1020 Principles of Micro Economics

ECON 1300 Oil: Business, Culture, and Power

ECON 1400 Sports Economics

EDEL 2280 Literature for Children

EDST 2450 Foundations for Development and Learning

EDST 2480 Diversity and the Publics of Schooling

EDST 3480 The Diversity and the Politics of Schooling

ENGL 1080 Intro to Women's Studies

ENGL 2360 Mexican-American Literature

ENGL 2410 Literary Genres

ENGL 2420 Survey: Rhetoric & Writing Pedagogy

ENGL 4470 Chicano Folklore

ENGL 4640 Chicana Perspectives

ENR 2300 Foundations of Sustainability

ENR 2345 Natural Resource Ethics

ENR 3000 Approaches to the ENR Problem Solving

ERS 1300 Oil: Business, Culture, and Power

ES 3010 Culture & Engineering in Latin America

FCSC 2165 Introduction to Fashion & Dress

FCSC 1180 Applied Design

FCSC 3220 Multicultural Influences on Children and Families

FREN 1010 First Year French I

FREN 1020 First Year French II

FREN 2030 Second Year French I

FREN 2040 Second Year French II

FREN 2130 Contemporary French Culture

GEOG 1000 World Regional Geography

GEOG 1020 Human Geography

GEOG 2370 Chicano/a History Origins to 1900

GEOG 2385 Chicano History: 1900 to Present

GEOG 4560 Global Cities

GERM 1010 First Year German I

GERM 1020 First Year German II

GERM 2030 Second Year German I

GERM 2040 Second Year German II

GERM 3060 Introduction to German Literature

GWST 1080 Intro to Women's Studies

GWST 2000 Intro to LGBTQ/NS Studies

GWST 2700 Gender and Disability

GWST 3200 Chicana Perspectives

GWST 4430 Queer Theory

HIST 1110 Western Civilization

HIST 1320 World History to 1750

HIST 2225 History of Christianity

HIST 2250 American Religious History I

HIST 2252 American Religious History II

HIST 2315 History of Non-Western Religions

HIST 2370 Chicano/a History Origins to 1900

HIST 2380 Latin American Civilizations

HIST 2385 Chicano History: 1900 to Present

HIST 2600 Forgotten Africa: Introduction to African Civilizations

HIST 4340 Social History of American Women

HIST 4405 American Encounters to 1850

HIST 4406 American Encounters from 1850

HIST 4410 American in an Early Modern World

HIST 4415 Entangled Worlds, Entangled Lives: Indigenous People and Colonizers before 1850

HIST 4462 American Indian History to 1783

HIST 4463 American Indian History to 1890

HLED 1006 Personal Health

HP 1151 Colloquium I

HP 2151 NW: Classical Islam

HP 2153 Bali: Life and Art

HP 2153 Being Basque: Old World and New

HP 3151 Japanese Modern Culture and Society

HP 3151 Not So Plain Tales from India: Indian Short Story

HP 3151 The Disney Discourse

HP 3151 Art and Environment

HP 3151 Modes: Taboo: Sacred and Forbidden

HP 3151 How to Think About What to Think

HP 3151 Christians & Muslims

HP 3152 Heroes, Heroines, and What Stories Tell Us About Who We Are

HP 3152 Hunting & Identity in the Modern United States

HP 3152 Mass Media & Collective Consciousness

HP 3152 Children's Film

HP 3152 Race & Racism

HP 3152 Taking Liberties with Freedom

HP 3153 American Popular Music

HP 3153 Art & Culture of Hip Hop

HP 3153 Culture, Language & Tradition in Modern Mexico

HP 4151 Concepts of Holy War

HP 4152 Issues and Choices: Futurism 001

HP 4152 Diplomacy & Negotiation

HP 4153 Environmental & Sustainability Issues in Art

HP 4153 Saffron, Silk, and Broadwords: A Trek Through Great Civilizations

INST 1060 World Regional Geography

INST 3933 African Philosophy

INST 4560 Global Cities

JAPN 1010 First Year Japanese I

JAPN 1020 First Year Japanese II

KIN 2050 Socio-Cultural Aspects of Physical Activity, Exercise and Sport

LATN 1010 First Year Latin, I

LATN 1020 First Year Latin, II

LTST 1300 Intro to Latina/o Studies

LTST 2360 Mexican-American Literature

LTST 2370 Chicano/a History Origins to 1900

LTST 2385 Chicano History: 1900 to Present

LTST 3200 Chicana Perspectives

LTST 4470 Chicano Folklore

MUSC 1000 Intro to Music

MUSC 1390 Jazz Ensemble I

MUSC 1400 Collegiate Chorale I

MUSC 1405 Singing Statesmen I

MUSC 1415 Bel Canto I

MUSC 1417 Civic Chorus I

MUSC 1430 Symphony Orchestra I

MUSC 3390 Jazz Ensemble II

MUSC 3400 Collegiate Chorale II

MUSC 3405 Singing Statesmen II

MUSC 3415 Bel Canto II

MUSC 3417 Civic Chorus II

MUSC 3430 Symphony Orchestra II

MUSC 4350 History and Literature of Jazz

MUSC 4490 History of Rock and Roll

NAIS 4462 American Indian History to 1783

NAIS 4463 American Indian History to 1890

PHIL 1000 Introduction to Philosophy

PHIL 2300 Ethics in Practice

PHIL 2345 Natural Resource Ethics

PHIL 3933 African Philosophy

PSYC 1000 General Psychology

RELI 1000 Introduction to Religion

RELI 2050 Religions of Asia

RELI 2110 Introduction to the Old Testament

RELI 2150 New Testament Survey

RELI 2225 History of Christianity

RELI 2250 American Religious History I

RELI 2252 American Religious History II

RELI 2315 History of Non-Western Religions

RELI 2330 Islam in the Modern World

RELI 2410 Varieties of Non-Belief

RELI 3090 Middle East and Israel in Film

RELI 3200 Religion and American Culture

RELI 3260 African Spirits in the New World

RNEW 2345 Natural Resource Ethics

SOC 1000 Sociological Principles

SPAN 1010 First Year Spanish I

SPAN 1020 First Year Spanish II

SPAN 2030 Second Year Spanish I

SPAN 2040 Second Year Spanish II

SPPA 2110 American Sign Language I

SPPA 2120 American Sign Language II

SPPA 4070 Deaf Studies

THEA 1000 Introduction to Theatre

THEA 1100 Beginning Acting

THEA 1410 Ballet I/I

THEA 1420 Ballet I/II

THEA 1430 Modern Dance I/I

THEA 1440 Modern Dance I/II

THEA 1480 Beginning Jazz Dance

THEA 2200 Backgrounds of Dance

THEA 2480 Jazz II

WIND 2100 Introduction to Disability Studies

WIND 2700 Gender and Disability

Physical and Natural World

Physical and Natural World (PN)

ANTH 1100 Introduction to Biological Anthropology

ANTH 1300 Introduction to Archaeology

ASTR 1050 Survey of Astronomy

ASTR 1070 The Earth: Its Physical Environment

ASTR 2310 General Astronomy I

ASTR 2320 General Astronomy II

ATSC 2000 Introduction to Meteorology

ATSC 2100 Global Warming: The Science of Humankind's Energy Consumption

ATSC 2200 Severe & Unusual Weather

CHEM 1000 Introductory Chemistry

CHEM 1020 General Chemistry I

CHEM 1030 General Chemistry II

CHEM 1050 Advanced General Chemistry I

CHEM 1060 Advanced General Chemistry II

ENR 1000 Energy and Society

ENR 1200 Environment

ENR 1500 Water, Dirt and Earth's Environment

ENTO 1000 Insect Biology

ERS 1000 Energy and Society

ESS 1000 Wyoming in the Earth System

FCSC 3171 Introduction to Textile Science

GEOG 1010 Introduction to Physical Geography

GEOL 1050 Gold and the American West

GEOL 1060 Geology of the National Parks

GEOL 1070 The Earth: Its Physical Environment

GEOL 1100 Introduction to Physical Geology

GEOL 1450 Solving Problems for a Sustainable Future

GEOL 1500 Water, Dirt and Earth's Environment

GEOL 1650 The Water-Energy-Climate Nexus

GEOL 3600 Earth and Mineral Resources

GEOL 3650 Energy for Society: Addressing the Energy Grand Challenge

GIST 2160 Survey of Remote Sensing Applications

HP 3151 Chaos, Fractals, and Complexity

HP 3152 DNA in Society

HP 3152 Outbreaks and Pandemics

HP 4151 Neuroscience and Law

HP 4151 We Are What We Eat

HP 4152 HIV/AIDS

HP 4152 Earth, Energy, and Culture in Scotland

LIFE 1002 Discovering Science

LIFE 1003 Current Issues in Biology

LIFE 1010 General Biology

LIFE 1020 Life Sciences

PHYS 1050 Concepts of Physics

PHYS 1090 Fundamentals of the Physical Universe

PHYS 1110 General Physics I

PHYS 1120 General Physics II

PHYS 1210 Engineering Physics I

PHYS 1220 Engineering Physics II

PLNT 1000 Agroecology

PLNT 2025 Horticultural Science

RNEW 1000 Wyoming Wildlands: Science & Stewardship

Quantitative Reasoning

Quantitative Reasoning (Q)

COSC 1015 Introduction to Programming for Data Science

GEOL 2120 Quantitative Geo-methods

LIFE 2100 Research & Analysis

MATH 1000 Problem Solving

MATH 1050 Finite Mathematics

MATH 1105 Data, Probability, & Algebra for Elementary School Teachers

MATH 1123 Math, Music and Acoustics

MATH 1400 College Algebra

MATH 1405 Trigonometry

MATH 1450 Algebra and Trigonometry

MATH 2200 Calculus I

MATH 2205 Calculus II

MATH 2350 Business Calculus

STAT 2000 Statistics and the World

STAT 2050 Fundamentals in Statistics

STAT 2070 Introductory Statistics for the Social Sciences

U.S. and Wyoming Constitutions

U.S. and Wyoming Constitutions (V)

ECON 1200 Economics, Law, and Government

HIST 1211 US to 1865

HIST 1221 US from 1865

HIST 1251 History of Wyoming

HP 1200 People in Policy: Situation American Identity & Meaning Within US Law

POLS 1000 American and Wyoming Government

POLS 1100 Wyoming Government*

* will only meet Wyoming portion of V requirement. Will be able to use this in combination with US Constitutions course (transferred)

Colleges and Schools

University of Wyoming

College of Agriculture, Life Science and Natural Resources

151 Agriculture Building

Barbara Rasco, Dean

Phone: (307)766-4135 Fax: (307)766-4030

Web site: www.uwyo.edu/uwag

The College of Agriculture and Natural Resources offers a wide variety of course work in agriculture, natural resources, molecular biology, and family and consumer sciences. The curriculum provides a sound background in basic sciences and the choice of a number of fields in which to specialize. Students are trained in principles which apply throughout the world, with special emphasis on agriculture and natural resources found in the Rocky Mountain region.

Laboratory work and other experiential learning opportunities are stressed in all programs. Students receive excellent training from case studies and practical experience provided at research and extension centers. Other facilities include modern laboratories and classrooms, an abattoir, meat processing rooms, livestock and crop farms and greenhouses.

In addition to the academic departments, the college includes the Agricultural Experiment Station and the UW Extension. Materials and techniques resulting from this effective triple combination benefit students in the never-ending search for problem-solving information. The close relationship between teachers, researchers, and extension educators creates a learning atmosphere that encourages the development of the finest students.

Programs of Study

Undergraduate Degrees

Bachelor of Science

Agricultural business
Agricultural communications
Animal and veterinary science
Microbiology
Molecular biology

Plant Production and Protection
Rangeland ecology and watershed management

Bachelor of Science in Family and Consumer Sciences

Graduate Degrees

Master of Arts

Molecular biology

Master of Science

Agricultural and applied economics

Agricultural economics/water resources

Animal and veterinary sciences

Entomology

Entomology/water resources

Family and consumer sciences

Food science and human nutrition

Molecular biology

Plant sciences

Rangeland ecology and watershed management

Rangeland ecology and watershed management/water resources

Reproductive biology

Soil science

Soil science/water resources

Doctor of Philosophy

Animal and veterinary science

Biomedical Sciences

Entomology

Molecular and cellular life sciences

Molecular biology

Plant sciences

Rangeland ecology and watershed management

Reproductive biology

Soil science

The following certificates and/or degrees in the College of Agriculture and Natural Resources are available through Distance Education:

Certificate: Early Childhood Program Director

Online bachelor's degrees: Family and Consumer Sciences (Professional Child Development Option)

For more information, contact the College of Agriculture and Natural Resources Office of Academic and Student Programs. Phone: (307)-766-4135

The College of Agriculture and Natural Resources also offers a graduate certificate in reclamation and restoration ecology. For more information, contact the Department of Ecosystem Science and Management.

Basic Education Core

All undergraduates in the College of Agriculture and Natural Resources curriculums are required to follow the basic education core as noted below.

Core Components (USP 2015).....Hrs.

First-Year Seminar (FYS).....	3
Quantitative Reasoning (Q)	3
Communication 1 (COM1).....	3
Communication 2 (COM2).....	3
Communication 3 (COM3).....	3
Human Culture (H)	6
Physical & Natural World (PN).....	6
U.S. and Wyoming Constitutions (V).....	3
Subtotal (min. core requirements)	30
Hours for major, support areas and electives as determined by division... 90-98	
Total Hours	120-128

Core Components (USP 2003)

Core Components (USP 2003) Hrs.

Intellectual Community (I)	1-3
Writing 1 (WA)	3
Oral Communication (O).....	3
Quantitative Reasoning 1 (QA)*.....	3
Quantitative Reasoning 2 (QB).....	3
Science (S, SB, SP, SE).....	4-8
Cultural Context (C, CH, CS, CA).....	9
U.S. and Wyoming Constitutions (V).....	3
Physical Activity and Health (P).....	1
Subtotal (min. core requirements)	30-36 Hours for major, support areas and electives as determined by division....79-91
Total Hours	120-128

*Core Components are mutually exclusive of each other; hence, two core components may not be fulfilled by the same course. Except for the QA, core courses may have topics from the embeddable components list included in their curriculum, where appropriate.

Courses taken for S/U

A maximum of 20 elective hours with a grade of S (satisfactory) may be included as part of the total credit requirements for graduation; but no S/U hours may be used to satisfy university, major requirements or required electives, unless the course is offered for S/U grading only.

Minors in Agriculture and Natural Resources

Minors provide a formalized recognition of concentrated study in a specific subject area. A minor offers recognition for academic achievement outside of the students' major course curriculum and gives students a focus of work in the chosen minor area. A minors program can enable students to enhance and expand career opportunities. A minor will also improve the possibility of admission to graduate programs in any chosen major, minor, or related field of study.

Minors Available in the College of Agriculture and Natural Resources Include:

Agricultural business
Animal and veterinary science
Apparel design

Agroecology

Agronomy
Equine
Farm and ranch management
Forest resources
General agricultural economics
Horticulture
Human development and family sciences
Human nutrition
Insect biology
Interior design
International agricultural economics
Molecular biology
Natural resource economics
Plant Protection
Rangeland ecology and watershed management
Reclamation and restoration ecology
Soil science

Agricultural Communications Major

A wide variety of courses in agriculture, communications, and journalism provides students with basic preparation for positions as broadcasters, editors or writers for farm and home organizations, state and federal agencies, magazines, newspapers, radio and television stations, and commercial businesses. Communication skills are also distinct assets in agricultural sales, research, service and teaching. Students enrolled in agricultural courses acquire up-to-date and

knowledgeable backgrounds of the subject matter. Courses in communication and journalism develop proficiencies demanded by employers of communication professionals.

Minimum Requirements for Agricultural Communications Majors (B.S.)

Hrs.

University Studies Program requirements..... 30

Communications/journalism core..... 24

COJO 1000, 1040, 2010, 2100 and minimum of 12 hours of communication/journalism elective. (Minimum grade of C required)

Agriculture core requirements..... 42

At least 18 hours must be lower division (Ag 1000-2000) elective courses, and at least 24 hours must be upper division (Ag 3000-4000) elective courses and include AGRI 4975.

Supporting course requirement4

STAT 2050 or 2070

Additional hours for major and electives 20

Total Hrs: 120

Students wishing to pursue an agricultural communications degree are encouraged to also select a minor. The college currently offers a variety of minors, and any of these can help to better prepare students for employment or graduate work. Agricultural communications majors may also complete an internship in their field. A variety of opportunities are available and students can work with their advisor to determine an appropriate internship for their area of emphasis.

Bachelor of Applied Science

160 Agriculture Building

Awarded by the College of Agriculture and Natural Resources

Phone: (307)766-4034 Fax: (307)766-4030; Web site: www.uwyo.edu/basa/

Organizations need leaders at all levels who can effectively understand the environment and society in which they operate; analyze situations and solve problems; supervise and manage, interact and communicate appropriately within and outside the organization; anticipate changes; and plan for the future. The Bachelor of Applied Science degree (B.A.S.) is designed for individuals with a completed Associate of Applied Science, Associate of Science, Associate of Business or an Associate of Arts degree at a Wyoming Community College (or an equivalent degree at another accredited institution) and who need or desire the additional breadth in skills, knowledge and professional expertise to enhance their capabilities in their own careers and in the organizations in which they work.

The fundamental philosophy of the B.A.S. degree is that the student must complete the general education (University Studies Program - USP) requirements expected of all UW bachelor's degrees and must engage in upperdivision coursework sufficient to provide focus and depth of learning. Following this philosophy, the B.A.S. has four basic components. These components are university studies, career specialty, professional concentration, and electives. The

fundamental elements of the baccalaureate degree are provided by the general education core (USP) and the upper division professional concentration. At the end of the program, students are expected to meet the following Student Learning Outcomes:

1. to develop proficiency in accessing, evaluating and utilizing information, ideas, and data;
2. to develop proficiency in communicating information and ideas effectively and responsibly;
3. to gain an appreciation for leadership development as a tool for individual, organization and community problem solving;
4. to demonstrate an understanding of organizational design, behavior, ethical practices, and effective managerial and supervisory practices;
5. to gain an understanding of social, cultural, economic and environmental contexts essential for effective leadership and the management of change.

The University Studies Program (USP 2015) consists of a minimum of 27 credit hours as adopted by the UW faculty, and the Articulation Agreement between UW and the Wyoming Community Colleges. Students with an Associate of Applied Science degree from a Wyoming community college will normally matriculate with 15-20 hours of credit that count toward this component. The remainder may be required as part of a UW student's coursework, including the Professional Concentration or Electives coursework.

The Career Specialty Component is fulfilled with the Associate of Applied Science, the Associate of Science, or Associate of Arts degrees. This component will consist of a minimum of 40 credit hours in the major.

The Professional Concentration Component is the advanced component of the program and the courses are selected by the student and the advisor. All students are required to take a range of courses from the prescribed set of areas of concentration within this component in order to provide them with the breadth and depth of learning necessary for a baccalaureate degree. This component will consist of 36-40 upper division or articulated equivalent credit hours. Note: Within the Professional Concentration, students have a choice between two Organizational Leadership areas. Option A focuses on Community Leadership; Option B focuses on Business Leadership.

The Elective Component will consist of the number of credit hours needed (after completing the other three components) to complete the degree components. A minimum of 120 hours is required for the B.A.S.

All University of Wyoming Students must earn a total of 42 upper division hours (at least 30 hours taken from UW), to earn their degree. Students in the B.A.S. program must earn a "C" in all courses on the B.A.S. checklist. Failure to do so will require repeating the course. Per university regulations, students may only attempt a course three times; an "F" or "W" count as attempts.

Application Process

All students must apply to the Bachelor of Applied Science program, including those who would like to change their major to the B.A.S. in Organizational Leadership. Students cannot just fill out a change of major form and have Admissions change their status. These are the steps for application:

1. Apply to the University of Wyoming through Admissions, declaring the Bachelor of Applied Science in Organizational Leadership.
2. Have official transcripts from all institutions attended sent to Admissions.
3. Email BAS@uwyo.edu when you have received your acceptance to UW. Include your W# in the message. We can then track your files to evaluate them for the BAS program.
4. Students will receive a letter telling the application decision. If a student is denied admission to the BAS, an explanation for the denial will be provided. If accepted, the student will be given information for how to work with the program advisor, Rosalind Grenfell (rgrenfel@uwyo.edu), to enroll in classes.

Department of Agricultural and Applied Economics

206 Agriculture Building, (307) 766-2386

FAX: (307) 766-5544

Web site: www.uwyo.edu/agecon

E-mail: ag-econ@uwyo.edu

Department Head: Benjamin S. Rashford

Professors:

CHRISTOPHER T. BASTIAN, B.S. University of Wyoming 1987; M.S. 1990; Ph.D. Colorado State University 2004; Professor of Agricultural Economics 2017, 2005.

ROGER COUPAL, B.S. Utah State University 1978; M.S. University of Arizona 1985; Ph.D. Washington State University 1997; Professor of Agricultural Economics 2015, 1997.

DON MCLEOD, B.S. St. John's College 1982; M.S. Oregon State University 1987; Ph.D. 1994; Professor of Agricultural Economics 2015, 1995.

JOHN RITTEN, B.S. Arizona State University 2001; M.B.A. New Mexico State University 2004; Ph.D. Colorado State University 2008; Professor of Agricultural Economics 2020, 2008.

L. STEVEN SMUTKO, B.S. Colorado State University 1978; M.C.R.P. North Dakota State University 1982; Ph.D. Auburn 1995; Spicer Chair of Collaborative Practice, Professor of Agricultural Economics 2009.

Associate Professors:

KRISTIANA M. HANSEN, B.A. Reed College 1996; M.S. University of California, Davis 2003; Ph.D. 2008; Associate Professor of Agricultural Economics 2016, 2009.

VARDGES HOVHANNISYAN, B.S. Armenian State University of Economics 1999; M.S. Armenian State Agrarian University 2002; Ph.D. University of Wisconsin-Madison 2012; Associate Professor of Agricultural Economics 2021, 2015.

CHIAN A. JONES-RITTEN, B.S. Northern Arizona University 2003; M.A. Colorado State University 2007; Ph.D. 2011; Associate Professor of Agricultural Economics 2013.

BENJAMIN S. RASHFORD, B.S. University of Wyoming 1999; M.S. 2001; Ph.D. Oregon State University 2006; Associate Professor of Agricultural Economics 2012, 2006.

Assistant Professor:

ANDERS VAN SANDT, B.A. Linfield University 2012; Ph.D. Colorado State University 2018; Assistant Professor of Agricultural Economics 2020.

Academic Professionals:

JEFFERSON G. EDGENS, B.A. Presbyterian College 1989; M.P.A. Coastal Management University of West Florida 1992; Ph.D. Michigan State University 1998; Senior Lecturer 2017.

BRIDGER M. FEUZ, B.S. University of Wyoming 1994; M.S. 1996; Senior Extension Educator 2012, 2004.

THOMAS FOULKE, B.A. University of Montana 1985; M.S. University of Wyoming 1992; Senior Research Scientist 2010, 1998.

LETICIA HENDERSON, B.S. New Mexico State University 2010; M.S. 2012; Assistant Lecturer 2019.

JOHN HEWLETT, B.S. Montana State University 1985; M.S. Oregon State University 1987; Senior Extension Educator 1987.

BRIAN LEE, B.S. University of Wyoming 2010; M.S. 2012; Research Scientist 2012.

AMY NAGLER, B.A. University of Wyoming 1996; M.S. 2002; Assistant Research Scientist 2016.

DUANE D. WILLIAMS, B.S. Oklahoma State University 1981; M.S. 1983; Ph.D. Kansas State University 1995; Senior Academic Professional 2014.

Temporary Lecturer:

Professors Emeritus:

Nicole Ballenger, Edward Bradley, Larry J. Held, James J. Jacobs, Dale Menkhaus, Carl Olson, Alan C. Schroeder, David T. Taylor, Glen D. Whipple

The Department of Agricultural and Applied Economics offers three concentrations within the agricultural business bachelor of science degree program. They are agribusiness management, farm and ranch management, and livestock business management. All three concentrations focus on the development of critical thinking, research, and communication skills for students interested in

1. agricultural operations,
2. small rural businesses,
3. community economics,
4. financial institutions,
5. agricultural and natural resources development, and
6. other pursuits where applied economic tools will be useful.

A brief description of minimum course requirements for each of the three concentrations in agricultural business is given below. In addition, professional advisers will work with students to tailor a curriculum to individual interests and goals.

Agribusiness Management Concentration

This curriculum is for students preparing for careers in the agribusiness field. Applied agricultural economics courses are supplemented with marketing, management, finance and other courses from the College of Business and production-oriented courses from other departments in the College of Agriculture and Natural Resources.

Minimum Course Requirements for Agricultural Business (B.S.) Majors within the Agribusiness Management Concentration¹

Hrs.

First-Year Seminar (FYS).....3

Writing9

ENGL 10102 (COM1), Communication II (COM2), AGEC 4965 or AGEC 4970 (COM3)

Quantitative (Q) (required for major).....7

MATH 1400; 2350

Science (PN)6

Human Culture (H)6

U.S. & Wyoming Constitutions (V).....3

Agricultural Economics 24

1010, 1020, 3400, 4050 or MKT 3210 (count for either upper-division AGEC or business credit, but not both), 4060, 4500; either 4450 or 4830 or 4840 or 4880; 3 hours of AGEC electives

Supporting Agriculture9

AG College hours other than Agricultural Economics

Statistics4

Computers3

Supporting Economics.....6

ECON 3010 and 3020

Business15

ACCT 2010 and 2020; and 9 hours of 3000-4000 level business courses

Electives 25

Total Hours 120

¹ A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW.

²Recommend or equivalent COM1 course.

³ Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits.

H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended.

24 credit hours in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level.

COSC 1200 recommended, or IMGT 2400.

Farm and Ranch Management Concentration

This curriculum is for students intending to become operators or professional managers of farms, ranches or feedlots. It is also well suited for students interested in the field of agricultural finance, or a minor in biological fields such as agroecology or range management. In this concentration, courses in farm and ranch management, finance, and marketing are supplemented by courses in crops, range management, veterinary sciences and animal science, with electives in other areas.

Minimum Course Requirements for Agricultural Business (B.S.) Majors within the Farm and Ranch Management Concentration ¹

Hrs.

First-Year Seminar (FYS).....3

Writing9

ENGL 10102 (COM1), Communication II (COM2), AGECE 4965 or AGECE 4970 (COM3)

Quantitative (Q) (required for major).....7

MATH 1400; 2350

Science³ (PN)

CHEM 1000 or 1020 or 1050.....4

SOIL 20104

One additional PN course3

Human Culture (H)6

U.S. & Wyoming Constitutions (V).....3

Agricultural Economics 28

1010, 1020, 2020, 3400, 4640, 12 hours AGECE electives

Supporting Agriculture 12

SOIL 2010 and 8 AG College hours other than Agricultural Economics

Statistics4

Computers	3
Supporting Economics.....	6
ECON 3010 and 3020	
Business	3
ACCT 2010	
Electives	29

Total Hrs. 120

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW. ² Recommend or equivalent COM1 course. ³ Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits. H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended. 24 credits in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level. COSC 1200 recommended, or IMGT 2400.

Livestock Business Management Concentration

This curriculum is for students intending to work in any sector of the livestock and meat industry, ranging from input suppliers, to ranches, feedlots, meat packing companies, marketing and sales agents, futures/commodities exchange groups, policy makers, and international trade organizations. In this option, courses in farm and ranch management, agricultural finance, marketing, and trade are supplemented with courses in animal science, biology, range management, food science, data analysis, and other disciplines. Students may pursue a minor in Animal Science as part of this option, but can choose the non-minor version instead. Students will gain a broad understanding of both the business and science of the livestock industry.

Minimum Course Requirements for Agricultural Business (B.S.) Majors within the Livestock Business Management Concentration¹

Hrs.

First-Year Seminar (FYS) ²	3
Writing - Communication ²	9
COM1 ² , COM2 ² , COM3 - AGECE 4965 or AGECE 49702	
Quantitative (Q)	7
MATH 14002 ; 2350	
Science (PN) ³	8 CHEM 1000; LIFE 1010
Human Culture (H) ³	6

U.S. & Wyoming Constitutions (V).....	3
Agricultural Economics	31
AGEC 1010, 1020, 2020, 4640, 3400 or 4710, 4060, 4050 or MKT 3210, AGEC 4830 or 48405 , 4880 or 4280 or ECON 4720, AGEC 4500	
Additional Quantitative Skills.....	10
STAT 2050 or 2070; COSC 1200 or IMGT 2400 or AGRI 10106 ; AGEC 4230 or 4840 or STAT 3050 or IMGT 2400 or 3400 or MATH 2355 or ACCT 2010 or 2020	
Biology of Livestock.....	17
LIFE 2022, 3050, FDSC 2040, 3060, ANSC 4540	
Additional Biology of Livestock (for Animal Science minor ⁷)	19
ANSC 2010, 3010, 3100, 4120, PATB 4110, ANSC 3150 or 4220 or 4230 or 4240	
Or	
Additional Biology of Livestock (for nonminor)	20
ANSC 1010, 2020, 4050, REWM 2000, 4100, REWM 4000 or PATB 4110	
Supporting Economics.....	3
ECON 3020	
Electives	3-4

Total Hrs. 120

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW. ² Must earn a "C" or better. ³PN and H may not be fulfilled by AGEC or ECON courses. 31 credits in Ag Econ beyond those earned to satisfy University Studies requirements; 21 of these 31 credit hours must be earned at the 3000-4000 level. AGEC 4840 may not be double-counted towards both Agricultural Economics and Quantitative Skills. Suggest COSC 1200 for most, or IMGT 2400 (for advanced users). Must earn a "C" or better in all courses required in the minor to earn the minor.

Environment and Natural Resources

Students interested in natural resource or environmental issues or careers may complete any of the four options within agricultural business offered by the department with an environment and natural resource emphasis. Inquiries about environment and natural resource concentrations in agricultural business should be directed to the Department of Agricultural and Applied Economics.

Minor Programs

The department also offers five minor programs. These five minors are to give students majoring in other undergraduate curricula in the university a concentration of work in any of the specialized undergraduate curricula offered by the department or in general agricultural economics. Each minor requires 27 hours in prescribed course work including 6 hours in supporting agriculture. Students need to plan their course work to meet course prerequisites.

Agricultural Business Minor. AGEC 1010, 1020, 4050 or MKT 3210, and 4060; ACCT 2010; 6 additional hours in upper-level agricultural economics courses; 6 hours in supporting agriculture courses.

Farm and Ranch Management Minor. AGEC 1010, 1020, 2020 and 4640; 9 additional hours in upper-level agricultural economics courses; 6 hours in supporting agriculture courses.

International Agriculture Minor. AGEC 1010, 1020, 3860 and 4880; 6 additional hours in upper-level agricultural economics courses; 3 hours in foreign culture or language; 6 hours in supporting agriculture courses.

Natural Resource Economics Minor. AGEC 1020, 3750, 4700, 4720; choose 9 additional hours from: AGEC 4450, 4600, 4710, ECON 2400, 4400, 4410, 4520 (note: College of Business prerequisites), ENR 4500.

General Agricultural Economics Minor. AGEC 1010, 1020 and 15 additional hours in agricultural economics courses with 12 hours at the upper-level; 6 hours in supporting agriculture courses.

Graduate Study

The Department of Agricultural and Applied Economics offers graduate work leading to the Master of Science degree. Students may choose among major options in the areas of agricultural and applied economics and agricultural business. The Plan A agricultural economics major emphasizes research with any of the following focus areas:

production economics and management, marketing and market analysis, resource and environmental economics, international agriculture, and economic and rural development.

The Plan B agricultural business option offers advanced skills to students who desire professional careers in the business sector. Students in the agricultural business option may concentrate their coursework and writing in management, marketing, or finance. Dual majors in water resources, and environment and natural resources are also offered.

Finally, the Department offers a graduate minor in applied economics. This program is for currently enrolled graduate students in other disciplines seeking a foundation in economics as well as their major discipline.

Program Specific Admission Requirements

Undergraduate major in agricultural economics or economics is not required.

Students may be required to complete program prerequisite courses, without graduate credit, that were not completed in their undergraduate education.

Specifically, students who have not completed at least one course in calculus, statistics, and intermediate microeconomic theory may be required to complete these courses without graduate credit during their first semester in residence.

Program Specific Degree Requirements

Master of Science in Agricultural Economics

The following courses constitute the M.S. in Agricultural Economics core requirements and are required of all Plan A candidates (22 hours).

Economic Theory

AGEC 5310 Theory of Producer Behavior...3

AGEC 5630 Advanced Natural Resource Economics3

AGEC 5710 Advanced Agricultural Market Theory3

AGEC 5740 Theory of Consumer Behavior3

Quantitative Methods

AGEC 5230 Intermediate Econometric Theory3

AGEC 5320 Quantitative Methods in Agricultural Economics.....3

Research

AGEC 5650 Communicating Research.....3

AGEC 5880 Advanced Seminar.....1

Plan A (thesis):

Minimum of 30 credit hours including AGEC M.S. core requirements, thesis hours and electives. No more than three hours of AGEC coursework numbered below 5000-level count toward the 30 hour requirement. Achieve a cumulative 3.000 GPA in the AGEC M.S. core requirements. The student's graduate committee, nominated by the major professor, the student, and the department head determine the final program of study and thesis research topic. Presentation of research results at a formal public seminar. Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Plan B (non-thesis):

Minimum of 32 hours of coursework; Non-thesis business analysis paper accepted by the student's graduate committee. Minimum of 13 credit hours of agricultural economics coursework numbered at the 5000-level are required, including:

- AGEC 5310
- AGEC 5740
- AGEC 5880
- AGEC 5630 or 5710
- AGEC 5320 or 5230

In addition, students are required to complete 3 credit hours from each of the following three areas:

Management:

- AGEC 4060, 4640 or 5460; or MGT 4410, 4420, 4440, 4470, or 4520

Marketing:

- AGEC 4050, 4830, 4840, 4880, or 5710; or MKT 4240, 4430, 4520, or 4540

Finance:

- AGEC 4500; or FIN 4510, 4520, 4610, 4810; or ECON 4740

Remaining credit hours will be filled with electives. The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic. Presentation of the business analysis paper at a formal public seminar. An internship experience is strongly encouraged as part of the agricultural business option (AGEC 5990).

Master of Science in Agricultural Economics/ Water Resources; Plan A (thesis):

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 10 credit hours in water resources approved courses. Please refer to Water Resources Degree program in this Catalog for updated degree requirements. Achieve a cumulative 3.000 GPA in the AGEC M.S. core requirements. The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the water resources area. Presentation of research results at a formal public seminar. Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Master of Science in Agricultural Economics/Environment and Natural Resources (ENR); Plan A (thesis):

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 15 credit hours in environment and natural resources, as approved by the student's committee and the ENR academic adviser. Achieve a cumulative 3.000 GPA in the AGEC M.S. core requirements. The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the area of environment and natural resources. Presentation of research results at a formal public seminar. Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Graduate Minor in Applied Economics:

Graduate standing. AGEC 4640, AGEC 5310 or 5740, AGEC 5320 or 5230, and 6 additional credits of approved courses. Committee selection for the student's major thesis or dissertation committee should include at least one faculty member from AGEC.

Department of Animal Science

Animal Science/Molecular Biology Bldg., Rm 101

(307) 766-2224

FAX: (307) 766-2355

Web site: uwyo.edu/anisci

Department Head: Bledar Bisha

Professors:

BRENDA M. ALEXANDER, B.S. University of Wyoming 1986; M.S. 1988; Ph.D. 1999; Professor of Animal Science 2019, 2006.

SCOTT L. LAKE, B.S. University of Nevada 1998; M.S. 2001; Ph.D. University of Wyoming 2005; Professor of Animal Science 2021, 2014, 2008. Extension Livestock Specialist. Director of Laramie R&E Center.

JAMES K. PRU, B.S. 1991 and M.S. 1993 Zoology and Physiology, University of Wyoming; Ph.D. Molecular Reproductive Biology University of Wyoming 2000; Professor and Rochelle Chair of Animal Science 2021.

Associate Professors:

BLENDAR BISHA, D.V.M. Agricultural University of Tirana-Albania 1999; M.S. Iowa State University 2004; Ph.D. 2009; Associate Professor of Animal Science 2019, 2013.

PAUL A. LUDDEN, B.S. University of Nebraska-Lincoln 1991; M.S. Purdue University 1994; Ph.D. University of Missouri-Columbia 1997; Associate Professor of Animal Science 2004, 1998.

WARRIE J. MEANS, B.S. Colorado State University 1979; M.S. 1982; Ph.D. 1985; Associate Professor of Animal Science 2002, 1992.

STEVEN I. PAISLEY, B.S. University of Wyoming 1993; M.S. 1995; Ph.D. Oklahoma State University 1998; Extension Beef Cattle Specialist; Associate Professor of Animal Science 2007, 2001. Director of SAREC R&E Center.

Assistant Professors:

JEREMY BLOCK, B.S. University of Missouri 1998; M.S. University of Florida 2003; Ph.D. 2007; Assistant Professor of Animal Science 2020.

HANNAH C. CUNNINGHAM-HOLLINGER, B.A. St. Olaf College 2012; M.S. University of Wyoming 2014; Ph.D. 2018; Assistant Professor of Animal Science 2019.

CODY GIFFORD, B.S. 2013, M.S. 2016; Ph.D. Colorado State University 2019; Assistant Professor of Animal Science 2019.

SHELBY ROSASCO, B.S. California State University 2012; M.S. New Mexico State University 2016; Ph.D. New Mexico State University 2020; Assistant Professor of Animal Science 2020.

WHIT STEWART, B.S. Brigham Young University-Idaho 2008; M.S. Oregon State University 2010; Ph.D. New Mexico State University 2015; Assistant Professor of Animal Science 2017.

Academic Professional Lecturers:

JENNIFER A. INGWERSON-NIEMANN, B.S. University of Nebraska-Lincoln 2005; M.S. Iowa State University 2014; Academic Professional Lecturer in Animal Science 2014.

McKENSIE K. PHILLIPS, B.S. University of Wyoming 2015; M.S. Texas A&M University 2017; Assistant Lecturer in Animal Science 2018.

Adjunct Professors:

Kristi Cammack, Jeff Chandler, Thomas Hansen, John Johnston, Tom McDonald, Peter Nathanielsz, Mark Nijland, Heywood Sawyer, Donal Skinner, D. Paul Thomas, Meijun Zhu

Professors Emeriti:

Ray Field, Bret Hess, Frank Hinds, Doug Hixon, Steven W. Horn, Conrad Kercher, Richard J. McCormick, Gary Moss, William Murdoch, Johannes Nel, Bibek Ray

The Department of Animal Science offers a variety of courses in animal and food science. The department uses modern laboratories and excellent animal facilities including a livestock teaching arena and a meat processing facility.

The Department of Animal Science and the Department of Veterinary Science have a combined curriculum, under Animal and Veterinary Science (ANVS). The curriculum has options in production, range livestock, business, communication, animal biology, preveterinary medicine, meat science and food technology, and equine science. The curriculum leads to a wide variety of career opportunities for animal and veterinary science graduates.

B.S. in Animal and Veterinary Science

The Department of Animal Science and the Department of Veterinary Sciences have combined their efforts to offer several degree options leading to the bachelor of science degree in animal and veterinary science. Courses in animal science, food science, and pathobiology are the core offerings in the various options. Agriculture, in its broadest definition, is the nation's largest industry. Livestock production is Wyoming's largest agricultural enterprise. Animal agriculture and its associated industries offer many opportunities for the interested student. Whether a student is interested in production livestock, allied fields such as meat science, business or animal health, or wants to apply to a college of veterinary medicine, the degree tracks offered will form the basis for a challenging career in animal agriculture/biology. The various options provide maximum flexibility to meet the changing needs of students and their employers. For students interested in pursuing advanced research, M.S. and Ph.D. degrees are offered. Several degree options allow for specialization and graduate or professional school preparation. A brief description of each option and the educational opportunities they provide is given with the course requirements. A grade of C or better must be earned in the following courses when the courses are required in the individual option for completion of the degree: ANSC 3010, 3100, 4120, 4540, 4630; FDSC 3060, PATB 4110, PATB 4111, LIFE 1010, 2022. Students are encouraged to participate in activities related to their degree option. The university has livestock, horse and meats judging teams. Each team travels and participates in at least one major exposition a year. Each year, the Academic Quadrathlon competition is held, combining practical and classroom skills for students. Field trips, as practical teaching aids in many classes, are scheduled throughout the year. Internships are available to gain practical experience. Student organizations such as the Block and Bridle Club, Food Science Club, Microbiology Club, Range Club, the Pre-vet Club, Wyoming Collegiate Cattlemens Association, and the Ranch Horse Team provide additional educational and recreational opportunities.

Production Option

This option provides a strong background in livestock production and management. Students interested in livestock production should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 2020, 3010*, 3100*, 4120*, 4540*, 4630* (COM3) and two courses selected from ANSC 3150, 4220, 4230, or 4250; FDSC 2040, 3060*; PATB 4110*

Agricultural Sciences.....

Required courses: AGECE 1020 (H), 2020; REWM 2000

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Range Livestock Option

This option emphasizes range livestock management. Students interested in the management of livestock and range resources should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 2020, 3010*, 3100*, 4120*, 4150, 4220, and one course selected from ANSC 3150, 4230, or 4250; 4540*, 4630* (COM3); FDSC 2040, 3060*; PATB 4110*

Rangeland Ecology and Watershed Management.....

Required courses: REWM 2000, 2400, 4000, 4330; LIFE 3400

Agricultural Sciences.....

Required courses: AGECE 1020 (H), 2020

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Business Option

Students desiring a strong background in business in addition to the basic courses in animal and veterinary science should enroll in this option. Graduates will be qualified for careers in the livestock agribusiness industry.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 2020, 3010*, 3100*, 4120*, 4540*, 4630* (COM3) and two courses selected from ANSC 3150, 4220, 4230, or 4250; FDSC 3060*; PATB 4110*

Agricultural Economics and Business.....

Required courses: AGECE 1010 (H), 1020 (H), 3860 or 4880; AGECE 4060 or MGT 3210; AGECE 4050 or MKT 3210; ACCT 2010

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Communication Option

Students in this option obtain a basic education in animal and veterinary science and also acquire in-depth communication skills. Students interested in careers in agriculture communications with emphasis on the livestock industry should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses:

ANSC 1010, 2020, 3010*, 3100*, 4120*, 4540*, 4630* (COM3) and two courses selected from ANSC 3150, 4220, 4230, 4240, or 4250; FDSC 3060*; PATB 4110*

Communication.....

Required courses: COMM 2010* (COM2), plus 14 additional credit hours in COJO/COMM

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Animal Biology Option

This option within the major requires more complete and stringent basic sciences. Students may complete premedical requirements or other pre-professional allied health requirements while completing a B.S. degree that prepares them for alternate career choices. Selected courses provide opportunity for more complete exposure in both biological sciences and pathobiology. Possible alternatives to professional schools include graduate school admission or employment by

government or industry in research, promotion or sales. Because of the variation in pre-professional requirements for different professional programs, students are encouraged to determine the specific requirements of the programs in which they are interested.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 3010*, 3100*, 4120*, 4630* (COM3); FDSC 3060*

Agricultural Sciences.....

Required courses: MICR/ MOLB 2021 or 2240; MOLB 3610; MOLB 4100 or MOLB 4600 and 4610

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1020 (PN), 1030 (PN), 2300 or CHEM 2420 and 2440; PHYS 1050 or PHYS 1110 and PHYS 1120; ZOO/PSYC 3600; MATH 1400 (Q) and 1405 (Q) or MATH 1450 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Meat Science and Food Technology Option

Students taking this option will have an excellent background for entering the meat industry. The food industry is the largest employer in this country and offers a wide variety of career opportunities.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 3010*, 3100*, 4050, 4630* (COM3); PATB 4110*

Food Science.....

Required courses: FDSC 1410, 2040, 3060*, 3062, 3063, 3720, 4090, 4100, 4900

Agricultural Sciences.....

Required courses: AGECE 1020 (H), AGECE 3860, MICR/MOLB 2021

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN); CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); Stat 2050 (Q) or 2070 (Q)

Suggested courses.....

FDSC 3061

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Pre-Veterinary Medicine Option

This option is especially designed to prepare students for application to colleges of veterinary medicine. There is a strong emphasis on the biological, biomedical and physical sciences. This curriculum is also appropriate for students wishing to pursue graduate school opportunities, other professional school applications, or careers in many areas of agribusiness. A minimum of three years of formal course work is required before one can apply to a college of veterinary medicine. Students accepted before completion of their B.S. degree can transfer credits back to UW to complete their degree requirements. Wyoming does not have a college of veterinary medicine. Faculty advisers insure that students meet the variable preveterinary requirements for application to colleges of veterinary medicine in their home state or region.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 3010*, 3100*, 4120*; one course selected from ANSC 3150, 4220, 4230, or 4250; ANSC 4630* (COM3) or PATB 4130* (COM3); PATB 4110*, 4500, 4710, PATB/MOLB 4400

Agricultural Sciences.....

Required courses: MICR/MOLB 2021, MICR/PATB 2220; MOLB 3610

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1020 (PN), 1030 (PN), 2420, 2440; PHYS 1110, 1120; MATH 1400 (Q) and 1405 (Q) or MATH 1450 (Q); STAT 2050 (Q) or 2070 (Q)

Suggested courses.....

ANSC 4050, 4132, 4150, 4260, 4540; FDSC 3060; PATB 4001, 4130, 4170, 4360; ANSC/PATB 4111

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Equine Science Option

This option provides a strong background in equine production and management. Students interested in equine should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 1030, 3010*, 3100*, 3150*, 3250, 4120, 4132, 4250*, 4540*, 4630* (COM3); ANSC/ PATB 4111*; FDSC 3060*

Agricultural Sciences.....

Required courses: AGECE 2020; REWM 2000

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Agriculture Education with Concentration in Animal and Veterinary Science

This program consists of 128 total hours. Minimum 2.750 cumulative GPA and minimum 2.500 content GPA required. This major will be advised in the College of Education with a secondary adviser in Animal Science. Refer to the College of Education for specific curriculum requirements.

Undergraduate Minors

The Departments of Animal Science and Veterinary Sciences offers two minors: a minor in animal and veterinary science for non-majors and a minor in Equine Science.

Animal and Veterinary Science Minor

The courses required for this minor must be taken for a letter grade and the student must receive a grade of C or better in each course. Courses required are: ANSC 3010, 3100, 4120, 4540; FDSC 3060; PATB 4110 and at least one of the following: ANSC 3150, 4220 or 4230. The Department of Animal Science may be contacted by students needing assistance or having questions.

Equine Science Minor

The courses required for this minor must be taken for a letter grade and the student must receive a grade of C or better in each course. Courses required are: ANSC 1030, 3150, 3250, ANSC/PATB 4111 (12 credit hours), and a minimum of 3 courses (minimum of 8 credits) chosen from ANSC 2020, 3555, 3560 (max 3 credits allowed), 4132, 4250. The Department of Animal Science may be contacted by students needing assistance or having questions.

Graduate Study

The Departments of Animal Science and Veterinary Science offer programs leading to the M.S. (Plan A and Plan B) and Ph.D. degrees in animal and veterinary science. A M.S. degree in food science and human nutrition is offered in cooperation with the Department of Family and Consumer Sciences. The Department of Animal Science also participates in the interdisciplinary M.S./Ph.D. The Department of Animal Science also participates in the interdisciplinary M.S./Ph.D. Biomedical Science. Program.

Program Specific Degree Requirements

Master's Program - Plan A (thesis)

The student, major professor, and graduate committee determine the program of study and research project, which meets the needs of the individual student. The candidate's graduate committee should be established and functioning by the time the student has completed 12 semester hours of formal coursework. The master of science program should be approved and filed by the end of the student's second semester of graduate study in animal science. This committee shall also determine if the student is making satisfactory progress to be advanced to a candidate for a master's degree or continued in a doctoral program by the end of the student's third semester following matriculation. The student can specialize in breeding, food science and human nutrition, nutrition, physiology, meat science, reproduction or wool for coursework and thesis/dissertation project. In addition, supporting coursework is available in agricultural economics, biochemistry, microbiology, range management, genetics, statistics, and other areas of interest to the individual. In certain cases it is possible to develop a joint research project between animal science and another department. Students may use the research facilities and herds of beef cattle, sheep, and swine at the university livestock center near the university or at one of the university research and extension centers in the state. Research laboratories are located on campus and include a modern meat processing facility. The Thesis program is a 30 hour program, 26 hours of coursework and 4 hours of thesis research.

Master's Program - Plan B (non-thesis)

The Non-thesis program requires a coursework-intensive, non-thesis master of science program for those students whose career paths may not require a thesis research program. The program requires 32 hours of coursework in addition to an acceptable non-thesis research paper as defined by the student's graduate committee.

Doctoral Program

The program requires 72 hours. Students must follow minimum graduate requirements.

Food Science

Food science is the application of basic sciences to the processing, quality control, storage, distribution and consumer use of food products. The microbiological, chemical and physical characteristics of foods as related to food processing and product quality are studied. Major emphasis is placed in the area of animal food products.

Department of Ecosystem Science and Management

2013 Agriculture Building
(307) 766-2263
FAX: (307) 766-6403

Web site: uwo.edu/esm
Department Head: Scott N. Miller

Professors:

JEFFREY L. BECK, B.S. Brigham Young University 1993; M.S. 1996; Ph.D. University of Idaho 2003; Professor of Rangeland Ecology and Watershed Management 2018, 2007.

THIJS KELLEENERS, B.S. Wageningen University, The Netherlands 1988; M.S. 1993; Ph.D. 2001. Professor of Soil Science 2018, 2012.

SCOTT N. MILLER, B.S. Brown University 1991; M.S. University of Arizona 1995; Ph.D. 2002; Professor of Rangeland Ecology and Watershed Management 2017, 2002.

VIRGINIA B. PAIGE, B.A. Colorado College 1984; M.S. University of Massachusetts 1992; Ph.D. University of Arizona 2000; Professor Rangeland Ecology and Watershed Management 2019, 2004.

SCOTT R. SHAW, B.S. Michigan State University 1977; M.S. University of Maryland 1981; Ph.D. 1984; Professor of Entomology 1998, 1989.

PETER D. STAHL, B.S. Oklahoma State University 1978; M.S. University of Wyoming 1982; Ph.D. 1989; Professor of Restoration Ecology 2009, 2000; Director, Wyoming Reclamation and Restoration Center.

TIMOTHY R. COLLIER, B.S. University of California-Riverside 1987; Ph.D. University of California-Santa Barbara 1994; Associate Professor of Entomology 2008, 2002.

KRISTINA HUFFORD, B.A. University of California-Berkeley 1993; Ph.D. University of Georgia 2001; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

MELANIE MURPHY, B.S. University of Idaho 1998; M.S. 2001; Ph.D. Washington State University 2008; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

MENGQIANG ZHU, B.E. North China Electric Power University 2002; M.S. Chinese Academy of Sciences 2005; Ph.D. University of Delaware 2010; Associate Professor of Soil and Environmental Biogeochemistry 2019, 2013.

Associate Professors:

DAVID CHRISTIANSON, B.S. Montana State University 2003; Ph.D. 2008; Assistant Professor of Rangeland Ecology and Watershed Management 2019.

TIMOTHY R. COLLIER, B.S. University of California-Riverside 1987; Ph.D. University of California-Santa Barbara 1994; Associate Professor of Entomology 2008, 2002.

KRISTINA HUFFORD, B.A. University of California-Berkeley 1993; Ph.D. University of Georgia 2001; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

MELANIE MURPHY, B.S. University of Idaho 1998; M.S. 2001; Ph.D. Washington State University 2008; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

J. DEREK SCASTA, B.S. Texas A&M University 2004; M.S. 2008; Ph.D. Oklahoma State University 2014; Assistant Professor of Rangeland Ecology and Watershed Management 2014.

LINDA VAN DIEPEN, B.S. Hogeschool IJsselland, Deventer 1999; M.S. Wageningen University 2002; Ph.D. Michigan Technological University 2008; Assistant Professor of Soil Microbiology 2015.

KAREN L. VAUGHAN, B.S. University of Delaware-Newark 2001; M.S. University of Maryland-College Park 2004; Ph.D. University of Idaho-Moscow 2008; Assistant Professor of Pedology 2015.

MENGQIANG ZHU, B.E. North China Electric Power University 2002; M.S. Chinese Academy of Sciences 2005; Ph.D. University of Delaware 2010; Associate Professor of Soil and Environmental Biogeochemistry 2019, 2013.

Assistant Professors:

FABIAN NIPPGEN, M.S. Albert-Ludwigs University 2007; Ph.D. Montana State University 2014; Assistant Professor of Rangeland Ecology and Watershed Management 2017.

KEVIN WILCOX, B.S. Central Washington University 2008; Ph.D. Colorado State University 2015; Assistant Professor of Rangeland Ecology and Watershed Management 2018.

Academic Professionals:

SCOTT SCHELL, B.S. University of Wyoming 1991; M.S. 1994; Senior Extension Entomologist 2005, Associate Research Scientist 2009.

Adjunct Professors:

Justin Derner, Jack Morgan, Brenda Schladweiler, Gerald Schuman, Nancy Shaw, Ramesh Sivanpillai

Professors Emeriti:

Ann Hild, Alexandre Latchininsky, David Legg, Larry Munn, Richard Olson, Katta Reddy, J. Daniel Rodgers, Quentin Skinner, Michael Smith, Peter Stahl, John A. Tanaka, George Vance, James Waggoner, James Wangberg, Thomas Wesche, Stephen Williams

Degrees Offered

Major

- Rangeland Ecology and Watershed Management, B.S.

Minor

- Forest Resources Minor
- Insect Biology Minor
- Rangeland Ecology and Watershed Management Minor
- Reclamation and Restoration Ecology Minor
- Soil Science Minor

Graduate

- Ecosystem Science and Management/Applied Economics, Ph.D.
- Entomology, M.S.
- Entomology, Ph.D.
- Insect Biology/Entomology Graduate Study Minor
- Rangeland Ecology and Watershed Management, M.S.
- Rangeland Ecology and Watershed Management, Ph.D.
- Soil Science, M.S.
- Soil Science, Ph.D.

Certificate

- Reclamation/Restoration Ecology Graduate Certificate

Undergraduate Study

The Department of Ecosystem Science and Management offers a Bachelor of Science degree in Rangeland Ecology and Watershed Management. This degree can also be obtained as an affiliate degree in conjunction with the School of Environment and Natural Resources. Five minor degree programs are offered through the department: Insect Biology, Rangeland Ecology and Watershed Management, Soil Science, Forest Resources, and Reclamation and Restoration Ecology. Obtaining a minor to complement a B.S. major degree program provides credentials and knowledge that can expand career opportunities.

The degree programs reflect the department's diverse expertise in natural resource and agriculture sciences. Students completing degrees offered through the department are well prepared for careers in natural resource management and sustainable agriculture (e.g., range management, watershed management, restoration ecology/reclamation of degraded land, wildlife habitat management, biocontrol/ integrated pest management, soil science and various types of environmental consulting) or other science careers.

Student Learning Outcomes

The goal of the Department of Ecosystem Science and Management is to provide students with comprehensive knowledge in several different areas in addition to their specific area of study. These expectations ensure that students may take these learned skills and successfully apply them in their post-graduate endeavors. Assessments in all areas are based on knowledge, skills, and attitude.

These areas include:

Oral communication encompasses all the abilities necessary for effective expression and sharing of information, ideas, and feelings in a format including verbal and nonverbal symbols.

Proficiency in written communication will ensure that students will be able to write for different audiences, from expressive writing to technical writing, using a range of sophistication in language.

Professional behavior involves attaining high standards of behavior and appropriate attitudes, not only through acquiring knowledge and experience but a lifelong commitment to learning and achievement.

Competency in critical thinking and problem-solving will enable students to engage in reasonable, reflective thinking focused on deciding what to believe or do.

Computer and information literacy ensures that students will be viewed as trainable and adaptable in a computerized work environment. Proficiency in this area also enables students to effectively access online information, and skillfully make use of it.

The results in these different areas will aid the department in:

- Planning instructional strategies to address student strengths and weaknesses;
- Evaluating and describing overall student achievement;
- Counseling students for academic and career options; and
- Evaluating the effectiveness of instructional programs.

Graduate Study

The Department of Ecosystem Science and Management is an interdisciplinary department made up of five disciplinary areas: entomology, rangeland ecology, soil sciences, agroecology, and watershed management. The department offers master of science and doctor of philosophy degrees in entomology, rangeland ecology and watershed management, and soil science. A water resources dual major may be obtained in conjunction with each of these master's degrees. For the rangeland ecology and watershed management degrees, thesis and dissertation problems may be developed in aspects of range ecology, wildlife habitat, reclamation of disturbed lands, watershed management, utilization and improvement of rangelands, and many other facets of range and forest ecology management. For the entomology degrees, thesis and dissertation problems may be developed in many areas of basic and applied aspects of insect ecology. For soil degrees, thesis and dissertation problems may be developed in many basic and applied aspects of soil science. The degree programs reflect the department's diverse expertise in natural resource and agriculture sciences. Students completing degrees offered through the department are well prepared for careers in natural resource management and sustainable agriculture (e.g., range management, watershed management, restoration ecology/reclamation of degraded land, wildlife habitat management, biocontrol/integrated pest management, soil science, and various types of environmental consulting) or other science careers. A graduate certificate in reclamation and restoration ecology may be obtained after completion of a B.S. degree or in conjunction with an M.S. or Ph.D. degree.

Program Specific Admission Requirements

Admission is contingent upon a faculty member being willing to assume responsibility for working with the student as an adviser.

Applicants are encouraged to initiate correspondence with faculty who share similar research interests as part of the process of securing faculty advising commitment.

In special circumstances, and with the faculty adviser's support, a student may be admitted in a provisional status with continued enrollment dependent upon meeting performance requirements specified at the time of admission.

Program Specific Graduate Assistantship Information

Current graduate assistantship availability, subject of study, and remuneration can be determined by checking: www.uwyo.edu/esm. Prospective students are also encouraged to directly correspond about future opportunities for graduate assistantships with faculty that share similar research interests.

Courses of instruction in the department are offered in entomology, rangeland ecology and watershed management, renewable resources, and soil science.

Environment and Natural Resources Affiliate Degrees

The Bachelor of Science degree in Rangeland Ecology and Watershed Management offered through the Ecosystem Science and Management Department may also be obtained as an affiliate degree with the School of Environment and Natural Resources (i.e., the degree titles would be Environment and Natural Resources/Rangeland Ecology and Watershed Management). The additional coursework requirements necessary for obtaining an affiliate degree are described in the School of Environment and Natural Resources section of this publication.

Interdisciplinary Programs

Water Resources (WARE)

College of Agriculture and Natural Resources

Department of Ecosystem Science and Management

2013 Agriculture Building

Phone: (307) 766-4274

E-mail: snmiller@uwyo.edu

Web Address: www.uwyo.edu/ware/

Program Director: Scott N. Miller

M.A. or M.S. in (Program Name)/Water Resources

Academic departments across the university cooperate to provide master of arts or master of science degree programs that contain multidisciplinary training in water resources. The master's degree offered through these affiliations is awarded as a major with each of the sponsoring department's graduate programs. The water resources interdisciplinary major will be acknowledged on the graduate transcript and thereby certify to potential employers that the candidate has completed an in-depth multidisciplinary course program in the broad area of water resources.

The educational underpinnings of this program include the following: The purpose of the program is to provide multidisciplinary education and to impart a multidisciplinary perspective to candidates. Training is to be consistent with the rigor of professional water resources demands. The interdisciplinary major program is flexible so as to meet the candidates' individual professional objectives.

Primary responsibility for student guidance and graduate program formulation resides with the sponsoring department and sponsoring major professor. Please refer to latest updated information on the website listed above. Upon acceptance to the program, the sponsoring department must assign a member of the Water Resources Curriculum Committee to the candidate's graduate committee. The Water Resources Curriculum Committee's representatives on the candidate's graduate committee shall aid in formulating deficiency requirements, course program design, academic performance criteria, and research objectives throughout the candidate's tenure in the program.

Program Specific Admission Requirements

University application and fee; Application fee is valid for three years; Official documentation indicating bachelor's degree earned (not necessary if UW is the most recent institution attended); Potential candidates are encouraged to apply for admission to this program by contacting the participating department and by specifying at the initiation that they desire admission to the water resources interdisciplinary major. Their credentials will be evaluated by the sponsoring department and the department recommends admission of the individual into the program to the UW Admissions office.

Program Specific Degree Requirements

The academic program of study undertaken by the candidate must be designed to enhance the student's background and expertise through formal graduate-level coursework in the areas of: (1) technical hydrology, (2) natural resources economics and/or law, and (3) water quality. To ensure a minimum multidisciplinary character, the course program must contain nine hours of coursework with at least 3 hours from each of the aforementioned areas and at least 6 of those credit hours must be from outside the student's sponsoring department, along with a 1 credit hour seminar on water resources organized through the Department of Ecosystem Science and Management. Only Plan A master's degree programs, which require the writing of a thesis in the water resources area, are acceptable for the water resources degree option.

Each student in the water resources interdisciplinary major program will be required to complete this course once during their graduate program. As part of the requirements for the seminar: (a) students will be required to present a seminar on a current water resource issue in Wyoming and to develop an executive summary of their issue to distribute to class participants. Each student is also required to participate in a discussion group following each seminar which stresses the interdisciplinary nature of the issue; (b) during the course of a student's graduate program, he/she will be required to present one seminar for the seminar series (preferably on some aspect of their thesis research). This presentation does not have to occur during the semester that the student is officially signed up for seminar credit.

WARE Degree Programs

Majors

- Agricultural Economics/Water Resources, M.S. (Department of Agricultural and Applied Economics)
- Civil Engineering/Water Resources, M.S. (Department of Civil and Architectural Engineering)
- Entomology/Water Resources, M.S. (Department of Ecosystem Science & Management)
- Geology/Water Resources, M.S. (Department of Geology and Geophysics)
- Geophysics/Water Resources, M.S. (Department of Geology and Geophysics)
- Rangeland Ecology and Watershed Management/Water Resources, M.S. (Department of Ecosystem Science & Management)
- Soil Science/Water Resources, M.S. (Department of Ecosystem Science & Management)
- Water Resources, M.A.
- Water Resources, M.S.

Additional Interdisciplinary Degree Programs

- Ecology, Ph.D. (Program in Ecology, PiE)
- Hydrologic Sciences, Ph.D. (WRESE)

Department of Family and Consumer Sciences

251 Agriculture Building, (307) 766-4145

FAX: (307) 766-5686

Web site: www.uwyo.edu/fcs

Department Head: Christine Wade

Associate Professors:

JENNIFER HARMON, B.S. Illinois State University 2009; M.S. The Ohio State University 2013; Ph.D. 2014; Associate Professor, Design, Merchandising, and Textiles 2021, 2015.

ERIN IRICK, B.S. Kansas State University 2000; M.S. 2006; Ph.D. Oklahoma State University 2013; Associate Professor, Design, Merchandising, and Textiles 2019, 2013.

JILL KEITH, B.S. North Dakota State University 2000; M.S. Capella University 2009; Ph.D. North Dakota State University 2016; Associate Professor, Human Nutrition and Food/Dietetics 2022, 2016.

ALYSSA McELWAIN, B.A. Kansas State University 2006; M.S. Purdue University 2008; Ph.D. Auburn University 2015; Associate Professor, Human Development and Family Sciences 2021, 2015.

BERNARD STEINMAN, B.A. University of Washington 1991; M.S. Mississippi State University 2004; Ph.D. University of Southern California 2010; Associate Professor, Human Development and Family Sciences 2022, 2015.

CHRISTINE WADE, B.S. Willamette University 2001; M.S. University of Wyoming 2005; Ph.D. 2008; Associate Professor, Human Development and Family Sciences 2015, 2008

Assistant Professors:

GRACE SHEARRER, B.S. University of Wyoming 2012; Ph.D. University of Texas at Austin 2016. Assistant Professor, Human Nutrition and Food/Dietetics 2020.

Academic Professionals:

SARAH LEE, B.A. and M.S. University of Wyoming 1981; 1996; Assistant Lecturer, Human Development and Family Sciences 2020.

MEGAN McGUFFEY SKINNER, B.S. University of Wyoming 2010; M.H.S. Boise State University 2014; Assistant Lecturer and Director, Didactic Program in Nutrition and Dietetics 2019.

TREVA SPROUT AHRENHOLTZ, B.S. 1993, 1997 University of Wyoming; M.S. 1995; Associate Lecturer, Design, Merchandising, and Textiles 2013, 2005.

Professor Emeritus:

Donna Brown, Bruce Cameron, Saul Feinman, Michael Liebman, Judith A. Powell, Rhoda Schantz, Virginia Vincenti, Mary Kay Wardlaw, Randolph R. Weigel, Karen Williams

Department Information

Our mission is to enhance the physical, social, and economic well-being of individuals, families, and communities, emphasizing healthy and sustainable living across the lifespan. We fulfill our mission through instructional, research, and outreach/extension efforts that challenge, motivate, and inspire.

Family and Consumer Sciences integrates the fundamental components of human life—food, shelter, clothing, human relationships, and family—with larger societal systems. Through programs in textiles, apparel and design; food and

nutrition; and human development and family sciences, our department prepares learners to meet the opportunities and challenges of today's complex world.

All students pursuing the Bachelor of Science degree in Family and Consumer Sciences are required to complete a minimum of 120 credit hours that include a) University Studies requirements (USP); b) departmental core curriculum; and c) courses in one of the following concentrations: dietetics (application only), human nutrition and food, human development and family sciences, professional child development (online only), or one of the three career tracks in design, merchandising and textiles. Minors in apparel design, human development and family sciences, human nutrition, and interior design are also available.

Grade Requirements

Majors are required to pass all courses within the Department of Family and Consumer Sciences with a letter grade of C or above. Students enrolled in family and consumer sciences minors are required to complete each course for the minor with a letter grade of C or above.

Security Screening

All students applying for admission to the Professional Child Development concentration are required to complete a security screening before program entry. Students in the Human Development and Family Sciences concentration must complete their security screening upon declaration of their major. Failure to satisfactorily complete this requirement will result in the student being dropped from or denied entry to the program.

Family and Consumer Sciences Core Requirements

A core curriculum is required of all family and consumer sciences majors. This requirement is based on a common body of knowledge in family and consumer sciences which contains concepts relevant to all concentrations.

(Please click on link to review core requirements for [all](#) undergraduate majors).

Family and Consumer Sciences Core Requirements

Family and Consumer Sciences Student Learning Outcomes

Students graduating from the Department of Family and Consumer Sciences will be proficient in their concentration content as well as be able to effectively communicate (both written and orally), possess intellectual skills (such as critical and creative thinking and problem solving), and demonstrate appropriate levels of professionalism.

Family and Consumer Sciences Concentrations

Undergraduate majors must declare a concentration and follow its specific degree plan. Standards established by several professional organizations require completion of specific courses in addition to the family and consumer sciences core and USP requirements. All students are assigned to a professional advisor and a faculty mentor. Students should work closely with their advisor to be sure all degree requirements are met. All concentrations are listed below.

Family and Consumer Sciences Minors

Required courses in all Family and Consumer Sciences minors must be taken for a letter grade and completed with a grade of C or above. All minors are listed below.

Graduate Study

The Department of Family and Consumer Sciences offers a program of graduate study leading to a Master of Science in Family and Consumer Sciences with an emphasis in human development and family sciences; human nutrition and food; or design, merchandising and textiles. The department also participates in an interdisciplinary degree in Food Science and Human Nutrition.

Department of Molecular Biology

Department of Molecular Biology

203 Animal Science/Molecular Biology Bldg.

(307) 766-3300

Web site: www.uwyo.edu/MolecBio/

Department Chair: Jesse "Jay" Gatlin

Modern biology is based on a fundamental understanding of molecular processes essential in living organisms. Recent advances in molecular biology have led to an explosion of knowledge about gene expression and the role gene products play in cell function. Undergraduate programs in molecular biology offer learning opportunities at the forefront of modern biology.

The molecular biology degree programs are designed to prepare students for the future by combining a foundation in basic sciences and humanities with a broad selection of courses in molecular biology, biochemistry, genetics and microbiology. Advanced undergraduates attend an outside speaker's program that includes some of the world's best-known scientists. Modern, well-equipped teaching and research laboratories contribute significantly to the educational experience of a student. All junior- and senior-level undergraduates are encouraged to participate in research projects with individual faculty members. Involvement in an active research program provides the student with an additional dimension of learning beyond what is assimilated in courses. A student learns to plan experiments, solve technical problems and experience scientific advances first hand. An undergraduate research project also promotes close interaction between the undergraduate and graduate students, postdoctoral researchers, staff and faculty.

Many molecular biology majors continue their education beyond the bachelor's level by going to graduate school or to medical, dental or veterinary school. Some students choose to use their education to gain employment in biotechnology, clinical or basic research laboratories. Other career choices include teaching, medical technology, law and business. In addition, the Department of Molecular Biology offers the Ph.D., M.S. and M.A. degrees for students who wish to do graduate work in molecular biology, in preparation for careers in academia, the biotechnology and biopharmaceutical industry, medicine, or other professions.

Professors

DAVID FAY, B.S. Tufts University 1988; Ph.D. Yale University 1995; Professor of Molecular Biology 2010, 2001.

JESSE "JAY" C. GATLIN, B.S. University of Colorado-Boulder 1995; Ph.D. University of Colorado-Aurora 2005; Professor of Molecular Biology 2021, 2010.

MARK GOMELSKY, B.S. Moscow Institute of Chemical Technology 1986; M.S. 1988; Ph.D. Institute of Genetics and Selection of Industrial Microorganisms 1991; Professor of Molecular Biology 2011, 1999.

DONALD L. JARVIS, B.S. Idaho State University 1978; M.S. 1980; Ph.D. Baylor College of Medicine 1986; Professor of Molecular Biology 2000, 1998.

DANIEL L. LEVY, B.S. California Institute of Technology 2000; Ph.D. University of California San Francisco 2006; Professor of Molecular Biology 2021, 2011.

DANIEL WALL, B.A. Sonoma State University 1988; Ph.D. University of Utah 1994; Professor of Molecular Biology 2018, 2007.

CYNTHIA WEINIG, B.A. Brown University 1991; Ph.D. Indiana University 1999; Professor of Botany and Molecular Biology 2013, 2007.

Associate Professors

GRANT BOWMAN, B.S. University of Rochester 1997; Ph.D. University of Chicago 2004; Associate Professor of Molecular Biology 2019, 2012.

JASON GIGLEY, B.S. University of New Hampshire 1994; Ph.D. Dartmouth Medical School 2007; Associate Professor of Molecular Biology 2019, 2012.

PAMELA J. LANGER, B.S. Indiana University-Bloomington 1973; Ph.D. Massachusetts Institute of Technology 1980; Associate Professor of Molecular Biology 1994, 1987.

Assistant Professors

THOMAS BOOTHBY, B.S. Tulane University 2008; Ph.D. University of Maryland 2013; Assistant Professor of Molecular Biology, 2019.

EUNSOOK PARK, M.S. Seoul National University 2001; Ph.D. University of Tennessee, Knoxville 2010; Assistant Professor of Molecular Biology 2019.

TODD SCHOBORG, B.S. Murray State University 2008; Ph.D. University of Tennessee 2013; Assistant Professor of Molecular Biology, 2019.

Associate Lecturer

BRIDGET DECKER, B.S. Colorado State University 1998; Ph.D. Dartmouth College 2006; Associate Lecturer Molecular Biology, 2021, 2015.

Assistant Lecturer

KASSANDRA WILLINGHAM, B.S. University of Wyoming 2010, B.S. University of Wyoming-Casper 2017; M.S. Colorado State University 2016; Assistant Lecturer Molecular Biology 2020.

Instructional Teaching Laboratory Coordinator

HOLLY STEINKRAUS, B.A. Ripon College 1987; Ph.D. University of Wyoming 1993; Instructional Teaching Laboratory Coordinator, 2015.

Adjunct Professor

ANNE W. SYLVESTER, B.S. University of Washington 1980; M.S. 1982; Ph.D. 1987; Professor of Molecular Biology 2010, 2006.

Professors Emeritus

Dale Isaak, Randy Lewis, Nancy Petersen, Don Roth, Mark M. Stayton, Peter E. Thorsness, Jordanka Zlatanova

Department of Plant Sciences

Room 50 Agriculture Building

PHONE: (307) 766-3103

Website: www.uwyo.edu/plantsciences

Department Head: Andrew Kniss

Professors:

JIM HEITHOLT, B.S. Western Illinois University 1978; M.S. University of Missouri 1980; Ph.D. University of Kentucky 1984; Professor of Crop Physiology 2014.

ANOWAR ISLAM, B.S. Bangladesh Agricultural University 1990; M.S. Institute of Postgraduate Studies in Agriculture, Bangladesh 1996; Ph.D. University of Sydney, Australia 2003; Professor of Forage Agronomy 2019, 2008.

ANDREW R. KNISS, B.S. University of Wyoming 2001; M.S. University of Nebraska-Lincoln 2003; Ph.D. University of Wyoming 2006; Professor of Weed Ecology and Management in Cropping Systems 2018, 2007.

URSZULA NORTON, B.S. Warsaw Agricultural University 1988; M.S. 1990; M.S. Iowa State University 1995; Ph.D. University of Montana 2000; Professor of Agroecology and Soil Science 2022, 2009.

Associate Professors:

RANDA JABBOUR, B.S. Rochester Institute of Technology 2003; Ph.D. Pennsylvania State University 2009; Associate Professor of Agroecology 2019, 2013.

BRIAN A. MEALOR, B.S. North Georgia College and State University 1999; M.S. University of Wyoming 2003; Ph.D. 2006; Director, Sheridan Research and Extension Center; Associate Professor of Rangeland Restoration and Weed Science 2015, 2009.

WILLIAM STUMP, B.S. Purdue University 1981; M.S. Colorado State University 1984; B.F.A. 1991; Ph.D. 1997; Associate Professor of Plant Pathology 2020, 2014.

Assistant Professors:

KELSEY BROCK, B.S. University of Alberta 2010; M.S. 2014; Ph.D. University of Hawai'i - Mānoa 2021; Assistant Professor, Extension Weed Specialist (Invasive Plants) 2022.

DONNA HARRIS, B.S. University of Georgia 1998; M.S. 2001; Ph.D. 2014; Assistant Professor of Plant Breeding and Genetics 2020.

Academic Professionals:

CHRIS HILGERT, B.S. Oregon State University 2001; M.S. 2003; Extension Horticulture Specialist, Master Gardener Coordinator 2011.

JENNA MEEKS, B.S. Colorado State University 2010; M.S. University of Wyoming 2016; Assistant Research Scientist 2021.

ELIZABETH MOORE, B.S. West Texas A&M University 2001; M.S. 2004; Assistant Lecturer of Horticulture and Plant Production 2021.

KAREN PANTER, B.S. Colorado State University 1979; M.S. University of Nebraska 1981; Ph.D. Colorado State University 1985; Extension Horticulture Specialist 1998; Senior Extension Educator 2012.

Emeritus/Retired Faculty:

Rollin H. Abernethy, James Cook, Ron Delaney, Mark Ferrell, Alan Gray, Robin W. Goose, Bernie Kolp, James M. Krall, Stephen D. Miller, Thomas D. Whitson, David Wilson

Plant Production and Protection Major (B.S.)

The Department of Plant Sciences offers a Bachelor of Science degree in Plant Production and Protection (Plant Production and Protection, B.S.), with four optional concentrations and four minors. Optional concentrations for Plant Production and Protection majors are:

- Agronomy
- Horticulture
- Integrated Pest Management
- Agroecology and Evolution

Minors available for students pursuing other majors at UW are: Agronomy, Agroecology, Horticulture, and Plant Protection. These minors allow students within many bachelors programs to obtain an added emphasis in areas that enjoy strong employment opportunities.

A B.S. degree in Plant Production and Protection prepares students for careers in agriculture, natural resources, environmental and life sciences and for advanced graduate studies in specific subdisciplines within these areas. It is a broad, interdisciplinary, undergraduate curriculum that combines and integrates courses in the crop, horticulture, disease, weeds, soil, and insect sciences and is supported by a science-based curriculum and general education. Flexibility is built into the curriculum to readily accommodate students seeking to pursue an emphasis or obtain a minor in a specific discipline. To that end the breadth of the curriculum is balanced with greater depth in biology, chemistry, crop science, entomology, environmental studies, natural resource management, soil science, plant pathology, weed science, horticulture, turf management, pre-veterinary medicine, rangeland ecology and watershed management, animal science, microbiology, and molecular biology. A liberal number of electives permits design of a

program that best meets individual career and educational objectives. The Plant Production and Protection program is well suited for students who possess a strong interest in, and an aptitude for, science, agriculture, the environment, life sciences, or natural resources.

The core curriculum is comprised of freshman- through senior-level courses that illustrate dynamic and complex interactions of plants, soils, and plant pests (diseases, insects, weeds) with the environment. Academic training is enhanced with experiential learning through research apprenticeships, internships, field studies, and a special Plant Sciences Capstone course. Special emphasis is given to development of critical thinking and communication skills, problem solving, and application of science. It is an interdisciplinary and highly practical degree program designed to prepare students for "real world" situations.

Plant Production and Protection B.S. degree recipients are prepared for careers with private and public institutions and agencies in such areas as: agricultural consulting, production or sales, research, product development, education, extension education, international programs, and scientific and technological support. These careers include but are not limited to: soil scientist, conservationist, entomologist, consultant, plant scientist, integrated pest management specialist, ecologist, research associate or technician, agronomist, biotechnician, and agroecologist. Degree recipients are also prepared for graduate education in biological and environmental sciences.

The combined Plant Sciences, B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. Please see additional information under the QuickStart Program section below or online at <https://www.uwyo.edu/plantsciences/graduate-studies/quickstart-program.html>.

Agronomy Minor (Agronomy Minor)

Minimum Requirements: 19 Hours

Agroecology Minor (Agroecology Minor)

Minimum Requirements: 20 Hours

Horticulture Minor (Horticulture Minor)

Minimum Requirements: 20 Hours

Plant Protection Minor (Plant Protection Minor)

Minimum Requirements: 19 Hours

Plant Production and Protection/Environment and Natural Resources Program, B.S.

(ENR and Plant Sciences)

Students interested in the environment and natural resources may choose to pursue the B.S. in Plant Production and Protection/ENR. This degree is offered in conjunction with the Haub School of Environment and Natural Resources. See the ENR Information and Advising Guide for details.

Graduate Study (M.S. and Ph.D.)

The Department of Plant Sciences offers curricula leading to the master of science and doctor of philosophy degrees in Plant Sciences. Courses within the department are offered in crop science, horticulture, plant pathology, weed science, and agronomy. Interdisciplinary coursework and research projects are common for Plant Sciences graduate students.

Program Specific Admission Requirements

In addition to university minimum requirements, a majority of the department faculty and department head must approve the admission. To be considered for admission, candidates must establish a faculty member willing to serve as advisor.

In order to apply, please submit the following via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>): a statement of purpose that describes your professional objectives and scientific interests, a current Curriculum Vitae, current academic transcripts, proof of English proficiency (if English is not your primary language) - TOEFL, IELTS, or Duolingo tests are currently accepted, and three letters of recommendation (to be submitted directly by references through the online application). Our regular deadline for fall semester admission is February 15, although we will accept applications any time during the year (including for spring semester admission as well).

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information, or visit UW's Graduate Education website at <http://www.uwyo.edu/uwgrad/>.

Program Specific Graduate Assistantship Information

M.S. assistantships include a stipend, plus tuition and fee waiver, and health insurance. Ph.D. assistantships include a stipend, plus tuition and fee waiver, and health insurance. These assistantships are for the 9-month academic year, but summer support is typically available.

Program Specific Degree Requirements

Master of Science in Plant Sciences

Plan A (thesis)

Requirements for the master of science degree include 26 hours of coursework beyond the bachelor's degree numbered 4000 or above, 4 hours of thesis research, a research proposal, original research, and oral defense of the thesis.

The M.S. degree is typically completed in two years. The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

Doctoral Program

The requirements for the doctor of philosophy degree include 60 hours of coursework beyond the bachelor's degree numbered 4000 or above, 12 hours of dissertation research, a research proposal, original research, written and oral preliminary exams to be taken when most or all coursework is completed, and an oral defense of the dissertation.

Dissertations may be in a modified journal article format but must meet university formatting requirements.

The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

The student is expected to participate in the usual activities of scientific research such as attending and presenting at research seminars and professional meetings and publishing his/her research.

QuickStart Program (Plant Sciences B.S/M.S.)

The combined Plant Sciences, B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. This program allows for early planning of the M.S. portion of the student's education, along with beginning a thesis research project before the completion of the B.S. degree. It offers increased flexibility in the order in which courses are taken, and more efficient use of what would otherwise be a final semester with a light credit hour load. Up to six credit hours may be counted toward both the B.S. and M.S. degree programs.

Department of Veterinary Sciences

Wyoming State Veterinary Laboratory

(307) 766-9925

FAX: (307) 721-2051

Web site: www.uwyo.edu/vetsci

email: vetscience@uwyo.edu

Department Head: Jonathan Fox

Professors:

HOLLY ERNEST, B.Sc. Cornell University 1980; M.S. Ohio State University 1982; D.V.M. 1986; Ph.D. University of California, Davis 2001; Professor of Veterinary Sciences, Wyoming Excellence Chair in Disease Ecology 2014.

JONATHAN H. FOX, B.Sc., B.VSc. University of Liverpool, UK 1993; Ph.D. Virginia Tech 2002; Associate Professor of Veterinary Sciences 2008; Professor of Veterinary Sciences 2016.

WILLIAM W. LAEGREID, B.S. Washington State University 1980; M.S. Washington State University 1984; D.V.M. Washington State University 1985; Ph.D. Washington State University 1988; Professor, Director of the Wyoming State Veterinary Laboratory 2012.

Associate Professors:

GERARD P. ANDREWS, B.S. Pennsylvania State University 1980; M.S. University of New Hampshire 1983; Ph.D. Uniformed Services University of Health Sciences 1993; Associate Professor of Veterinary Sciences 2011, 2004.

TODD E. CORNISH, B.S. University of California-Davis 1990; D.V.M. 1994; Ph.D. University of Georgia 1999; Associate Professor of Veterinary Sciences 2005, 1999.

MYRNA M. MILLER, B.S. Colorado State University 1980; D.V.M. 1984; Ph.D. Cornell University 2005; Associate Professor of Veterinary Sciences 2016, 2010.

KERRY SONDGEROTH, B.A. University of New Hampshire 1997; D.V.M. Colorado State University 2006; Ph.D. Washington State University 2013; Assistant Professor of Veterinary Sciences 2014. Associate Professor of Veterinary Sciences 2020.

BRETT T. WEBB, B.S. University of Southern Colorado 2002; D.V.M. Colorado State University 2007; Ph.D. Colorado State University 2012; Associate Professor of Veterinary Sciences 2022.

Assistant Professors:

BERIT BANGOURA, D.V.M. Leipzig University 2003; Ph.D. 2008; Ph.D. 2015; Diplomate EVPC 2014; Assistant Professor of Veterinary Sciences 2017.

JENNIFER L. MALMBERG, B.S. Doane University 2004; M.A. Chadron State University 2013; Ph.D. Colorado State University 2018; Assistant Professor of Veterinary Sciences 2019.

ELIZABETH CASE, B.S. Oklahoma State University 2002; Ph.D. University of California-Irvine 2010; Assistant Professor of Veterinary Sciences 2020.

Clinical Assistant Professor:

JACQUELINE P. KURZ, B.S. Cornell University 2006; B.V.M.&S. Royal (Dick) School of Veterinary Studies, University of Edinburgh, UK 2010; Ph.D. Utah State University 2018; Clinical Assistant Professor of Veterinary Sciences 2020.

Adjunct Professor:

GEOFFREY J. LETCHWORTH, B.S. Trinity College 1965; D.V.M. New York State College of Veterinary Medicine 1972; Ph.D. Cornell University 1980; Adjunct Professor of Veterinary Sciences 2001.

SAMANTHA ALLEN, BSc and MSc University of Guelph 2007 and 2010; DVM Ontario Veterinary College 2014; PhD University of Guelph 2021; Adjunct Professor of Veterinary Sciences 2021.

Professors Emeritus

E. Lee Belden, Francis D. Galey, Bill Jolley, Merl Raisbeck, Lynn Woodard

The Department of Veterinary Sciences and the Department of Animal Science have combined their efforts to offer B.S., M.S., and Ph.D. degrees in animal and veterinary science (see listing under this title). Several options within the major are available including preveterinary medicine and animal biology. Undergraduate course offerings of the Department of Veterinary Sciences are listed under the title of pathobiology. They were designed to familiarize students with the principles of animal disease and the basic biological and biomedical sciences.

The department operates the Wyoming State Veterinary Laboratory, an animal disease diagnostic laboratory (wyovet.uwyo.edu). This laboratory provides valuable hands-on experience for students interested in laboratory animal care, laboratory procedures, and research. Excellent faculty mentors are available for students interested in preveterinary medicine, microbiology, and animal biology.

Animal and Veterinary Sciences

The Department of Animal Science and the Department of Veterinary Sciences have combined their efforts to offer several degree options leading to the bachelor of science degree in animal and veterinary science. Courses in animal science, food science, and pathobiology are the core offerings in the various options. Agriculture, in its broadest definition, is the nation's largest industry. Livestock production is Wyoming's largest agricultural enterprise. Animal agriculture and its associated industries offer many opportunities for the interested student. Whether a student is interested in production livestock, allied fields such as meat science, business or animal health, or wants to apply to a college of veterinary medicine, the degree tracks offered will form the basis for a challenging career in animal agriculture/biology. The various options provide maximum flexibility to meet the changing needs of students and their employers. For students interested in pursuing advanced research, M.S. and Ph.D. degrees are offered.

Several degree options allow for specialization and graduate or professional school preparation. A brief description of each option and the educational opportunities they provide is given with the course requirements. A grade of C or better must be earned in the following courses when the courses are required in the individual option for completion of the degree: ANSC 3010, 3100, 4120, 4540, 4630; FDSC 3060, PATB 4110, PATB 4111, LIFE 1010, 2022.

Students are encouraged to participate in activities related to their degree option. The university has livestock, horse and meats judging teams. Each team travels and participates in at least one major exposition a year. Each year, the Academic Quadrathlon competition is held, combining practical and classroom skills for students. Field trips, as practical teaching aids in many classes, are scheduled throughout the year. Internships are available to gain practical experience. Student organizations such as the Block and Bridle Club, Food Science Club, Microbiology Club, Range Club, the Pre-vet Club, Wyoming Collegiate Cattlemen's Association, and the Ranch Horse Team provide additional educational and recreational opportunities.

Graduate Study

The Department of Veterinary Sciences offers advanced study leading to the master of science and doctor of philosophy in animal and veterinary science. Areas of emphasis include: pathology, molecular diagnostics, bacteriology, virology, parasitology, epidemiology, immunology, and toxicology of wild and domestic animals.

Program Specific Admission Requirements

Open to students with a bachelor of science degree who meet the requirements set forth in this Catalog.

Recommended prerequisites include: chemistry, biochemistry, animal anatomy and physiology, biology, microbiology, and introductory statistics.

Preferred Requirements

Competitive applicants for either degree program will have a GPA 3.250 or higher and high GRE scores (153 verbal, 149 quantitative, 302 total using best composite scores).

Microbiology Program: Interdepartmental major

Microbiology Program

5004 Agriculture Building, (307) 766-3139

FAX: (307) 766-3875

E-mail: gandrews@uwyo.edu

Program Director: Dr. Gerard Andrews

Microbiology is the study of life forms too small to be observed without the aid of magnification; major groups of microbes include the bacteria, fungi (yeasts and molds), protozoa, and algae, as well as the viruses. In addition, related disciplines such as immunology and molecular biology are included because of their historical origins within microbiology.

As such, the science of microbiology is divided into numerous subspecialty areas that reflect not only the individual groups of microbes (e.g., bacteriology, virology, mycology, etc.), but also their significance in applied areas (e.g., medical microbiology/infectious diseases, microbial ecology, food microbiology, industrial microbiology, biotechnology, etc.) or in areas of basic science (e.g., molecular genetics). Throughout its history, microbiology has played a key role in the development of our understanding of basic biochemical and genetic processes, control of infectious diseases, production of increased and improved food supplies, and the production of numerous commercial products. With the development of molecular techniques to construct genetically engineered microbes, microbiologists will continue to make expanding contributions in these and other areas.

Because microbiology is a diverse science, individuals trained as microbiologists find exciting career opportunities in many areas of the basic and applied sciences. Typically, microbiologists are employed in five major sectors: private industry; clinical laboratories; government agencies; universities; and various other settings such as water treatment, food production/inspection facilities, and other public health-related areas. Recent manpower assessment studies at both the national and regional levels have provided evidence for a continuing and expanding need for microbiologists such that successful undergraduate students completing this program may look forward to exciting careers. In addition, undergraduates trained in the microbiological sciences are well prepared for competitive application to graduate school programs and professional programs in human or veterinary medicine, optometry or dentistry.

The bachelor of science degree program in microbiology is organized as an interdepartmental major involving the collaborative teaching, advising, and research expertise of more than 20 microbiology faculty from the Colleges of Agriculture and Natural Resources, Arts and Sciences, and Health Sciences. The program is administered by a Program Director and the Interdepartmental Microbiology Steering Committee, representing each of the participating colleges. Students obtain their degree in the College of Agriculture and Natural Resources. Additional information about the microbiology program may be obtained at the following website address and by contacting the Program Director or one of the members of the Interdepartmental Microbiology Steering Committee listed below.

www.uwyo.edu/agcollege/micro/microhome.htm

- GERRY ANDREWS, Veterinary Sciences
- BERIT BANGOURA, Veterinary Sciences
- BLEDDAR BISHA, Animal Sciences
- GRANT BOWMAN, Molecular Biology
- ELIZABETH CASE, Veterinary Sciences
- BRIDGET DECKER, Molecular Biology
- JASON GIGLEY, Molecular Biology
- MARK GOMELSKY, Molecular Biology
- MYRNA MILLER, Veterinary Sciences
- EUNSOOK PARK, Molecular Biology
- BRANT SCHUMAKER, WWAMI Medical Education Program
- KERRY SONDEGROTH, Veterinary Sciences
- HOLLY STEINKRAUS, Molecular Biology
- LINDA VAN DIEPEN, Ecosystem Science and Management
- DANIEL WALL, Molecular Biology

- RACHEL WATSON, Chemistry
- JOHN WILLFORD, WWAMI Medical Education Program
- KASSANDRA WILLINGHAM, Molecular Biology

College of Arts & Sciences

113 Arts and Sciences Building

Camellia Okpodu, Dean

Phone: (307) 766-4106 FAX: (307) 766-2697

Web site: www.uwyo.edu/as

Aims and Objectives

The College of Arts and Sciences (A&S) is committed to providing a balanced education that matches cultural breadth with disciplinary depth. Students in the College of Arts and Sciences learn to address complex contemporary problems and to place them in their wider social, historical and ethical contexts. To achieve these goals, degree programs require students to develop expertise in a particular field, gain critical understanding of major areas of human knowledge and select from required courses and free electives to prepare for the challenges of the new century.

A successful student in any of the departments and programs in the College of Arts and Sciences will have an excellent foundation for professional success, graduate study, and a passion for lifelong learning.

Through hands-on research and creative projects (either on faculty projects or independently with faculty guidance and mentoring), fieldwork, internships, and study abroad, students integrate and bring coherence to their classroom learning.

Student Responsibilities

To graduate from the College of Arts and Sciences, students must satisfy all university, college, and major requirements for a given degree. These requirements apply whether the work is taken within the college or transferred from anywhere else within or outside the university (please refer to section below "Acceptance of Transfer Credit").

The college holds students responsible for knowing degree and major requirements and for completing the necessary courses. Students are also expected to know the regulations that govern the academic standards needed to continue study at the university. Students should be aware that changing majors and/or colleges may result in delays in meeting degree requirements and that requirements themselves sometimes change (see "Graduation Requirements and Procedures" section of this *Catalog*).

Academic Advising

To help plan a program of study, students are assigned an academic adviser by the department/ program of their major. Students undecided about a major are advised in the UW Advising, Career, and Exploratory Studies office (222 Knight Hall).

Students should consult regularly with their academic adviser not only for course scheduling, but also to discuss educational and career goals. Faculty and professional advisers can connect students to the many college and university resources to assist undergraduate study. Instructors are also willing to discuss concerns students may have regarding specific courses.

Changing/Declaring a Major or Minor

When ready to declare or change a major, minor, or dual/concurrent major in a department or program in the college, the appropriate form is available from the Office of the Registrar (167 Knight Hall) or the Registrar's Web page. Approval is required from the appropriate department heads/program directors. Departments/programs will assign advisors at the time of signing their approval on the form.

Programs of Study

Undergraduate Degrees

A variety of specialized concentrations are offered within many of the following degree programs. Take a look at the department sections in this *Catalog* that follow this section or the departments' Web sites. Additionally, there are several inter-college or interdisciplinary degrees/majors such as Earth System Science and the affiliated major in Environment and Natural Resources that draw courses from several disciplines. See more detailed descriptions in this *Catalog* or the University of Wyoming home page at www.uwyo.edu, click on the A-Z Directory.

Bachelor of Arts

African American and Diaspora Studies
American Studies
Anthropology
Art Education
Art History
Chemistry
Communication
Criminal Justice
English
French
Gender and Women's Studies
Geology and Earth Sciences
German
History
International Studies
Journalism
Music
Native American and Indigenous Studies
Philosophy
Physics
Political Science
Religious Studies
Sociology
Spanish
Studio Art
Theatre and Dance

Bachelor of Science

Astronomy/Astrophysics
Biology
Botany

Chemistry
Chemistry (ACS approved)
Communication
Environmental Geology/Geohydrology
Geography
Geology
Physics
Physiology
Political Science
Psychology
Wildlife and Fisheries Biology and Management
Zoology

Bachelor of Fine Arts

Studio Art
Theatre and
Dance

Visual Communication Design

Bachelor of Music

Music
Education

Music Jazz Performance
Music Performance

Graduate Degrees

Master of Arts

American Studies (*interdisciplinary*)
Anthropology
Communication
English
History
International Studies (*interdisciplinary*)
Political Science
Spanish

Master of Science

Botany
Chemistry
Geology
Geophysics
Natural Science (*interdisciplinary*)
Physics
Psychology
Zoology and Physiology

Master of Fine Arts in Creative Writing

Master of Music (In Performance)

Master of Music Education

Master of Public Administration

Master of Science in Teaching

Natural Science (*interdisciplinary*)

Physics

Doctor of Philosophy

Anthropology

Botany

Chemistry

Geology

Geophysics

Physics

Psychology

Zoology and Physiology

Minors in Arts and Sciences

The College of Arts and Sciences offers all university students systematic studies leading to recognized academic minors. Minors are available in all academic programs in the college and in a number of interdisciplinary areas.

A&S minors have two aims: to encourage students to create a focus for their course work outside their major by coordinating their elective studies; and to enhance chances of employment or graduate admission with a formally recognized field of study.

Minors consist of course requirements ranging from 18-24 credit hours of study, typically including significant work at the junior and senior level. A&S departments and programs offering minors and interdisciplinary degrees may have further conditions and restrictions regarding requirements in the minor. To be counted toward a minor, courses must be completed with a grade of C or better.

Students desiring a minor must notify the department in which the minor is offered. Forms for declaring a minor are available in the Office of the Registrar (167 Knight Hall) or on the Registrar's Web page. The department of the minor will assign an adviser.

For a description of the minors in A&S, see department offices or Web sites.

Minors available in the College of Arts and Sciences include:

African American and Diaspora Studies

American Studies

Anthropology

Biology

Botany
Chemistry

Communication and Journalism Department

Communication
Journalism
Marketing Communication
Public Relations

Creative Writing

Criminal Justice

Criminal Justice
Pre-law

English Department

Literary Studies
Professional Writing

Gender and Women's Studies

Gender and Women's Studies
Queer Studies

Geography
Geology
History

International Studies

Asian Studies
European Studies
International Studies

Latina/o Studies

Modern and Classical Languages Department

Chinese
Classical Civilization
French
German
Japanese
Latin
Spanish

Music
Native American and Indigenous Studies
Paleoenvironmental Studies (*interdisciplinary*)

Philosophy

Environmental Values
Ethics
Philosophy

Physics/Astronomy Department

Astronomy
Physics

Political Science

American Politics
International Relations and Comparative Government
Political Theory
Public Law

Psychology Department

Aging Studies
Psychology

Religious Studies
Remote Sensing
Sociology

Theatre and Dance Department

Dance
Theatre

Visual and Literary Arts Department

Art History
Ceramics

Digital Media

Drawing
Metalsmithing
Museum Studies
Painting
Photography
Printmaking
Sculpture

Zoology and Physiology Department

Human and Animal Physiology
Neuroscience

Wildlife and Fisheries Biology and Management

Zoology

College Degree Requirements- The 2015 A&S Core

Bachelor of Arts or Science Programs

Beginning fall 2015, new university and college general education curricula, the 2015 University Studies Program (USP) and the 2015 A&S Core, were implemented. Refer to the USP section of this *Catalog* for details regarding University Studies requirements.

Students who matriculate for the first time at UW or a Wyoming community college in fall 2015 or after are required to follow both the new USP and A&S Core. Students transferring from a Wyoming community college with an associate's degree and the Wyoming Core completed between May 2013 and fall 2015, may continue to complete the 2003 USP and 2003 A&S Core requirements (if there has been no interruption in their enrollment for a year or more). Students who matriculated at UW or a Wyoming community college prior to fall 2015 and choose the 2015 USP must also complete the 2015 A&S Core requirements. For additional information please refer to the sections in this *Catalog* that describe the university graduation requirements, the 2015 University Studies Program, and the policies for reenrolling at UW after an absence of a year or more.

I. College credit hour requirements

- A. **Minimum total semester hours 120**
- B. **Upper-division credit requirements (42).** Thirty of the 42 hours must be earned from UW. Courses must be taken for a letter grade unless offered for S/U only. This is an all-university requirement for all degree programs and may come from the courses that fulfill the USP, the A&S Core, the major, the minor, and electives.
- C. **Major field of study (30-60).** Credit hours in excess of 60 in the major subject may not be used to satisfy the requirement of 120 hours for graduation. Credits in AS internship, independent study or special topics courses (AS 2400, AS 2490, AS 4400, AS 4500, AS 4510, AS 4900, and AS 4975) may not be used to fulfill these outside the major requirements. At least 30 hours of C grade or better must be earned in the major subject (the major may require more). Courses in the major must be taken for a letter grade unless offered for S/U only.
- D. **A&S Core requirements (6).** Courses must be taken for a letter grade unless offered for S/U only.

All other university and college regulations apply. See "Graduation Requirements and Procedures" section of this *Catalog* for more information. Graduate level "Enrichment" courses do not count toward the requirements for a bachelor's degree.

II. 2015 A&S Core Curriculum

Graduates of the College of Arts and Sciences are expected to be liberally educated, to have the knowledge and skills to deal with the unexpected, and to see opportunities from multiple perspectives. To develop these abilities, the college faculty implemented the A&S Core.

The approved courses for the following requirements are searchable within WyoRecords under the Browse Classes feature.

- 1. **U.S. Diversity (ASD).** This requirement allows students to explore the complexity of cultural identities in the U.S. and interdependence of the cultures. Students will gain an understanding of the influences of categories such as race, class, ethnicity, gender, disability, sexual orientation, religion, and age on American behaviors, institutions, values, and beliefs.
- 2. **Global Awareness (ASG).** Because citizens ever more frequently encounter behaviors and practices based on beliefs, conditions, and assumptions different from their own, they need to understand the nature and function of culture. Our students should have an awareness of the multiple links that affect the living

conditions and range of action of peoples of the world, including international systems of commerce, art, science, technology, politics, communication, belief, and justice, among other.

College Degree Requirements Prior to Fall 2015 for Continuing and Reenrolling Students

A&S Core requirements for a student continuing a degree program in effect at the time of matriculation at UW are found in the relevant previous *Catalog*. Contact the A&S Advising Center, Ross 6, 766-4013, asadvice@uwyo.edu.

Students who re-enter the university after an absence of a year or more should refer to other sections of this Catalog for university policies and procedures. Unless approved otherwise, reenrolling students, after a year's absence, are required to follow the University Studies and A&S Core requirements in effect the semester of their re-enrollment. However, all majors in A&S who have yet to complete the A&S Core, regardless of their initial enrollment, must refer to the current list of approved courses.

Checksheets and lists of courses that satisfy A&S college core requirements are available on the Web at www.uwyo.edu/as or in the A&S Advising Center, Ross 6, 766-4013, asadvising@uwyo.edu.

Departments and programs in the College of Arts and Sciences may require reenrolling students to complete requirements in the major that meet the current expectations of the discipline.

Transfer Students and Acceptance of Transfer Credit

The College of Arts and Sciences and its departments reserve the right to grant transfer credit toward the bachelor's degree only for those courses where a grade of C or better was earned. Students transferring credits from a university or college outside Wyoming with questions about how courses taken elsewhere fulfill the A&S Core may contact the A&S Advising Center, Ross 6, 766-4013, asadvice@uwyo.edu.

Courses Taken for S/U Credit

Students may include up to 20 semester credit hours in free electives with a grade of S as part of the total hours required by the College of Arts and Sciences for graduation. However, no S/U hours may be used to satisfy university and college core general education requirements or major requirements, including the required 42 upper-division credit hours unless the course is offered for S/U grading only.

Students registering in courses for S/U grades are subject to all general regulations.

Concurrent Majors

Students may pursue two or more majors simultaneously. With careful planning, A&S students may be able to use all or most of the free elective hours for requirements in the other majors. Refer also to the section, "Graduation Requirements and Procedures" in this *Catalog*.

The A&S Core must be met only once by students whose primary major is in the College of Arts and Sciences. Students whose degree programs are in other UW colleges are welcome to earn a concurrent major in A&S. These students do not have to meet the A&S Core requirements. The student earns one degree with one diploma.

Students pursuing a concurrent major must contact both departments involved for assignments to advisers.

Dual Degrees

Students may simultaneously pursue degrees in the same or more than one UW college. In addition to requirements described in the section "Graduation Requirements and Procedures" in this *Catalog*, students in another UW college who wish to earn a degree from A&S must also complete the A&S Core. A&S students working on dual degrees in the A&S College need to meet the A&S Core just once. A diploma is awarded for each degree.

Each additional degree requires 30 more credit hours added to the 120 credits to the primary degree. Of these 30 credits, 12 have to be at the 3XXX-4XXX levels.

Second Bachelor's Degrees

For students seeking a second bachelor's degree in the College of Arts and Sciences whose **first degree is from another university**, the minimum requirements include:

- 30 semester hours earned from the University of Wyoming, 12 of which must be upper division (3XXX-4XXX level) or graduate level (credit by examination does not count as UW hours).
- Completion of the U.S. and Wyoming Constitutions requirement (V courses in the University Studies Program course list in this *Catalog*).
- If the first degree is from an institution where English is not the predominant language, the COM1 and COM2 requirements of the University Studies Program must be completed successfully.
- Students must also meet the 2015 A&S Core requirements.

For students whose **first degree is from UW**:

- The additional required 30 hours (12 of these at the 3XXX-4XXX) are added to the degree requiring the least number of hours. For example, for a first degree A&S requires 120 hours. So the total credits a UW student would have to complete for the second bachelor's degree is a minimum of 150 credits. Since the University requires a total of 42 upper division hours for a degree, for the second degree from A&S, a UW student would need to earn a total of 54 hours at the 3XXX-4XXX level. For more information, please see the Second Bachelor's Degree entry in the section, "Graduation Requirements and Procedures" in this *Catalog*.
- Students whose **first degree is from another UW college** must meet the 2015 A&S Core requirements.
- In situations in which a student is subsequently required to take coursework from another collegiate institution to fulfill major and overall hour requirements for a second degree from the university, the student's department can ask the Office of the Registrar to load selected courses into the student's record.

Concurrent Major in Environment and Natural Resources

A student majoring in any A&S department/program may earn a double major by completing the courses required for the Environment and Natural Resource (ENR) program in addition to the requirements in their A&S major and the College A&S Core. The School of ENR Web site, <http://www.uwyo.edu/enr> has detailed information, or contact the School at (307) 766-5080.

Preprofessional Studies

The College of Arts and Sciences prepares students to enter professional schools through preprofessional programs of study described below.

Prelaw Study. Students usually need a bachelor's degree prior to beginning the study of law. There is no prescribed course of undergraduate study and no restrictions as to the field in which the degree is earned. However, to prepare for this competitive profession, prelaw students are advised to select courses that help to develop those talents and skills essential to the study and practice of law. Logical and critical thinking, conflict evaluation/resolution and effective verbal/nonverbal communication skills are essential. Additionally, students should understand the political, economic, social and cultural institutions and values that characterize human society. Rigorous courses in any discipline increase abilities in these areas. Regardless of the prelaw major, courses in the broad liberal arts--the sciences, social sciences, fine arts and humanities--increase understanding of the public's diverse interests and backgrounds.

Prelaw students do not have to declare a major at the time of first enrollment if they wish to explore options. Students who are undeclared in the College of Arts & Sciences are assigned advisers in the Advising, Career, and Exploratory Studies office until they decide upon a degree program. Please note that a prelaw minor is available.

In addition to an adviser in the major, prelaw students may contact the designated UW prelaw adviser for assistance in developing a program of study, for career counseling and for guidance in applying to law schools. Contact the A&S Advising Center, Ross 6, 766-4013, asadvice@uwyo.edu for information.

Detailed information about applying to law schools, the Law School Admissions Test (LSAT) and preparation materials, and links to other web sites are at www.LSAC.org.

Library Preprofessional Study. Librarians are information professionals who research, organize, and classify materials so the public can access information. Not only do they work with printed materials, but all the technological advances in digital media such as electronic databases and eBooks. Some librarians focus on teaching the public, scholars, and students how to access and use these materials, while others concentrate on collecting and maintaining these diverse resources. Librarianship offers many career opportunities to people of different academic backgrounds, interests, and talents. Most public, academic, and special libraries require a Master's degree in library science (MLS).

The degree programs and minors in the College of Arts and Sciences offer the variety of academic preparation expected by accredited library schools in the country. Most of the graduate schools in library science require a bachelor's degree, a good undergraduate record, and a reading knowledge of a foreign language for admission. The best undergraduate preparation includes a wide range of courses in the sciences, social sciences, and humanities along with a strong concentration in one subject area. The choice of a major will be determined by the student's academic interest and professional objective. The general education that the University Studies and the A&S Core require provide the well-rounded background graduate schools expect of their MLS candidates.

Additional information about library schools, their requirements, and programs as well as career opportunities may be obtained from the reference desk at Coe Library and the Center for Advising and Career Services. The U.S. Bureau of Labor Statistics "Occupational Outlook Handbook" at www.bls.gov/ooh/ has detailed descriptions of the varied work of librarians, working conditions, employment outlook, and sources for additional information.

Pre-Health Study. Students in several A&S majors may be working toward the following careers: athletic training, chiropractic, dentistry, medicine, occupational therapy, optometry, physical therapy, physician assistant, or public health. These professional schools are favorably impressed by a broad educational background, including a substantial number of non-science and science courses; therefore, students are well advised to look beyond the minimum requirements.

Students may select any major in which they are interested to discuss preparation for such careers. In addition to completing all university, college and departmental requirements, students must include in their curriculum the basic professional school requirements, including courses in biology, chemistry, math, and physics. Professional schools have other specific requirements and students should learn about any additional recommendations from those professional schools in which they are interested. We strongly suggest contacting the Pre-Health Advising office [College of Health Sciences, 110 Health Sciences, (307) 766-3878, or hsadvise@uwyo.edu] website: www.uwyo.edu/preprof/.

Common majors in the College of A & S for these preprofessional programs include Chemistry, Biology, Botany, Psychology, and Physiology. However, there are pre-health students in programs as diverse as theatre and dance and

anthropology. Students need not declare a major immediately upon first enrollment. Advisers in individual departments can discuss options or if students wish to remain undeclared, they are advised in either the UW Advising, Career, and Exploratory Studies office or the Health Sciences Advising office.

The pre-health advisers in the College of Health Sciences have current information regarding professional school admission requirements, entrance examinations, programs in Western Interstate Commission on Higher Education (WICHE), the Wyoming Medical Contract Program WWAMI (affiliated with the University of Washington School of Medicine) and financial assistance for professional education. The website, <http://www.uwyo.edu/preprof/> includes additional information.

Internships

Many departments in the College of Arts and Sciences offer internships for academic credit, and some provide monetary compensation. Academic internships provide practical, hands-on experience in a professional job setting as a complement to classroom instruction. An internship can provide students with both insight and preparation for future jobs. All internships require a strong background in writing, organizational ability and analytic skills. Junior or senior standing is recommended.

The School of Culture, Gender, and Social Justice

African American and Diaspora Studies

108 Ross Hall, (307) 766-2481

Director: Dr. Ulrich Adelt

Web site: www.uwyo.edu/aads

Professors:

JACQUELYN BRIDGEMAN, B.A. Stanford University 1996; J.D. University of Chicago 1999; Professor of Law 2008, 2002.

DARRELL D. JACKSON, B.A. College of William and Mary 1987; J.D. George Mason University School of Law 1990; Ph.D. University of Colorado School of Education 2011; Professor of Law 2018, 2013.

TRACEY OWENS PATTON, B.A. Colorado State University 1993; M.A. 1996; Ph.D. University of Utah 2000; Professor of Communication and Journalism 2012, 2003.

Associate Professor:

ULRICH ADELDT, M.A. University of Hamburg, Germany 2000; Ph.D. University of Iowa 2007; Associate Professor of American Studies 2015, 2009.

Assistant Professor:

FREDRICK D. DIXON, B.A. Purdue University 1993; M.A. Northeastern Illinois University 2003; Ph.D. University of Illinois Urbana-Champaign 2018; Assistant Professor of African American and Diaspora Studies 2019.

Associate Academic Professional Lecturer:

MARY L. KELLER, B.A. Williams College 1987; M.A. Syracuse University 1992; Ph.D. 2002.

Lecturers:

JASCHA HERDT, B.A. University of Wyoming; M.A. 2011.

ERIC D. JOHNSON, B.A. University of Alabama 2003; MA, University of Iowa 2009; Ph.D. 2021.

CHAD D. ROBINSON, B.S. Northwestern University 1992; MA, City University of New York 2006; M.S. Mercy College 2008.

The African American and Diaspora Studies Program, through an interdisciplinary course of study, examines the experiences of African Americans in the United States, in the context of Africa and its Diaspora in Europe and the Americas.

Undergraduate Studies

The population of Black America has nearly doubled in Wyoming since the year 2000. As the population becomes more diverse it is important to provide students with a background in multicultural relations so that they are prepared for the global workforce. We intend to provide students with the necessary knowledge to prepare them to participate in an increasingly interconnected world. Therefore, African American and Diaspora Studies offers a bachelor of arts (B.A.) and an undergraduate minor in African American and Diaspora Studies.

Students may access a copy of the undergraduate major and minor check sheets at www.uwyo.edu/aads/major-minor/index.html.

At present, no program for graduate degrees in African American and Diaspora Studies is offered; however, some courses may be counted at the graduate level.

American Studies

Cooper House

(307) 766-3898

Website: www.uwyo.edu/ams

E-mail: amst@uwyo.edu

Director: Frieda E. Knobloch

Professor:

ULRICH ADELT, American Studies; School of Culture, Gender and Social Justice

FRIEDA E. KNOBLOCH, American Studies; School of Culture, Gender and Social Justice; Creative Writing

Associate Professor:

LILIA SOTO, B.A. University of California - San Diego 2000; M.A. University of California - Berkeley 2003; Ph.D. 2008; Associate Professor of American Studies and Latina/o Studies 2017, 2010.

Senior Research Scientist:

ANDREA GRAHAM, American Studies; School of Culture, Gender and Social Justice;

Professors Emeriti:

John Dorst, Eric Sandeen

Adjunct Faculty:

(See Catalog section following name for academic credentials)

R. McGregor Cawley, School of Politics, Public Affairs, and International Studies

Fred Chapman, public historic preservation consultant

Catherine Connolly, The School of Culture, Gender, and Social Justice

Colleen Denney, Department of Visual and Literary Arts

Anthony Denzer, Department of Civil and Architectural Engineering and Construction Management

Michael Harkin, Department of Anthropology

Tammy Heise, Department of Philosophy and Religious Studies

Isa Helfgott, Department of History

Scott Henkel, Department of English and Wyoming Institute for Humanities Research

Mary Humstone, public historic preservation consultant

Michelle Jarman, Wyoming Institute for Disabilities (WIND)

Mary Keller, Department of Philosophy and Religious Studies

Rachel Sailor, Department of Visual and Literary Arts

Trisha Martinez, School of Culture, Gender and Social Justice

American Studies Program

American Studies explores American cultural experience past and present, through a wide range of approaches to American lives, places, arts, knowledges, communities, institutions, histories, and ideas. American Studies is an integrative field that comes from and adds to the context of our cultural lives in the U.S. and the U.S. in the world. American Studies frames present concerns with engagement with the past; expects us to engage people's experiences in the context of a diversity of experiences; and invites us to understand our own commitments and interests as valuable contributors to American cultural understanding. American Studies as a field depends on and adds to insights of scholars, artists, and scientists from virtually any field of expertise.

The American Studies program offers undergraduate B.A. and graduate M.A. degrees in American Studies, as well as courses of general interest to students in any degree.

Our program places special emphasis on studying American cultures through field experiences and internships: students apply academic knowledge and develop professional skills in community and non-profit organizations, historic preservation efforts and organizations, historic sites, museums and collections, among many possibilities. Every internship is developed in close consultation between the students and our Internship Coordinator, and frequently stems from a student's general idea about where or with whom they'd like to work, in Laramie or Wyoming, in other parts of the U.S., or sometimes abroad. Our program also highlights international perspectives, as well as the transnational context of American impacts and experiences, in course work and exchanges available to American Studies students.

American Studies puts people and their plans together building career goals in K-12 education, law, or business, work in community organizations and public institutions, or further graduate-level study.

Native American and Indigenous Studies

**Main Office: 117 Native American Education, Research and Culture Center,
(307) 766-6520**

**Director's Office: Native American Center,
(307) 766-6520**

Web site: www.uwyo.edu/nais/

Director: Dr. Christopher Caskey Russell

Professor:

Associate Professor:

Assistant Professor:

JESSICA F. NELSON, B.A. University of Michigan 2006; M.A. University of Arizona 2011; Ph.D. 2018; Assistant Professor of Native American and Indigenous Studies 2019.

Assistant Lecturer:

ROBYN LOPEZ, A.A. Central Wyoming College 2004; B.A. University of Wyoming 2007; M.A. University of Hawai'i at Mānoa; Assistant Lecturer of Native American and Indigenous Studies 2019.

Adjunct Faculty:

(See Catalog section following name for academic credentials.)

Pamela Innes, Anthropology

Jeffrey Means, History

Affiliated Faculty:

The Native American and Indigenous Studies offers an academic major at the undergraduate level and a minor at both the undergraduate and graduate level. This interdepartmental course of study examines Native North American cultural and social life, as well as Indigenous cultural and social life globally, including economic, political, and educational systems. Historical and contemporary perspectives of American Indian and global Indigenous experiences are included in this program.

Students may choose a NAIS studies minor to complement a major field of study. Related disciplines include American studies, anthropology, art, ethnic studies, geography, history, law, music, philosophy, political science, and sociology. A minor in Native American and Indigenous Studies provides excellent preparation for teachers, researchers, social workers, healthcare providers, resource managers, economic developers, and legal practitioners.

Gender and Women's Studies

108 Ross Hall, (307) 766-2733

FAX: (307) 766-2555

Web site: www.uwyo.edu/gwst

Director: Michelle Jarman

Professor:

CATHERINE CONNOLLY, B.S. State University College at Buffalo 1984; M.A. State University of New York at Buffalo 1989; J.D. 1991; Ph.D. 1992; Professor of Sociology and Women's Studies 2004, 1998, 1992.

Visiting Assistant Professor:

SAMANTHA L. VANDERMEADE, B.A., Appalachian State University, 2009; M.A., North Carolina State University, 2015; Ph.D., Arizona State University, 2020; Visiting Assistant Professor of Gender and Women's Studies 2020.

Associate Lecturer:

ALISON QUAGGIN HARKIN, B.A. Trinity College at the University of Toronto 1981; M.A. Athabasca University 2010; Assistant Lecturer of Gender and Women's Studies 2019.

Professor Emeriti:

Colleen Denney, Professor Emeritus

Janice Harris, Professor Emeritus

Susan McKay, Distinguished Professor Emeritus

Affiliated Faculty:

(see department section following name for academic credentials)

Ulrich Adelt, African American and Diaspora Studies, American Studies

Stephanie Anderson, Political Science

Cecelia Aragon, Latina/o Studies, Theatre and Dance

Ruth Olga Bjorkenwall, Politics, Public Affairs, & International Studies

Christine Boggs, Elbogen Center for Teaching & Learning

Christin Covello, Gender and Women's Studies

Danielle Renee Cover, Law

Cynthia Hartung, Psychology

Isadora Helfgott, History

Michelle Jarman, Disability Studies, WIND

Frieda E. Knobloch, American Studies

Renee Laegreid, History

Barbara Ellen Logan, History

Tracey Patton, African American and Diaspora Studies, Communication and Journalism

Chian Jones Ritten, Agricultural and Applied Economics

Nancy Shea, Gender and Women's Studies

Nathaniel Smith, Gender and Women's Studies

Jamie Snyder, Criminal Justice & Sociology

Lilia Soto, American Studies, Latina/o Studies

Jennifer Tabler, Criminal Justice & Sociology

Grant Walsh-Haines, Gender and Women's Studies

Rachel Watson, Chemistry, Director, Queer Studies

Arielle Zibrak, English

The Gender and Women's Studies Program offers an interdisciplinary course of study that examines the relevance of sex, gender and sexuality in history, societies, and cultures. Students may earn a major, minor, or graduate minor in Gender and Women's Studies, or a minor or graduate minor in Queer Studies.

Program Learning Objectives

Students graduating with a degree in Gender and Women's Studies will have skills to apply in a variety of settings indicated by their ability to:

- Engage in intersectional, interdisciplinary feminist analysis.
- Analyze socio-historical and contemporary power dynamics underpinning group relations, social institutions, and systems of representation.
- Situate their analyses within various place-based contexts, including the rural, local, community, transnational, and global.
- Understand and articulate the history, strategies, and goals of interconnected movements for social justice.
- Demonstrate mastery of critical thinking skills necessary to succeed in diverse, 21st century work forces and communities.

NOTE: Gender & Women's Studies recently changed all course prefixes to GWST (from WMST). All former WMST courses will count toward Gender & Women's Studies degree programs.

Latina/o Studies

108 Ross Hall, (307) 766-4127

Web site: uwyo.edu/ltst

Director: Dr. Lilia Soto

Professor:

CECILIA ARAGON, B.S. McMurry University Texas 1991; M.A. University of New Mexico 1996; Ph.D. Arizona State University 2003; Professor of Theatre and Dance and Latina/o Studies 2017, 2005.

Associate Professor:

LILIA SOTO, B.A. University of California, San Diego 2000; M.A. University of California, Berkeley 2003; Ph.D. 2008; Associate Professor of American Studies and Latina/o Studies 2017, 2010.

Visiting Assistant Professor:

MARGARITA PIGNATARO, B.A. Florida State University; M.A. Arizona State University, Ph.D.; Visiting Assistant Professor of Latina/o Studies 2018.

Adjunct Faculty:

Jennifer Macias, Adrian Molina, Dewey Gallegos, Estella Soto, Macros Martinez

Faculty and Staff Affiliates:

Jacqueline Shinker, Geography
Mark Guiberson, Communication Disorders
Carolyn Larson, History
Conxita Domènch, Spanish Literature
Joy Landeira, Spanish
Irene Checa-Garcia, Spanish Linguistics
Rachel Sanchez, Office of the Registrar

State-Wide Advisory Board:

Connie Coca
Ana Cuprill
Linda Devine
Floyd Esquibel
Mary Elizabeth Galvan
Chris Novarro
Milton Ontiveros
Ann Redman

The Latina/o Studies program, through an interdisciplinary and comparative approach examines the history, cultures, language and contemporary experiences of Mexicans, Mexican-Americans and other Latinos/ as in Wyoming, and the United States.

Learning Outcomes

Latina/o Studies courses emphasize perspectives that are historical and contemporary, theoretical and practical, as well as critical and aesthetic. These perspectives help to develop an understanding of oppression and resistance, at the individual, institutional, and ideological levels.

Upon completion of the University of Wyoming Latina/o Studies minor curriculum, students will have an awareness and appreciation for the Latina/o experience. Particularly as the Latina/o experience is expressed in the following concepts and principles of organic insight, relational awareness, historical perspective, power for social change, intersectionality, and aesthetics.

1. *Organic Insight* - The development of a contextual framework for understanding one's own and others' experiences in relation to the Latina/o experience.
2. *Relational Awareness* - The development of a theoretical framework for understanding how institutional social structures impact individuals, families, and communities, and in turn, how individuals, families, and communities impact social structures through resistance, social agency, and change.
3. *Historical Perspective* - The development of a critical historical viewpoint for understanding how struggles around social, economic, and political forces have shaped the traditional and contemporary Latina/o Diaspora.
4. *Power for Social Change* - The development of a critical consciousness, which is necessary for a social praxis that combats oppressive racist ideologies and social structures that perpetuate individual and institutional inequalities.
5. *Intersectionality* - Gaining an awareness of the intersection of race, ethnicity, class, gender, and sexual orientation as it plays out organically, relationally, historically, and politically.
6. *Latina/o Aesthetics* - The development of an appreciation and awareness of the aesthetics evident in Latina/o art, music, theatre, literature, and other artistic expressive forms and styles.

Latina/o Studies Minor

Latina/o Studies offers an undergraduate minor. The minor in Latina/o Studies requires 18 credit hours. Two of those courses (6 hours) must include the required foundation courses, and the remaining courses (12 hours) can be selected from the other areas of studies listed below.

Department of Anthropology

106 Anthropology Building,

(307) 766-5136

FAX: (307) 766-2473

Web site: www.uwyo.edu/anthropology

Department Chair: Melissa Murphy

Professors:

JAMES AHERN, B.A. Beloit College 1991; M.A. Northern Illinois University 1993; Ph.D. University of Michigan 1998; Professor of Anthropology 2014, 2000.

MICHAEL E. HARKIN, B.A. University of North Carolina 1980; M.A. University of Chicago 1984; Ph.D. 1988; Professor of Anthropology 2003, 1993.

ROBERT L. KELLY, B.A. Cornell University 1978; M.A. University of New Mexico 1980; Ph.D. University of Michigan 1985; Professor of Anthropology 1997.

MARCEL KORNFELD, B.A. University of New Mexico 1974; M.A. University of Wyoming 1982; Ph.D. University of Massachusetts-Amherst 1994; Professor of Anthropology 2008, 1996.

MELISSA S. MURPHY, B.A. Haverford College 1994; Ph.D. University of Pennsylvania 2004; Associate Professor of Anthropology 2014, 2008, Professor of Anthropology 2021.

TODD SUROVELL, B.S. University of Wisconsin-Madison 1995; M.A. University of Arizona 1998; Ph.D. 2003; Professor of Anthropology 2015, 2003.

Associate Professors:

PAMELA INNES, B.A. Bryn Mawr College 1986; M.A. University of Oklahoma 1992; Ph.D. 1997; Associate Professor of Anthropology 2007, 2001.

JASON TOOHEY, B.A. University of California Santa Barbara 1995; M.A. California State University Northridge 2000; Ph.D. University of California Santa Barbara 2009; Associate Professor of Anthropology 2017, 2011.

Assistant Professors:

BRIANA DOERING, B.A. Barnard College, Columbia University, 2012; M.A. University of Michigan 2016; Ph.D. 2020, Assistant Professor of Anthropology 2020.

ALEXANDRA KELLY, B.A. University of Chicago 2004; M.A. 2005; Ph.D. Stanford University 2014; Assistant Professor of History and Anthropology 2014.

JESSICA NELSON, B.A. University of Michigan 2006; M.A. University of Arizona 2011; Ph.D. 2018; Assistant Professor of School of Culture, Gender, and Social Justice 2019.

Adjunct Faculty:

Adams, Arksey, Budowle, Clauter, Grund, Janković, Karavanić, Kitchell, Lynch, Malloy, Miller, Nicholson, Olujić, Page, Pelton, Peterson, Pierce, Raguž, Rockwell, Todd, Walker, Watson, Wilkinson

Academic Professional Research Scientist:

Rick Weathermon

Professors Emeriti:

George W. Gill, Mary Lou Larson, Lin A. Poyer, Charles A. Reher, Audrey C. Shalinsky

The department of Anthropology promotes the understanding of humankind from an integrated, holistic approach which examines past, present and future trends in cultural, biological and linguistic diversity and uniformity. Though the department serves undergraduate and graduate majors who will become professional anthropologists or will pursue other related careers, it also provides information to a large number of non-majors and to the larger community regarding cross-cultural issues. Furthermore, because of its commitment to the four field approach including biological anthropology, archaeology, cultural anthropology and linguistic anthropology, the department fosters among its students an awareness of the interrelatedness of scientific concepts, methods and theories, and the humanistic foundation of scientific inquiry. The Department of Anthropology prepares its students both to understand the cultural resources of Wyoming and to participate as informed citizens in an increasingly complex global community.

Undergraduate Major

The Anthropology B.A. program has the following learning outcomes:

1. students demonstrate knowledge about the four fields of anthropology and their interrelationship,
2. students participate in a research experience and understand its process, and
3. students demonstrate ability to analyze and synthesize in relation to anthropological issues or theories.

In addition to university and college requirements listed in this Catalog, anthropology majors must complete two semesters of foreign language. ANTH 1100 and ANTH 1300 cannot be used to fulfill the USP PN requirement. Specific requirements for a B.A. in anthropology are ANTH 1100, 1200, 1300, and 2000. Students must complete ANTH 3300 or ANTH 3310. ANTH 3300 and ANTH 3310 require an additional 1 hour of ANTH 4975. Also required are an additional 21 credits of upper division anthropology for a total of 25 upper division (3000+) credits within the major, including at least one course from three different subfields (cultural anthropology, linguistic anthropology, biological anthropology, and archaeology). Courses that can be used to fulfill upper division cultural anthropology are ANTH 4023, 4300, 4310, 4320, 4325, 4330, 4340, 4350, 4380, 4020 (with instructor's consent). Courses that can be used to fulfill upper division linguistic anthropology are ANTH 4024, 4740, 4765, 4775, 4785, 4795, 4020 (with instructor's consent). Courses that can be used to fulfill upper division biological anthropology are ANTH 4022, 4210, 4215, 4220, 4230, 4255, 4260, 4020 (with instructor's consent). Courses that can be used to fulfill upper division archaeology are ANTH 3900, 4021, 4110, 4115, 4120, 4125, 4130, 4145, 4150, 4160, 4170, 4175, 4020 (with instructor's consent), or six credits of archaeological field school (ANTH 4140 or 5180). It is recommended that

anthropology majors take ANTH 1101 to fulfill the First-Year Seminar requirement, but it is not required that students take this particular First-Year course. It is also recommended but not required that students complete a course in statistics (STAT 2050 or 2070) and a third semester of foreign language. Courses required by the department for the major and minor must be completed with a grade of C- or better.

At the completion of the Bachelor of Arts degree in Anthropology, students will be able to demonstrate knowledge about the four subfields of anthropology and their interrelationships; they will have participated in a research experience and understand its process; and, they will demonstrate ability to analyze and synthesize in relation to anthropological issues or theories.

Undergraduate Minors

The Anthropology undergraduate minor has the following learning outcomes:

1. students learn sufficient subfield information to complement a variety of disciplines,
2. students learn basic methods of the discipline, and
3. students learn basic theories/ types of subfield explanation.

The minor for non-anthropology majors requires two of the introductory courses: ANTH 1100, 1200, 1300, 2000, and 11- 12 hours of electives from 2000, 3000, or 4000-level anthropology courses with no more than 3 hours at the 2000-level. See the anthropology web site for more details.

Teacher Education

Anthropology courses may be used to complete part of the requirements for teacher certification in social studies.

Graduate Study

The department offers programs of study leading to Master of Arts and Doctor of Philosophy degrees in Anthropology. Check Anthropology department web pages for any updates.

Program Specific Admission Requirements

Master's Program

The Anthropology M.A. program has the following learning outcomes:

1. students will be able to explain the content of the "four fields" of anthropology and their interrelationship in written and oral formats,
2. students will have experience in original research, and
3. students will develop skills which foster professionalism as related to their chosen field.

Deadline for application is February 15 for the following fall. See graduate admission requirements. Submit letter of intent, resume, transcripts, and an optional writing sample as digital documents to the UW online application system. A

minimum of three letters of recommendation are required; a standardized recommendation form is provided through the application system.

In the letter of intent, students should describe their research interests, career goals, and how Wyoming's program will help them achieve these goals.

The Department of Anthropology requires that at least two of the recommendation letters be from academic supervisors or instructors.

Students must present evidence of a satisfactory background in anthropology, which should include coursework in all four subfields of Anthropology (socio/cultural, bio/physical, archaeology, and linguistics). Deficiencies in anthropology may require remediation. Students must have two semesters of a single foreign language or equivalent, and one semester of statistics. In those instances in which the undergraduate background of the student is deficient, the department reserves the right to prescribe course work that would correct such deficiencies.

The M.A. program is designed to be completed in two full years of graduate study. Appropriate allowance will be made for parttime students.

Students who graduate with a Master of Arts degree will be able to explain the content of the four fields of Anthropology and their interrelationship in written and oral formats; they will have an experience in original research; and, they will develop skills which foster professionalism in their chosen fields.

Doctoral Program

The Anthropology Ph.D. program has the following learning outcomes:

1. students will have professional and specialized training so they can move into careers in academic or non-academic tracks,
2. students will have a dissertation research experience that results in professional publication(s), thereby contributing to the expansion of knowledge, and
3. students will have practical experience that will promote their movement into professional careers in a reasonable amount of time.

Deadline for application is December 1 for the following fall. *See graduate admission requirements.*

Submit letter of intent, resume, transcripts, and an optional writing sample as digital documents to the UW online application system. A minimum of three letters of recommendation are required; a standardized recommendation form is provided through the application system.

In the letter of intent, students should identify whom they would like as their faculty adviser and describe their research interests, career goals, and how Wyoming's program will help them achieve these goals.

Students with a master's degree may apply directly to the Ph.D. program.

Students with a bachelor's degree may apply to the Ph.D. program. If admitted, students are expected to complete the master's degree requirements following the Plan A or Plan B option before formal admission to the Ph.D. program. At the thesis defense or hearing for the Plan B paper, the student will receive a no pass, pass-terminate at the master's degree, or a pass-admit to the Ph.D. program.

Students admitted to the department's M.A. program are not guaranteed admission to the Ph.D. program.

For admission to the Ph.D. program with the Bachelor's degree, students must have course work in the four subfields of anthropology, two semesters of a single foreign language, and statistical competency at either the B.A. or M.A. level. If

these are not satisfied, the student's faculty adviser in coordination with the student's graduate committee assigns remedial work as appropriate.

Students who graduate with a Ph.D. in Anthropology will have specialized and professional training so they can move into academic or non-academic tracks; they will have a dissertation experience that results in professional publications; and they will have professional experiences that facilitate their move into careers in a reasonable amount of time.

Program Specific Graduate Assistantships

Doctoral students generally receive two years of assistantships. First semester, first year M.A. students are generally not awarded assistantships; however, the department occasionally does make exceptions. M.A. students are eligible to apply for assistantships beginning in the second semester.

Assistantships are awarded through a departmental application process. An application form, cover letter, and resume are required. Information and deadlines may be obtained in the department office.

Failure to complete steps in the M.A. program by established deadline (e.g., advisor selection, proposal presentation, etc.) means the student is not eligible for an assistantship. Failure of the Ph.D. preliminary exam means the student is not eligible for an assistantship.

Program Specific Degree Requirements

Master's Program Plan A (thesis)

See university minimum requirements.

Completion, with a grade of "B" or better of a four core-course sequence. This sequence will consist of ANTH 5010, 20th Century Anthropological Theory; ANTH 5015, Archaeological Theory and Method; ANTH 5020, Biological Anthropology; and ANTH 5030, Linguistic Anthropology.

First semester (fall): Students will submit form to the graduate advisor and department head identifying their thesis advisor BEFORE the graduate assistant allocation meeting (mid-late November).

Second semester (spring): Students will work with their advisor to select their committee, which must be formed and on-file in the department office by the end of the semester. During the core classes' final exam periods, students give a presentation to departmental faculty which outlines the general ideas for their proposed thesis.

Third semester (fall): Working closely with their advisor and committee, students complete a detailed prospectus and gain approval from thesis committee for MA thesis topic.

Fourth semester (spring): Thesis is completed and is approved by thesis committee.

Any M.A. student receiving a grade of C or less in two core classes will be expelled from the program.

Second semester research presentations are assessed by all department faculty in attendance at the presentation and evaluations will be given to the student's advisors. It is expected that students will work closely with their advisors to rectify any problems before they complete their thesis prospectus in the third semester.

If not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Plan B (non-thesis)

See university minimum requirements.

All requirements for a Plan A except thesis, if not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Doctoral Program

See university minimum requirements.

After completion of an M.A. program in anthropology.

A minimum of six content courses (18 hours) chosen by the student in conjunction with the student's committee. These courses are normally completed in the first two years of the Ph.D. program. In addition to anthropology courses, the other 4000/5000-level courses outside of the department may be required by the committee or chosen by the student in consultation with their committee. If not completed prior to admission, two semesters of a single foreign language must be completed.

Two additional courses in their first or second year: ANTH 5880, Professionalism in Anthropology and the two-semester sequence of ANTH 5890, Teaching Anthropology (3 hours total).

Teaching experience, including standalone courses, after completion of the first semester of Teaching and Learning (ANTH 5890), as well as teaching assistance to UW faculty members.

Participation in an approved internship experience (6-24 credit hours). Students pursue internships in state and federal agencies, museums, contract archaeology organizations, and other organizations that offer potential career experience.

Committee meeting and successful completion of a dissertation proposal.

Preliminary exams take place after the completion of 18 hours of content courses. ANTH 5880, and Teaching and Learning in Anthropology (ANTH 5890, or other as designated), normally before the end of the second year. If a student does not receive a passing grade on the preliminary exam, it can be repeated once. Failure to pass the preliminary examination the second time results in termination from the anthropology program.

International experience is highly recommended but not required, e.g. pre-dissertation summer fieldwork.

Student maintains a portfolio which documents teaching, internship, and research experience.

Students are encouraged to present papers at professional conferences and submit articles for publication throughout their tenure as a student. After admission to candidacy, the student is expected to research, write, and defend a dissertation based on original research (up to 48 credit hours). Students may either submit a single dissertation or a series of integrated publishable articles (30-40 pages each). The student's committee must approve this choice and decide on the number, length and content of the articles at the same time, usually at the committee hearing prior to the preliminary exams. For the final submission of the dissertation, the student must also complete an introduction and conclusion to contextualize and synthesize the integrated articles.

Department of Visual and Literary Arts

Department of Visual and Literary Arts

110 Visual Arts Building, (307) 766-3269

Web site: <https://www.uwyo.edu/vla/>

Department Head: Doug Russell

Art and Art History Program

110 Visual Arts Building, (307) 766-3269

Web site: <https://www.uwyo.edu/art/>

Program Director: Doug Russell

Professors:

ASHLEY HOPE CARLISLE, B.F.A. University of Southern Mississippi 1997; M.F.A. University of Georgia 2002; Professor of Art 2019, 2003.

LEAH HARDY, B.F.A. Kansas University 1987; M.F.A. Indiana University 1990; Professor of Art 2014, 2002.

RICKI KLAGES, B.F.A. University of Arizona 1984; M.A. University of New Mexico 1991; M.F.A. 1993; Professor of Art 2012, 1996.

MARK RITCHIE, B.F.A. University of Kansas 1986; M.F.A. Indiana University 1990; Professor of Art 2007, 1995.

DOUG RUSSELL, B.F.A. Columbia College 1990; M.A. University of Iowa 1995; M.F.A. 1996; Professor of Art 2019, 2005.

Associate Professors:

DIANA BAUMBACH, B.F.A. Washington University in St. Louis 2003; M.F.A. Southern Illinois University 2007; Associate Professor of Art 2015, 2009.

PETER FINE, B.A. California State University, Chico 1993; M.F.A. University of Arizona 2004; Associate Professor of Art 2017, 2013.

BRANDON GELLIS, B.A. University of California at Santa Cruz 2002; M.F.A. University of Denver 2015; Associate Professor of Art 2021, 2015.

RACHEL SAILOR, B.A. Oregon State University 1992; M.A. University of Oregon 1994; Ph.D. University of Iowa 2007; Associate Professor of Art 2015, 2011.

SHELBY SHADWELL, B.F.A. Washington University in St. Louis 2003; M.F.A. Southern Illinois University 2007; Associate Professor of Art 2015, 2010.

Assistant Professor:

KATHLEEN FRYE, B.F.A. University of Colorado at Denver 1987; M.F.A. Colorado State University 1995; M.A. City College, New York; Assistant Professor of Art 2018.

Associate Academic Professional Lecturer:

BAILEY RUSSEL, B.A. Princeton University 2001; M.A. New York University 2004.

Senior Academic Professional Research Scientist:

DAVID L. JONES Jr., B.F.A. University of Georgia 2000; M.F.A. University of Tennessee 2004.

Assistant Academic Professional Lecturer:

RANI ROBISON, B.A. University of Utah 1999; M.F.A. University of Oregon 2008.

Professors Emeriti:

Deaderick, Edwards, Evans, Flach, Forrest, Reif, Russin (Distinguished Professor of Art), Schaefer, Haydon

Art and Art History

The Art and Art History Program within the Department of Visual and Literary Arts supports the creative, aesthetic and cultural development of students within the university community and serves the cultural and educational needs of the state. The department is dedicated to preparing its graduates to assume leadership positions in their professional lives while maintaining an inner commitment to the aesthetic standards of their chosen discipline.

The program fosters a unique combination of innovation, tradition, aestheticism and practicality, by providing a professional visual arts education built on a strong University Studies Program (USP) foundation.

Department Policy

A class within the Art and Art History Program within the Department of Visual and Literary Arts may require additional meeting times, so that students may fully participate in the Visiting Artist Program and the UWAM lecture series.

As a matter of policy, the Department of Visual and Literary Arts reserves the right to retain any works created by students it deems worthy for the purposes of exhibition until the end of the academic year.

The Department of Visual and Literary Arts studios are the primary instructional classrooms. As a matter of policy, access to the studios and use of the equipment is reserved for students who are formally registered for scheduled courses and are following a prescribed curriculum.

Scholarships

The department has several scholarships for qualified students at all stages in the program. See the Department of Visual and Literary Arts website for a full list of scholarships.

Academic and Career Advisement

Faculty advisers work closely with department students to guide and direct their progress through their declared degree program and course of study. Through the visiting Artist Program, the UW Art Museum and internship placements, the department provides numerous opportunities and role models for a professional life in the visual arts. Through consultation and discussion with faculty advisers, art students consider their interests and abilities in relation to the many and varied careers in the arts and art related fields. Many graduates go directly into industry, on to pursue graduate studies or take the next step in their career plan. On a competitive basis upon graduation, majors may participate in the Post Undergraduate Assistantship Program where they may prepare a portfolio for graduate school and/or gain additional experience in the studio and the classroom setting.

Undergraduate Majors

The University of Wyoming Department of Visual and Literary Arts offers five degrees within the Art and Art History Program:

- Bachelor of Arts in Art History
- Bachelor of Arts in Studio Art
- Bachelor of Arts in Art Education
- Bachelor of Fine Arts in Studio Art
- Bachelor of Fine Arts in Visual Communication Design

Transfer Residency

A minimum of 26 hours of upper-division course work in the major is required to establish residency in the department for all transfer students. This applies to students in all five of the B.F.A., B.A., and Art Education degree programs who transfer in 12 or more hours of art courses for the major. Students in all art programs must meet the university requirement of at least 42 hours of course work at the upper-division level (3000- and above).

Studio Art and Art Education Majors - General Requirements

ART 1005, 1110, 1120 and 1130 are considered an important preparation and prerequisite for drawing, painting, printmaking, ceramics, sculpture and graphic design courses and are required freshman courses for the major. Studio Art and Art Education Majors must complete the Foundation Core Hours before electing upper division courses in any studio area. ART 2010, 2020, and 2305 are required sophomore courses.

Once sophomore Art Studio and Art Education majors complete course prerequisites, they select a minimum of four courses from the studio core hours. Most of the university and college requirements should be completed as early as possible before the senior year. The department will enforce published prerequisites for courses.

Studio Art, Visual Communication Design, and Art Education majors must submit a portfolio for evaluation before proceeding to intermediate and advanced studios beyond the required studio core. Any student whose portfolio is assessed as deficient must address the deficiencies before receiving permission to advance in the major.

Please note: Studio Art and Art Education students who do not pass the portfolio review will be able to resubmit the following semester. However, if students fail more than once, they will be unable to progress in the Department of Visual and Literary Arts and may be asked to transfer to another department or UW college or complete an art minor. Portfolio evaluation will occur once in each of the fall, spring, and summer semesters.

Undergraduate Minors

Minors are offered in the following areas:

- Art History
- Ceramics
- Digital Media
- Drawing
- Metalsmithing

- Museum Studies
- Painting
- Photography
- Printmaking
- Sculpture

Further information may be found on the department's website.

Please note: B.A. in Studio Art, B.F.A. in Studio Art, B.F.A. in Visual Communication Design and B.A. in Art Education degree students cannot have a minor in a specific studio discipline. B.A. in Art History students may have a minor in studio disciplines, and B.A. in Studio Art, B.F.A. in Studio Art, B.F.A. in Visual Communication Design, and B.A. in Art Education degree students may have a minor in Art History and/or Museum Studies.

Creative Writing Program

201 Hoyt Hall, (307) 766-6453

FAX: (307) 766-3189

Web site: www.uwyo.edu/creativewriting/

Program Director: Val Pexton

Professors:

ALYSON HAGY, B.A. Williams College 1982; M.F.A. University of Michigan 1985; Professor of Creative Writing 2008, 1996.

HARVEY HIX, B.A. Belmont College 1982; M.A. University of Texas, Austin 1985; Ph.D. 1987; Professor of Philosophy and Creative Writing 2015.

FRIEDA E. KNOBLOCH, B.A. Cornell University 1985; Ph.D. University of Minnesota 1994; Professor of American Studies and Creative Writing 2014, 1997.

JEFFREY A. LOCKWOOD, B.S. New Mexico Institute of Mining and Technology 1982; Ph.D. Louisiana State University 1985; Professor of Philosophy and Creative Writing 2006.

Associate Professors:

KATE NORTHROP, B.A. University of Pennsylvania 1991; M.F.A. University of Iowa 1995; Associate Professor of Creative Writing 2008.

Senior Lecturers:

APRIL HEANEY, B.A. University of Wyoming 1998; M.A. 2000. Senior Lecturer in English and Creative Writing 2015, 2005.

VAL PEXTON, B.A. Humboldt State University 1986; B.A. University of Wyoming 1998; M.A. 2001; M.F.A. 2008; Senior Lecturer in English and Creative Writing 2018, 2009.

PAUL BERGSTRAESSER, B.A. Oberlin College 1989; M.A. Northern Michigan University 2000; Ph.D. University of Illinois, Chicago 2007; Senior Lecturer in English and Creative Writing 2018, 2007.

Creative Writing

We are writers. Our principles follow from what claims us as writers as we guide our students in the creation of their own work. We offer a commitment to art and to the development of community through art. We offer an immersion in making, a chance to discover, to create serious work without pretense, to collaborate, to shake off assumptions and anxieties.

To be first and foremost concerned with making does not mean we take refuge from the world. It means we begin by supporting the deepest, most intelligent engagement with what matters to us as writers. A critical distance from the literary and academic marketplaces allows us to engage with them in a more thoughtful manner once we have found our authentic calling—that which we are truly compelled to explore. Our values will never map perfectly onto the concerns of institutions, and that is good. We strive to create the finest conditions for the making of art when we remain in an eccentric orbit of our own, one that overlaps with the other orbits, yet remains, as much as possible, guided by our own principles which include:

Making: we require the serious, committed, ongoing process of writing and revision.

Range: we cultivate a diversity of taste, form, genre, experience, and background, as well as an open understanding of what might constitute professional accomplishment.

Flexibility: we invite our writers to pursue their own creative and intellectual goals, to tailor the program in individual ways.

Curiosity: we urge creative and intellectual roaming: cross-genre work, interdisciplinary study, the movement across what are usually understood as boundaries; we encourage students to imagine possibilities beyond what is already imagined for them by the program and the university.

Community: we foster an environment that sustains listening, investment in the work of others, collaboration, rigorous expectation, generosity and, at the same time, respect for solitude.

Integrity: we challenge students to engage in deep investigation, to find their intent as a writer and to commit to it fully.

Graduate Study

The Creative Writing Master of Fine Arts offers two areas of concentration: fiction and creative non-fiction.

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this Catalog, the Creative Writing M.F.A. Program requires that students demonstrate by means of an official transcript that they have a solid undergraduate record. The M.F.A. program welcomes degrees in any discipline from four-year colleges or universities. Candidates submit three letters of recommendation, a writing sample consisting of no more than 25 pages of prose, a 500-word statement of purpose and a vita. Students should consult the M.F.A. web site or contact the department for specific admission information and deadlines.

Program Specific Graduate Assistantships

We are a fully-funded program, meaning that we accept only as many students as we can support with graduate assistantships. Full assistantships carry an annual stipend and tuition waiver, and require the teaching of one section per semester, or equivalent work assignment. M.F.A. students are expected to teach freshman English.

Each fall, the English department conducts a week-long orientation for new teaching assistants and a subsequent series of colloquia. Each graduate assistant is assigned to an experienced teacher in the English department as a mentor, to be available throughout the semester for consultation on teaching and grading techniques.

Department of Botany

Botany

114 Aven Nelson Building, (307) 766-2380

FAX: (307) 766-2851

Web site: www.uwyo.edu/botany

Department Head: Naomi Ward

Professors:

GREGORY K. BROWN, B.S. Colorado State University 1973; M.S. Arizona State University 1978; Ph.D. 1980; Professor of Botany 1997, 1985.

ALEX BUERKLE, B.A. (Hons.) University of Missouri 1990; Ph.D. Indiana University 1997; Professor of Botany 2016, 2004.

BRENT E. EWERS, B.S. Colorado State University 1995; M.S. Duke University 1997; Ph.D. 1999; Professor of Botany 2014, 2002.

STEVEN L. MILLER, B.S. University of Wyoming 1979; M.S. Virginia Polytechnic Institute and State University 1982; Ph.D. 1985; Professor of Botany 2002, 1990.

CAMELLIA OKPODU, B.S. North Carolina State University 1987; Ph.D. North Carolina State University 1994; Professor of Botany 2021.

DAVID TANK, B.S. (Hons.) Michigan State University 1998; M.S. Michigan State University 2000; Ph.D. University of Washington 2006; Professor of Botany 2021.

NAOMI WARD, B.Sc. (Hons.) University of Queensland 1993; Ph.D. University of Warwick 1997; Professor of Molecular Biology and Botany 2019, 2007.

CYNTHIA WEINIG, B.A. (Hons.) Brown University 1991; Ph.D. Indiana University 1999; Professor of Botany and Molecular Biology 2013, 2007.

DAVID WILLIAMS, B.A. The University of Texas, Austin 1985; M.S. Texas A&M University 1988; Ph.D. Washington State University 1992; Professor of Botany 2009, 2003.

Associate Professors:

ELLEN D. CURRANO, B.Sc. (Hons.) University of Chicago 2003; Ph.D. Pennsylvania State University 2008; Associate Professor of Botany 2017, 2014.

DANIEL LAUGHLIN, B.S. Calvin College 1999; M.S. Pennsylvania State University 2002; Ph.D. Northern Arizona University 2009; Associate Professor of Botany 2017.

Assistant Professors:

LAUREN SHOEMAKER, B.A. (Hons.) Colorado College 2011; Ph.D. University of Colorado Boulder 2017; Assistant Professor of Botany 2019.

CATHERINE E. WAGNER, B.A. (Hons.) Whitman College 2004; Ph.D. Cornell University 2011; Assistant Professor of Botany 2015.

CHRISTOPHER WEISS-LEHMAN, B.A. Earlham College 2010; Ph.D. University of Colorado Boulder 2017; Assistant Professor of Botany 2019.

Senior Lecturer:

MARK E. LYFORD, B.A. St. Olaf College 1993; M.S. University of Wyoming 1995; Ph.D. 2001; Senior Lecturer in Botany 2014, 2005;

Associate Lecturer:

CHRISTOPHER NORTH, B.S. Virginia Polytechnic Institute and State University 2002; M.S. Eastern Illinois University 2005; Ph.D. University of Wyoming 2017; Associate Lecturer in Botany 2020, 2014.

Assistant Lecturers:

JAMIE CRAIT, B.Sc. Oregon State University 1999; M.S. University of Wyoming 2005; Ph.D. 2013; Assistant Lecturer in Botany 2018.

Senior Research Scientist:

BURRELL E. NELSON, B.A. Andrews University 1971; M.A. University of Wyoming 1974; Senior Research Scientist.

Research Scientist:

BEN LEGLER, B.S. University of Washington 2001; M.S. University of Wyoming 2010; Research Scientist 2021.

Professors Emeriti:

Dennis H. Knight, Stephen T. Jackson, William A. Reiners

Associate Professors Emeriti:

Daniel B. Tinker

Botany

Botany is the study of plants and their relationship to human affairs. The science is fundamental to food, fiber and pharmaceutical production; to the management of landscapes for beauty, recreation, forest products and forage; and to the protection of landscapes against pollution and other abuses. The botanist is concerned with the diversity and classification of plants and fungi, their structure at both the macroscopic and microscopic levels, and their physiology, ecology and genetics and evolutionary relationships.

Courses in botany have been developed to meet the needs of the following groups of students: those who desire a general knowledge of the subject for its cultural value; those specializing in areas which require a background in plant biology; and those selecting botany or biology as a major.

Undergraduate Degrees:

Students can choose from two undergraduate degree majors: the Botany B.S. and Biology B.S. programs. The Biology B.S. program includes an optional Concentration in Ecology and Evolution. The Biology B.S. degree program also maintains a concurrent major offered through the College of Education whereby students fulfill all the major requirements for Biology on top of their requirements for the B.S. degree in Secondary Science Education with a major in Biological Sciences Education.

Undergraduate minors:

Minors in Biology and Botany are offered.

Graduate Study:

The Department of Botany offers graduate programs leading to the master of science and the doctor of philosophy degrees in botany and the master of science degree in botany/water resources.

Program Specific Admission Requirements (Graduate Study)

A minimum GPA of 3.000 on previous coursework is required.

Program Specific Degree Requirements (Graduate Study)

Regardless of field of specialization, all candidates will be held responsible for basic information in the following areas: genetics, physiology, morphology, and evolutionary and environmental botany. A knowledge of chemistry (including organic and elementary biochemistry), physics, calculus, and statistics may be required.

A minimum GPA of 3.000 must be maintained. Any course in which a C (or below) or U is obtained cannot be counted toward the degree requirement.

Participation in seminars will be required of all candidates during their residence at the University of Wyoming.

Department of Chemistry

204 Physical Sciences Building,

(307) 766-4363

FAX: (307) 766-2807

Web site: www.uwyo.edu/chemistry

Department Head: Debashis Dutta

Professors:

DAVID T. ANDERSON, B.S. George Washington University 1987; Ph.D. Dartmouth College 1993; Professor of Chemistry 2012, 2000.

FRANCO BASILE, B.S. University of Wisconsin-Eau Claire 1986; Ph.D. Purdue University 1992; Professor of Chemistry 2018, 2003.

DEBASHIS DUTTA, B. Tech Indian Institute of Technology 1998; Ph.D. University of Notre Dame 2003; Professor of Chemistry 2017, 2006.

JOHN O. HOBERG, B.A. Jamestown College 1984; Ph.D. Montana State University 1990; Professor of Chemistry 2020, 2004.

TERESA LEHMANN DELLA VOLPE, B.S. Universidad Central de Venezuela 1987; Ph.D. University of Minnesota 1997; Professor of Chemistry 2021, 2008.

BRUCE A. PARKINSON, B.S. Iowa State University 1972; Ph.D. California Institute of Technology 1977; Professor of Chemistry 2008.

JING ZHOU, B.S. Xiamen University 1997; Ph.D. University of South Carolina 2004; Professor of Chemistry 2021, 2007.

Associate Professors:

ELLIOTT HULLEY, B.S. Ursinus College 2005; Ph.D. Cornell University 2011; Associate Professor of Chemistry 2020, 2014.

BRIAN M. LEONARD, B.S. University of Nebraska at Kearney 2003; Ph.D. Texas A&M 2008; Associate Professor of Chemistry 2016, 2010.

Assistant Professors:

CALEB M. HILL, B.S. Jacksonville State University 2009; Ph.D. University of Alabama 2014; Assistant Professor of Chemistry 2016.

LAURA RITA DE SOUSA OLIVEIRA, B.S. New Mexico Institute of Mining and Technology 2010; Ph.D. University of California, Riverside 2017; Assistant Professor of Chemistry 2020.

MICHAEL T. TAYLOR, B.S. Salisbury University 2006; Ph.D. University of Delaware 2013; Assistant Professor of Chemistry 2017.

Research Faculty:

NAVAMONEY ARULSAMY, B.Sc. Madurai-Kamaraj University, India 1982; M.Sc. 1986; Ph.D. University of Hyderabad, India 1991; Senior Research Scientist 2013, 2005.

ALEXANDER GORONCY, B.S. University of Bremen; Ph.D. University of South Carolina; Research Scientist 2015.

Adjunct Professors:

YURI DAHNOVSKY, Ph.D. Institute of Chemical Physics, Moscow 1983; Adjunct Professor of Chemistry 2001.

MAOHONG FAN, Ph.D. Osaka University 2003; Professor in SER and CEAS; Adjunct Professor in Chemistry 2009.

Senior Lecturer:

CARLA DEE BECKETT, B.S. University of Wyoming 1991; M.S. 2007; Senior Lecturer of Chemistry 2012, 2011.

RACHEL WATSON, Senior Lecturer in Chemistry

Assistant Lecturers:

KUI CHEN, B.Sc. Xiamen University 1997; Ph.D. University of South Carolina 2004; Assistant Lecturer of Chemistry 2019.

GINKA S. KUBELKA, M.S. University of Wuerzburg, Germany 2010; Ph.D. University of Wyoming 2015. Assistant Lecturer of Chemistry 2016.

Professors Emeritus:

Vernon Archer, Keith T. Carron, Robert Corcoran, Clyde Edmiston, Anthony Guzzo, Suzanne Harris, Robert Hurtubise, David Jaeger, E.G. Meyer, Dean M. Roddick, Edward Clennan.

Senior Lecturer Emeritus:

Patricia A. Goodson

Chemistry is one of the fundamental physical sciences dealing with the structure and properties of matter, along with changes that matter undergoes. Chemistry's scope encompasses all substances, living and non-living. Its study and practice include (1) the theoretical and experimental aspects of chemical bonding and structure using computational, spectroscopic, and diffraction techniques; (2) the laboratory synthesis from simple starting materials of desirable compounds in the inorganic, organic and biological classes; and (3) the total analysis of complex mixtures using modern spectroscopic and electrochemical methods. Since we live in a material world, applications of chemical knowledge influence most areas of human endeavor: scientific, economic, political and social. Many of the advances in the areas of new materials, medicines, biotechnology, food production, new energy sources and semiconductor

technology associated with the "computer revolution" are based on chemistry and chemical principles. Some understanding of these chemical principles should be part of every educated person's knowledge.

Because of the broad scope of this discipline, the Department of Chemistry offers a variety of courses and programs. These programs meet the needs of students planning professional careers in chemistry and those wishing to major in chemistry for other objectives. In particular, chemistry is a traditional pre-professional major for students interested in medicine and dentistry. Specific courses are offered to serve other major areas and as part of University Studies and A&S core requirements.

Students who have taken an AP examination and have received a score of 4 or 5 may receive credit for CHEM 1020 and CHEM 1030.

Undergraduate Minor

A minor is offered in the Department of Chemistry. Further information may be found at the web site www.uwyo.edu/chemistry.

Graduate Study

The Department of Chemistry offers programs leading to the degrees of master of science and doctor of philosophy chemistry. The master's degree is offered mainly under Plan A with Plan B reserved for special circumstances.

The department also participates in the preparation of students for the degrees of master of science in natural science and master of science in teaching (M.S.T.), which are designed to improve the competence of those engaged in science teaching.

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this *Catalog*, the Department of Chemistry requires that a student have taken the following undergraduate courses: one year of general chemistry; one semester/quarter of quantitative analysis; one year of organic chemistry plus laboratory; one year of physical chemistry plus laboratory; one year of physics; and mathematics through multivariable calculus. As appropriate, one or more of these course requirements may be waived at the discretion of the department.

Department of Communication and Journalism

223 Ross Hall, (307) 766-3122

FAX: (307) 766-5293

Web site: www.uwyo.edu/COJO

Department Chair: Cindy Price Schultz

Professor:

CHIA FANG (SANDY) HSU, B.A. Chinese Culture University 1995; M.A. Washington State University 1997; Ph.D. Washington State University 2002; Associate Professor of Communication and Journalism 2009, 2003.

Associate Professors:

KRISTEN D. LANDREVILLE, B.S. University of Florida 2004; M.A. 2006; Ph.D. Ohio State University 2010; Associate Professor of Communication and Journalism 2017, 2010.

LI LI, B.A. Hebei Normal University 2001; M.A. China University of Mining and Technology 2004; M.A. Ohio University 2009; Ph.D. 2012; Associate Professor of Communication and Journalism 2019, 2012.

CINDY J. PRICE SCHULTZ, B.A. University of Sioux Falls 1989; M.S. South Dakota State University 1992; Ph.D. Southern Illinois University 2000; Associate Professor of Communication and Journalism 2005, 1999.

Assistant Professor:

KATHRYN (KAATIE) COOPER, B.S. Trinity University 2008; M.A. Ohio State University 2013; Ph.D. 2018; Assistant Professor of Communication and Journalism 2019.

Instructor:

SHANE EPPING, B.A. University of Chicago; M.A. Washington University, St.Louis; M.A. University of Missouri

Senior Lecturers:

BEAU BINGHAM, B.S. Idaho State University 2000; M.A. New Mexico State University 2002; Senior Lecturer of Communication and Journalism 2007, 2003.

JUSTIN STEWART, B.A. University of Wyoming 2003; M.A. 2005; Senior Lecturer of Communication and Journalism 2017, 2005.

Assistant Lecturers:

MATTHEW LIU, B.A. University of Mary Washington 2009; M.A. Wake Forest University 2014; Assistant Lecturer of Communication and Journalism 2019.

MITZI STEWART, B.A. University of Wyoming 2007; M.A. 2015; Assistant Lecturer of Communication and Journalism 2019.

Emeriti:

Michael R. Brown, B. Wayne Callaway, William C. Donaghy, George A. Gladney, John W. Ravage, Kenneth L. Smith

The Department of Communication and Journalism provides a broad range of professional and research courses, offering a sound interdisciplinary academic program for students who plan careers in communication or media. Courses are comprised of writing, speaking and analyzing messages; forms of interpersonal communication; media effects and audiences' interpretations of media messages and images. Degrees are granted in communication and journalism with academic specialties in each of the degree areas. Students are given academic preparation in communication skills (media writing and public speaking), coupled with opportunities for professional experience in their majors. The department also offers minors in public relations, communication, journalism, and marketing communication.

Facilities and Research Activities

The department encourages majors to work actively in professional opportunities. The department offers unique experience for students with the student newspaper, *The Branding Iron*.

Oral Communication Center, Ross Hall 442. A resource for the entire university community. The lab is open for anyone required to present material orally. Lab instructors offer assistance at any stage in the process—from topic selection, purpose statements and gathering materials—to organizing, outlining and rehearsal. They can help alleviate speech anxiety that may prevent or inhibit some individuals from achieving their overall academic or career goals. Clients can have their presentations recorded for critical input and evaluation as well as for portfolio or interview applications.

Debate. The department conducts a nationally recognized program of Cross Examination Debate Association (CEDA) and has a British Parliament team. Teams and individuals representing the university attend national intercollegiate tournaments each year. Participation in the forensics program is open to all University of Wyoming students on a credit (COJO 2099) or non-credit basis.

Laboratories. The department has computer laboratories that support the professional, academic and research programs. These include a computer lab and digital production equipment.

Research. The department encourages undergraduate and graduate research. Faculty and students participate in research projects in social, cultural and political aspects related to media, interpersonal and organizational processes.

Internships. Journalism majors are required to complete internships in their field. Communication majors are encouraged to complete internships in their field. In addition to working with the *Branding Iron*, students can complete internships with newspapers; advertising and public relations agencies; non-profit organizations; businesses, professional and university sports organizations; governmental agencies; and many others. *Note:* a maximum of 6 hours in COJO 3480 and COJO 4990 count as fulfillment of the requirements for a major. Up to 12 hours will count toward graduation as upper-division hours.

Student Organizations

Professional Organizations. The department has a chapter of Lambda Pi Eta, communication honorary.

Student Activity. Within the department, student representatives participate on faculty committees where they assist in forming policies of the department.

The Branding Iron. The daily campus newspaper is independently managed by students at UW. It provides professional experiences for reporting, editorial, photojournalism, publication design and advertising.

The Owen Wister Review. The literary and arts magazine is independently managed and produced by university students, it features poetry, short stories, essays, photography and artwork.

Frontiers Magazine. The magazine is independently managed by UW students. Containing general interest content, the publication offers students opportunities to improve their professional skills in feature writing, in-depth reporting, photography, layout, design, advertising and marketing. Like the *Branding Iron* and *Owen Wister Review*, *Frontiers* is published under the auspices of UW Student Publications.

Scholarships and Awards

The department has several scholarships available to qualified students. Most are managed by Student Financial Aid.

Undergraduate Programs

The department offers courses leading to baccalaureate degrees in communication and journalism, as well as being an instrumental part of the Agricultural Communications degree. If a student wishes to double major in any of these degrees, only six credits will double count for each major.

Students majoring in the department must earn a grade of C or better in departmental required courses. Students may not take a course for S/U credit to satisfy requirements of the major.

Minors

The department offers minors in communication, journalism, marketing communication, and public relations. All minors must have a 2.00 minimum in minor classes. If a student is a communication, journalism or Agricultural Communications major, only six credits can double count for the major and the minor.

Graduate Study

The Department of Communication and Journalism offers graduate work leading to the master of arts degree in communication (either thesis or non-thesis) with emphasis on human communication or media communication.

The program offers coursework and study in rhetorical, critical/cultural, and social scientific perspectives and methodologies. The program is designed to be flexible such that students can examine questions that relate to their specific interests in human communication and/or mediated communication. Areas of interest include but are not limited to 1) communication processes in media (e.g., journalism, social media, advertising, public relations) about various issues such as politics, race and ethnicity, science, health, law and ethics, and international relations; 2) communication processes in human relationships (e.g., in interpersonal, small group, and organizational settings) about various issues such as culture, diversity, education, technology, science, and politics; and 3) communication as an agent of stability and change in diverse social systems.

Program Specific Admission Requirements

A cumulative minimum grade point average of 3.000 (A=4.000) on previous coursework is required for full admission.

The GRE is not required for admission to the graduate program. However, anyone who wants to be considered for a graduate assistantship in the department must take the GRE.

For international graduate students, the minimum acceptable TOEFL score is 540 (76 iBT). The minimum acceptable IELTS score is 6.5. International students must also provide proof of financial support (see UW Admissions for more details).

All graduate student applications, both domestic and international, must provide a writing sample of their work, whether that is a research paper, media publication, or another example of scholarly work. Please contact the director of graduate studies with any questions about the writing sample.

Department of Criminal Justice and Sociology

Contact Information

**208 Arts and Sciences Building,
(307) 766-2988**

Criminal Justice website: www.uwyo.edu/cj **Sociology website:** www.uwyo.edu/Sociology
Department Head: Eric Wodahl

Mission Statement

The Department of Criminal Justice & Sociology is committed to providing its students with a comprehensive liberal arts education and advancing research of value to Wyoming and our respective fields. We strive to provide a high-quality education to students that will inspire them to become critical thinkers, effective communicators, and lifelong consumers of knowledge. Students will be exposed to diverse perspectives, research, and learning opportunities to prepare them for a variety of professions in the public, private, non-profit, research, service, and academic settings.

Faculty

Professors:

ADRIENNE FRENG, B.A. Black Hills State University 1995; M.A. University of Nebraska 1997; Ph.D. 2001; Professor of Criminal Justice 2007, 2001.

ERIC J. WODAHL, A.A. Eastern Wyoming College 1992; B.A. Chadron State College 1994; M.P.A. University of Wyoming 2003; Ph.D. University of Nebraska at Omaha 2007; Professor of Criminal Justice 2021, 2007.

Associate Professors:

LAUREN McLANE, B.S. Radford University 2002; J.D. Seattle University School of Law 2008; Associate Professor of Law 2021, 2018.

JAMIE SNYDER, B.S. Northern Kentucky University 2005; M.S. University of Cincinnati 2007; Ph.D. 2011; Associate Professor of Criminal Justice 2021, 2018.

JENNIFER TABLER, B.A. University of California Los Angeles 2010; M.S. University of Utah 2013; Ph.D. 2016; Associate Professor of Sociology 2022, 2018.

Assistant Professors:

DANIEL AUERBACH, B.S. St. Lawrence University 2008; M.S. North Carolina State University 2012; Ph.D. University of Utah 2020; Assistant Professor of Sociology 2020.

KATELYN GOLLADAY, B.B.A. Pacific Lutheran University 2012; M.S. Arizona State University 2014; Ph.D. 2018; Assistant Professor of Criminal Justice 2018.

CLAIR WHITE, B.A. Colorado State University 2009; Ph.D. Arizona State University 2015; Assistant Professor of Criminal Justice 2018.

Lecturers:

DANIEL FETSCO, B.A. University of Wyoming 1995; J.D. University of Denver 1998; M.A. Arizona State University 2013; Assistant Lecturer of Criminal Justice 2017.

KAITLYN ROOT, B.A. Western Washington University 2012; M.A. University of Akron 2017; Ph.D. 2020;
Assistant Professional Lecturer 2020.

Adjunct Professor:

(See Catalog section following name for academic credentials.)

Robert A. Schuhmann, political science

Professors Emeriti:

David Ashley, Audie Blevins, Gary Hampe, Malcolm Holmes, Quee-Young Kim, Richard Machalek

Degree Programs

Criminal Justice Program

Criminal Justice is a social science that major examines the causes and impacts of crime in society. Graduates go on to careers in fields such as law enforcement, homeland security, probation and parole, and victim services. The Criminal Justice Program offers both undergraduate and graduate degrees, concentrations, and minors (see below for details). Criminal Justice students will be involved in a critical examination of the sources of criminal behavior and the social and political institutions and processes designed to control criminal behavior. We expect that our graduating students will have achieved the following learning outcomes:

1. Accurate knowledge relating to crime in modern society to include the elements of major crime, the extent of crime, and its distribution in society
2. A broad historical and contemporary understanding of the institutions that make up our criminal justice system, the interconnectedness of these institutions, and the related issues of diversity and discrimination
3. An understanding of the major legal principles that serve as the foundation for criminal law and the processing of individuals through the justice system, as well as the difficult situations and ethical dilemmas they will face in the criminal justice field
4. An understanding of and ability to apply basic concepts and theoretical perspectives in criminology and criminal justice
5. Possess the ability to access, comprehend, and critically examine research and policy relevant to the field of criminal justice and criminology, including understanding basic research methodology.

Sociology Program

Sociology is the scientific study of group life and the investigation of the social causes and consequences of human behavior. This discipline occupies a central position in the social sciences and covers the full scope of social behaviors from intimate interactions between individuals to relationships among entire societies. Most importantly, sociology invites students to analyze those features of social existence that we are most likely to take for granted. As such, sociological training imparts critical and analytical skills of great value in virtually all aspects of modern life.

Much of the applied knowledge employed in diverse fields such as communications, social work, business management, family life, health care, urban planning, government, education, religion and the administration of justice derives from basic sociological research. Consequently, sociological training provides an excellent background for occupations connected with these fields. In addition, an undergraduate degree in sociology prepares many students for

advanced study in law, education, business, public administration, social work, pastoral work, health care and other professions.

The department provides a comprehensive sociology education both for students who elect to terminate their formal education with the B.A. and for those who plan to pursue advanced degrees in sociology or a related social science. Fundamentally, however, the department aspires to prepare students for informed participation in an increasingly complex world.

Sociology majors with a 3.200 overall GPA, a 3.500 GPA in sociology courses and one 5000-level sociology course graduate with honors in sociology. The department also nominates students for membership in Alpha Kappa Delta, the international honorary society for sociology. Selection is based on academic excellence.

Department of English

126 Hoyt Hall, (307) 766-6452

FAX: (307) 766-3189

Web site: www.uwyo.edu/english

Department Chair: Kelly Kinney

Professors:

SUSAN ARONSTEIN, B.A. Seattle Pacific University 1980; M.Sc. Edinburgh University 1984; Ph.D. Stanford University 1987; Professor of English 2006, 1987.

KENT G. DRUMMOND, B.A. Stanford University 1980; M.B.A. Northwestern University 1982; Ph.D. University of Texas, Austin 1990; Associate Professor of English 2019, 1990.

SUSAN C. FRYE, B.S. Smith College 1974; M.A. University of New Mexico 1981; Ph.D. Stanford University 1986; Professor of English 2001, 1986.

CAROLINE McCracken-Flesher, M.A. University of Edinburgh 1980; M.A. Brown University 1986; Ph.D. 1989; Professor of English 2004, 1989.

Associate Professors:

CAROLYN ANDERSON, B.A. Auckland University 1981; M.A. 1984; Ph.D. Stanford University 1992; Associate Professor of English 2001, 1993.

MICHAEL EDSON, B.A. Virginia Tech University 2003; M.A. University of Delaware 2005; Ph.D. 2011; Associate Professor of English 2020, 2014.

SCOTT HENKEL, B.A. Western Michigan University 1997; M.A. Ohio University 2000; Ph.D. Michigan State University 2007; Associate Professor of English 2018, 2015.

KELLY KINNEY, B.A. Purdue University 1992; M.A. University of Nebraska-Omaha 1996; Ph.D. Ohio University 2005; Associate Professor of English 2015.

MICHAEL KNIEVEL, B.A. Creighton University 1995; M.A. 1997; Ph.D. Texas Tech University 2002; Associate Professor of English 2009, 2002.

CLIFFORD J. MARKS, A.B. University of Michigan 1983; M.A. State University of New York, Buffalo 1988; Ph.D. 1992; Associate Professor of English 2000, 1993.

JULIA OBERT, B.A. University of Western Ontario 2004; M.A. University of British Columbia 2006; Ph.D. University of California, Irvine 2011; Associate Professor of English 2016, 2011.

PETER PAROLIN, B.A. University of British Columbia 1988; M.A. University of Pennsylvania 1991; Ph.D. 1997; Associate Professor of English 2003, 1997.

JASON THOMPSON, B.A. Pacific Lutheran University 1996; MFA University of Arizona 2000; Ph.D. 2008; Associate Professor of English 2015, 2008.

ARIELLE ZIBRAK, B.A. University of Rochester 2003; M.A. Boston University 2007; Ph.D. 2013; Assistant Professor of English 2020, 2014.

NANCY SMALL, B.A. Texas A&M University 1992; M.A. 1994; Ph.D. Texas Tech University 2014; Assistant Professor of English and Director of Writing Programs 2017.

Assistant Professors:

JAMES CREEL, B.A. University of Wyoming 2007; M.A. 2011; Ph.D. Texas Christian University 2018; Assistant Lecturer Professor of English 2021.

Senior Lecturers:

PAUL BERGSTRAESSER, B.A. Oberlin College 1989; M.A. Northern Michigan University 2000; Ph.D. University of Illinois, Chicago 2007; Senior Lecturer in English and Creative Writing 2018, 2007.

RICK FISHER, B.A. University of Wyoming 2002; M.A. 2006; Ph.D. 2018; Senior Lecturer in English 2020, 2015, 2011.

APRIL HEANEY, B.A. University of Wyoming 1998; M.A. 2000. Senior Lecturer in English and Creative Writing 2015, 2005.

VAL PEXTON, B.A. Humboldt State University 1986; B.A. University of Wyoming 1998; M.A. 2001; M.F.A. 2008; Senior Lecturer in English and Creative Writing 2018, 2009.

JOYCE STEWART, B.A. Felician College 1994; M.A. Creighton University 1998; Senior Lecturer in English 2018, 2008.

Assistant Lecturers:

ASHLEY M. BURCHETT, B.A. The College at Southeastern 2016; M.A. North Carolina State University 2018; Assistant Lecturer in English 2019.

Study in the English department today emphasizes composition, literature, and rhetoric, creative and expository writing, and the nature and workings of language. Students in the department's programs can learn to read with pleasure and understanding, to write with grace, clarity and force, and to think with greater depth and breadth. With these accomplishments, students are prepared for lives and work in which their power to understand, read, write and communicate will serve themselves and others, some specifically in careers in writing or teaching, some in professions of law, medicine, administration or almost any other field.

Composition, Literature, and Rhetoric are traditions that reach back through the centuries, but these intellectual traditions are continually growing and changing. New theories of language help us reshape understandings of ancient traditions and enhance our lives as critical readers and writers and creative human beings.

Assessment of English Undergraduate Learning

Through an active and ongoing assessment of our program, we have identified the following outcomes that are expected of each student graduating with a Bachelor of Arts in English. We will continue to assess our curriculum to ensure these outcomes are being met:

UW students graduating with a Bachelor of Arts in English will have demonstrated an ability to:

1. Read, interpret, and write about a diverse range of texts in English, for example literature, film, digital media, and popular culture;
2. Understand those texts analytically and critically;
3. Understand those texts on the basis of careful close reading;
4. Understand those texts through past and current literary and rhetorical theory;
5. Understand that those texts are culturally constructed in time, place, and tradition;
6. Understand how those texts inform culture;
7. Participate in the critical and cultural discourses of English;
8. Participate clearly and appropriately through multiple spoken and written forms.

English Honors Program

Requires a 3.500 GPA and a senior honors paper and defense. See the English department web site for information.

Teacher Certification

Students seeking the B.A. in English may also be certified for public school teaching by completing additional requirements set forth by the College of Education, via a concurrent major in English and English Education.

Graduate Study

The M.A. graduate program in English offers three concentrations leading to the master of arts degree: Literary Studies, Composition and Rhetoric, and Public Humanities.

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this *Catalog*, the Department of English requires that students demonstrate by means of an official transcript that they have a solid undergraduate record with course work in English. That said, the department welcomes degrees in English or other disciplines from four-year colleges or universities.

Depending on their undergraduate preparation, some successful applicants may be required to take additional or specific courses toward the English master's degree.

Candidates must submit GRE general test scores, a writing sample, a 500-word statement of purpose, a CV/resume, and three letters of recommendation.

English offers both a campus-based M.A. degree and a low-residency/online M.A. degree. Students should consult the M.A. web site or contact the department for specific admission information and deadlines for both M.A. programs.

Program Specific Graduate Assistantships

Teaching assistantships are available to qualified applicants in the campus-based M.A. degree. Full assistantships carry an annual stipend and a remission of full-time tuition and fees, and require the teaching of one course per term.

Each fall the department conducts a week-long orientation for new teaching assistants and a subsequent series of colloquia for all graduate assistants. Each assistant is assigned an experienced teacher in the department as a mentor, to be available throughout the semester for consultation on teaching and grading techniques.

Department of Geology and Geophysics

Geography Program

122 Geology Building, (307) 766-3386

Web site: www.uwyo.edu/geography

Program Director: Mark T. Clementz

Professor Emeritus:

John L. Allen, William L. Baker, Ronald E. Beiswenger, Thomas Buchanan, Deborah D. Paulson, Gerald Webster

Faculty and Staff Affiliates:

Professors

R. MCGREGGOR CAWLEY, B.A. Kearney State College 1971; M.A. Colorado State University 1974; Ph.D. 1981; Professor of Political Science 1997, 1987.

THOMAS A. MINCKLEY, B.S. Northern Arizona University 1987; University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2012.

JACQUELINE J. SHINKER, B.S. University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2005.

BRYAN N. SHUMAN, B.A. Colorado College 1994; M.S. Brown University 1997; Ph.D. 2001; Professor of Geology 2015, 2007.

Associate Professors

YI-LING CHEN, B.S. National Taiwan University 1989; M.S. 1992; Ph.D. Rutgers University 2000; Associate Professor of International Studies and Geography 2015, 2010.

BRANDON McELROY, B.S. University of Michigan 2000; M.S. 2003; Ph.D. University of Texas 2009; Associate Professor of Geology 2019, 2011.

Assistant Professors

NICHOLAS CRANE, B.A. The Ohio State University 2006; M.A. 2008; Ph.D. 2014; Associate Professor of Geography and International Studies 2021, 2016.

ZOE PEARSON, B.A. University of California Los Angeles 2005; M.A. Ohio State University 2010; Ph.D. 2016; Associate Professor of Geography and International Studies 2021, 2016.

The Geography Program is comprised of faculty from across the University of Wyoming campus with interests and expertise in geography and resource management. The program is transdisciplinary with a focus upon the following:

1. The origin and nature of the physical and cultural environment, how the physical environment and its natural resources form, and how the environment and natural resources affect the quality of life.
2. The ways in which people and institutions affect natural resources and the environment.
3. The ways in which human institutions (e.g. political, economic, social) interact to produce diverse human landscapes.

Learning

The Geography Program has identified four fundamental goals of geography to emphasize in its undergraduate curriculum. These four goals are at the intersection of topically important areas in the discipline of geography. We continue to evaluate student learning in our program to insure our curriculum addresses these fundamental goals as effectively as possible.

Goal 1 - Human-Environment Interaction

Students will be able to identify and explain how humans modify the environment and affect Earth's biophysical systems through their human activities.

Goal 2 - Biophysical Systems

Students will be able to identify and explain an array of patterns, processes, and interactions in Earth's biophysical systems occurring at different spatial scales.

Goal 3 - Human-Cultural Systems

Students will be able to identify and explain an array of patterns, processes, and interactions across Earth's human landscapes at different spatial scales.

Goal 4 - Geographic Thought, Methods and Analysis

Students will understand basic geographic concepts and ideas, and will be capable of using them to inform their work. Students will also demonstrate the ability to select and use appropriate tools and techniques for addressing geographic problems and conducting geographic analysis. They will also be able to use multiple methods to examine, represent, and visualize Earth and its geographic characteristics.

Undergraduate Major

In addition to course work required by the university and the college, majors must complete 40 hours of program requirements, all of which must be completed with a grade of C or above, of which at least 15 credits will be 3000-4000 level courses within the selected competencies. All Geography degree students will complete a topical language requirement. Students completing a B.S. degree will need to complete two semesters of a computational or science language (computer programming language, mathematical language or science courses are acceptable) and one additional mathematical, statistical, or science class above the USP Q or PN requirement. Required courses (11 credit hours) include GEOG 1000 or 1020, 1010 or GEOL 1070, and GIST 1100 or GIST 2150. In addition, students are required to complete at least two courses each in Societal and Scientific Competencies and one additional Spatial Competency course. Beyond these requirements students are able to select from any Societal, Scientific, Spatial or Transdisciplinary course listed to complete a total of 40 hours for the B.S. Degree. Courses used to meet program requirements should be discussed with a faculty advisor.

* USP Human Culture: A single language must be taken for two semesters to fulfill the eight hour foreign language requirement for the program. Students taking American Sign Language to fulfill the language requirement of the major will have to take other courses to fulfill the USP H requirements.¹Can substitute computer programming but it does not fulfill the USP H requirement; consult with an academic advisor.

Undergraduate Minor

The program offers a minor in geography. Credit requirements range from 18-20 hours of required and elective courses, all of which must be completed with a grade of C or above. Information on the minor program is available on the Geography Program website.

Environment and Natural Resources

The program offers a concentration in the university's interdisciplinary program, Environment and Natural Resources. A description of the concentration requirements is available online at the ENR website.

Geology and Geophysics

122 Geology Building, (307) 766-3386

FAX: (307) 766-6679

Web site: www.uwyo.edu/geolgeophys

Department Head: Mark T. Clementz

Professors:

MICHAEL J. CHADLE, B.A. Oxford University 1981; M.S. Cornell University 1984; Ph.D. Cambridge University 1989; Professor of Geology and Geophysics 2021, 2001.

MARK T. CLEMENTZ, B.S. University of Missouri, Columbia 1996; Ph.D. University of California, Santa Cruz 2002; Professor of Geology 2017, 2005.

DARIO GRANA, B.S. University of Pavia 2003; M.S. 2005; M.S. University of Milano Bicocca 2006; M.S. Stanford University 2013; Ph.D. 2013; Associate Professor of Geology and Geophysics and the School of Energy Resources 2018, 2013.

NEIL F. HUMPHREY, B.S. University of British Columbia 1978; M.S. University of Washington 1983; Ph.D. 1987; Professor of Geology 2002, 1990.

BARBARA E. JOHN, B.A. University of California-Berkeley 1978; Ph.D. University of California-Santa Barbara 1987; Professor of Geology 2002, 1992.

JOHN KASZUBA, B.S. Beloit College 1982; M.S. Virginia Polytechnic Institute & State University 1986; Ph.D. Colorado School of Mines 1997; Professor of Geology and the School of Energy Resources 2019, 2008.

SUBHASHIS MALLICK, B.S. Indian Institute of Technology 1976; M.S. 1978; Ph.D. University of Hawaii 1987; Professor of Geology and Geophysics and the School of Energy Resources 2008.

BRANDON McELROY, B.S. University of Michigan 2000; M.S. 2003; Ph.D. University of Texas 2009; Associate Professor of Geology 2018, 2011.

THOMAS A. MINCKLEY, B.S. Northern Arizona University 1987; University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2012.

JAMES D. MYERS, B.S. University of Rhode Island 1973; M.A. The Johns Hopkins University 1977; Ph.D. 1979; Professor of Geology 1993, 1981.

CLIFFORD S. RIEBE, B.S.E. University of Michigan 1992; Ph.D. University of California-Berkeley 2000; Professor of Geology 2020, 2008.

JACQUELINE J. SHINKER, B.S. University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2005.

BRYAN N SHUMAN, B.A. Colorado College 1994; M.S. Brown University 1997; Ph.D. 2001; Professor of Geology 2015, 2007.

KENNETH W. W. SIMS, B.A. Colorado College 1986; M.S. University of New Mexico 1989; Ph.D. University of California - Berkeley 1995; Professor of Geology 2014, 2009.

YE ZHANG, B.S. Nanjing University (PR China) 1998; M.S. University of Minnesota 2004; Ph.D. Indiana University 2005; Professor of Geology 2018, 2007.

Associate Professors:

PO CHEN, B.S. Beijing University 2000; Ph.D. University of Southern California 2005; Associate Professor of Geology and Geophysics and the School of Energy Resources 2014, 2008.

ELLEN D. CURRANO, B.S. University of Chicago 2003; Ph.D. Pennsylvania State University 2008; Associate Professor of Geology and Geophysics 2017, 2014.

KENNETH G. DUEKER, B.A. Whitman College 1984; Ph.D. University of Oregon 1994; Associate Professor of Geophysics 2006, 2000.

ANDREW PARSEKIAN, B.S. Dickinson College 2005; Ph.D. Rutgers University 2011; Associate Professor of Geology and Geophysics 2020, 2013.

Assistant Professors:

JAMIE MCFARLIN, B.A. Lawrence University, 2009; M.S. Northwestern University, 2016; Ph.D. Northwestern University, 2019; Assistant Professor of Geology and Geophysics 2022.

Research Scientists:

BRADLEY CARR, B.S. University of Wisconsin-Madison 1987; Ph.D. University of Wyoming 1995; Associate Research Scientist Senior 2017, 2013.

KEVIN R. CHAMBERLAIN, B.A. Colgate University 1979; Ph.D. Washington University 1990; Research Professor 2004, 1990.

JANET C. DEWEY, B.S. Mississippi State University 1990; M.S. Auburn University 1993; Associate Research Scientist 2017, 2011.

LAURA VIETTI, B.S. University of Wyoming 2006; Ph.D. University of Minnesota 2014; Assistant Research Scientist 2015.

Adjunct Professors:

Sarah Aciego, Vladimir Alvarado, Erin Campbell, Barbara Carrapa, Carrick Eggleston, Eric Erslev, Peter H. Hennings, W. Steven Holbrook, Ranie Lynds, Simone Runyon, Jay Chapman

Professors Emeriti:

James I. Drever, William E. Frerichs, B. Ronald Frost, Carol D. Frost, Robert R. Howell, Jason A. Lillegraven, Ronald W. Marrs, Randi Martinsen, James E. McClurg, Scott B. Smithson, Arthur W. Snoke, Ronald C. Surdam, Susan M. Swapp

Geology is the study of the origin, history and structure of the earth. Our undergraduate offerings encompass virtually every aspect of the science, with emphasis on current theory, methods, and applications. The philosophy of the department is to provide sound training in both theory and field observation, and to couple this background with a thorough education in modern laboratory, quantitative, and field techniques required for an understanding of geologic processes.

The setting of the university in the Rocky Mountains is ideal because some of North America's most outstanding geologic features are within a short drive of campus. The semiarid climate in Wyoming has resulted in excellent exposures of diverse rock types ranging in age from Precambrian to Recent. Deformation of the rocks in the region has been extensive, affording the student a field laboratory that exhibits a wide diversity of styles of faulting and folding. Mineral deposits, petroleum resources, and coal abound in the region.

Undergraduate Majors

The Bachelor of Science in geology is designed for those students who intend to become professional geologists and/or those who plan to attend graduate school in geosciences. The program includes courses normally expected of graduate school applicants, including a summer field camp and courses in related sciences and mathematics. This degree program prepares students for the examination for the professional geologist license.

The Bachelor of Arts in geology and Earth sciences is specifically designed for undergraduates who wish to study Earth sciences as a foundation for careers in a variety of areas, such as environmental law, natural resource business, land use planning, Earth science education, science journalism, and many governmental positions. The B.A. program includes a broad spectrum of courses, and focuses both on information about the Earth and on how society makes decisions that affect the Earth system.

The Bachelor of Science in Environmental Geology and Geohydrology is designed for those students who intend to become professionals in environmental fields such as consulting, site assessment, hazard assessment, and remediation. The degree will prepare students for graduate school in environmental disciplines and for entry-level jobs.

Majors in any of the degree programs above may also choose to declare an affiliated degree with the School of Environment and Natural Resources by completing degree requirements for both degrees. Students should consult the section on the School of Environment and Natural Resources.

The Department of Geology and Geophysics also participates in the Earth System Science interdisciplinary program by offering a concentration in geology for the B.S. degree in ESS. Students interested in this major should consult the section on Earth System Science for curriculum requirements.

Geology Program Objectives: Bachelor of Science

The primary mission of our B.S. geology program is to provide a quality educational experience that prepares men and women to enter careers in geology and related fields. We expect that our graduates should:

- Have the basic knowledge and skills demanded for entry-level competence in typical careers in earth science.
- Be able to apply basic scientific and technical knowledge to specific tasks and problems.

- Cultivate the specific scientific and technical skills that will allow them effectively to serve their employers and to enhance their own career development.
- Develop increased capacity in the skills of independent learning, critical thinking, problem definition, and problem solving.
- Develop enhanced numerical skills and computer literacy as part of an undergraduate program designed to deliver a current and relevant knowledge of their discipline.
- Communicate effectively and professionally through oral, written, and graphical means and to participate effectively in their workplace and in individual and team-related activities.
- Have the broad general education needed to appreciate the role of Earth Sciences in the societal context and appreciate the importance of ethics in the practice of the profession.

Geology Program Goals: Bachelor of Science

The department of Geology and Geophysics has the following specific goals for its B.S. program:

- Students in the B.S. program will receive a quality preparatory education in the discipline that is current, relevant, practical, and personal.
- B.S. students who graduate with appropriate grades will be able to compete successfully for positions at graduate schools nationwide.
- B.S. students who graduate with appropriate grades will be well prepared for entry-level positions as professionals within their and other related disciplines.

Geology Program Objectives: Bachelor of Arts

The primary mission of our B.A. geology program is to provide a broad educational experience that prepares men and women for careers in earth science-related fields. We expect that our graduate should:

- Have the basic knowledge and skills demanded for entry-level competence in typical careers in earth science-related fields.
- Be able to apply their knowledge to specific situations or problems.
- Cultivate the skills and ethics that will allow them effectively to serve their employers and to enhance their own career development.
- Develop increased capacity for independent learning, critical thinking, and problem-solving.
- Develop basic numerical skills and computer literacy as part of an undergraduate program designed to deliver a current and relevant knowledge of their discipline.
- Communicate effectively and professionally through oral, written, and graphical means and to participate effectively in the work environment, both in individual and team-related activities.
- Have the broad general education needed to appreciate the role of Earth Sciences in the societal context and appreciate the importance of ethics in the practice of the profession.

Geology Program Goals: Bachelor of Arts

The department of Geology and Geophysics has the following specific goals for its B.A. program:

- Students in the B.A. program will receive a broad preparatory education in earth science and related fields that is current, relevant, practical, and personal.
- B.A. students who graduate with appropriate grades will be able to compete successfully for positions at graduate schools nationwide.
- B.A. students who graduate with appropriate grades will be well prepared for entry-level positions in the geosciences and other related disciplines.

Required Academic Performance

In order to graduate with a Bachelor of Science or Bachelor of Arts degree in geology, the student must earn a letter grade of C (S where appropriate) or better in each course listed herein as part of the required course programs. This grade requirement applies to course work taken outside the department, as well as to transfer courses credited in lieu of resident requirements.

Undergraduate Minor

A minor in geology requires 18 hours of coursework in the Department of Geology and Geophysics. Students are required to take one GEOL 1000-level course; one GEOL 2000-level course; and fulfill remaining hours with GEOL 2000-level or higher courses in consultation with their adviser. A grade of C or better is required in each of these courses.

Graduate Study

The department offers instruction and research programs leading to master of science and doctor of philosophy degrees in both geology and geophysics and to the master of science in geology/water resources.

Program Specific Admission Requirements

All applicants must complete an online departmental application form with statement of intent. Forms are available from the Department of Geology and Geophysics Web site at www.uwyo.edu/geolgeophys.

Application deadline is January 15 of each year.

All applicants should have completed undergraduate coursework including mathematics through calculus, one year of chemistry, basic training in geology, and for most areas, one year of calculus-based physics.

Applicants to the geophysics graduate program should have an undergraduate degree in geophysics, geology, mathematics, physics, or engineering.

Applicants to the Ph.D. program, without a M.S. degree, must have attained an exceptional undergraduate record.

Formal approval of application by the departmental admissions committee.

Formal acceptance by an adviser.

Formal notice of admission by the university.

Program Specific Graduate Assistantships

All applicants to the geology and geophysics graduate program are considered for assistantships. Applicants are NOT required to complete the graduate assistant application form.

Program Specific Degree Requirements

Master of Science in Geology

Plan A (thesis) (26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL 5020 Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geology must complete two semesters of GEOL 5200 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

Master of Science in Geophysics

Plan A (thesis) (26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL 5020 Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geophysics must complete two semesters of GEOL 5210 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

M.S. candidates in geophysics must complete 6 hours of mathematics and three hours of physics or engineering courses at the graduate level.

M.S. candidates must take at least 12 hours of 4000- and 5000-level courses in geophysics. Recommended graduate level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

Doctor of Philosophy in Geology (42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

Completion of GEOL 5020 Fundamentals of Research is required during the first semester of residence.

All graduate students in Geology must complete two semesters of GEOL 5200 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

The Ph.D. dissertation and its defense are described in the regulations section of this Catalog. Specific department examination requirements are available from the department office. The candidate's committee is responsible for monitoring progress of the research, refereeing the written work, and administering the final examination.

Doctor of Philosophy in Geophysics (42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

All graduate students in geophysics must complete two semesters of GEOL 5210 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

Completion of GEOL 5020 Fundamentals of Research is required during the first semester of residence.

Ph.D. candidates in geophysics must complete at least 6 additional hours of graduate level coursework: 3 in mathematics and 3 in physics or engineering. Recommended graduate-level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering, they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Ph.D. candidates are required to take at least 12 hours of 5000-level geophysics courses exclusive of GEOL 5854. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

The Ph.D. dissertation and its defense are described in the regulations section of this Catalog. Specific department examination requirements are available from the department office. The candidate's committee is responsible for monitoring progress of the research, refereeing the written work, and administering the final examination.

Master of Science in Geology/Water Resources and Master of Science in Geophysics/Water Resources

Please refer to the Water Resources section of the *Catalog* for degree requirements.

Department of History

History

History Building

(307) 766-5101

Website: www.uwyo.edu/history

E-mail: uwhistory@uwyo.edu

Department Chair: Jeffrey Means

Professor:

RENEE LAEGREID, B.A. Washington State University 1982; M.A.L.S. Wesleyan University 1994; Ph.D. University of Nebraska 2002; Professor of History 2015, 2012.

Associate Professor:

ISADORA A. HELFGOTT, B.A. Swarthmore College 1994; A.M. Harvard University 1997; Ph.D. 2006; Associate Professor of History 2015, 2009.

ALEXANDRA KELLY, B.A. University of Chicago 2004; M.A. 2005; Ph.D. Stanford University 2014; Assistant Professor of History and Anthropology 2014.

JEFFREY D. MEANS, B.A. Grand Canyon University 1995; M.A. University of Montana 2001; Ph.D. University of Oklahoma 2007; Associate Professor of History 2013, 2007.

Assistant Professor:

ADAM BLACKLER, B.A. Carroll College 2006; M.A. University of Wyoming 2009; Ph.D. University of Minnesota - Twin Cities 2017; Assistant Professor of History 2018.

BARBARA E. LOGAN, B.A. Queens College, CUNY 1986; Ph.D. University of California-Santa Cruz 2002; Assistant Professor of History 2018, 2011.

MELISSA MORRIS, B.A. Miami University 2004; M.A. Miami University 2010; Ph.D. Columbia University 2017; Assistant Professor of History 2018.

PETER WALKER, B. A. University of Oxford 2008; M. Phil. University of Oxford 2010; Ph. D. Columbia University 2016; Visiting Assistant Professor of History 2019.

Adjunct Faculty:

MICHAEL J. DEVINE, B.A. Loras College 1967; M.A. Ohio State University 1968; Ph.D. 1974; Adjunct Professor of History, 2014, 1991.

Professors Emeriti:

Eric D. Kohler, William H. Moore, Phil Roberts

History Program

History is a foundational discipline that blends the methodologies and perspective of the humanities and social sciences in order to engage with the history of human culture on a global scale. UW's History degree program emphasizes interdisciplinary teaching and research and provides course work, research experiences, and internships on both American and international topics. The History program offers a Bachelor of Arts degree major, minor, Public History Concentration, and a Master of Arts degree.

The study of History at the University of Wyoming provides students with the tools to comprehend the present in order to prepare for the future. Challenging courses are designed to facilitate critical thinking and the development of analytical skills. Each of our courses features the discussion of complex issues, the development of writing and reading skills, and is generally oriented toward promoting individual enrichment. The professional skills that the History program instills transcend our field and allow students to work toward a variety of career choices such as business, law, government service, public history, archives and museum work, education, management, writing, and graduate studies. The ability to develop perspective, render informed judgments, and function as productive citizens of the global community stand as hallmarks of our program.

Learning Outcomes

It is the goal of the History department that our graduates have the following skills and knowledge:

- Students shall be able to demonstrate thinking skills by analyzing, synthesizing, and evaluating historical information from multiple sources.
- Students will develop the ability to distinguish between fact and fiction while understanding that there is no one historical truth.
- Students will produce well-researched written work that engages with both primary sources and the secondary literature.
- Students will develop an informed familiarity with multiple cultures.
- Students will employ a full range of techniques and methods used to gain historical knowledge.
- Students will develop an ability to convey verbally their historical knowledge.
- Students will demonstrate their understanding of cause and effect along with their knowledge of the general chronology of human experience.

Department of Languages - Modern and Classical

116 Hoyt Hall, (307) 766-4177

FAX: (307) 766-2727

Website: www.uwyo.edu/modlang

Department Chair: Joy Landeira

Professor:

CONXITA DOMÈNECH, B.A. Universitat Autònoma de Barcelona 1990; Licenciatura 1992; M.A. University of Colorado Boulder 2006; Ph.D. 2010; Professor of Spanish 2020.

JOY LANDEIRA, B.A. University of Wyoming 1973; M.A. 1975; Ph.D. University of Colorado, Boulder 1981. Professor of Spanish 2015. Department Chair.

Associate Professors:

EKATERINA ALEXANDROVA, B.A. Saint Joseph's University 2003; M.A. Dartmouth College 2004; Ph.D. University of Pennsylvania 2012; Associate Professor of French 2018, 2012.

IRENE CHECA-GARCÍA, B.A. University of Granada 1997; M.A. Linguistics University of Granada 2000; Ph.D. Universidad de Almería 2004; Associate Professor of Spanish 2018, 2012.

REBECCA E. STEELE, B.A. LeibnizAcademie 2001; M.A. Rutgers, The State University of New Jersey 2008; Ph.D. 2009; Associate Professor of German 2015, 2009.

KHAMA-BASSILI TOLO, G3: Gradué en Pédagogie Appliquée, Option: FrançaisLinguistique Africaine, Université Nationale du Zaïre 1976; L2: Licencié en Pédagogie Appliquée, Option: Français, 1978; M.A. Vanderbilt University 1986; Ph.D. 1989; Associate Professor of French 1996, 1990.

Assistant Professors:

CHELSEA ESCALANTE, B.A. Stanford University 2005; M.A. University of Arizona 2009; Ph.D. University of California, Davis 2018; Assistant Professor of Spanish 2018.

SONIA RODRIGUEZ HICKS, Ph.D. University of New Mexico 2017. Assistant Professor of Spanish 2020.

Senior Academic Professional Lecturers:

LAURA DE LOZIER, B.A. Beloit College 1990; M.A. University of Wisconsin 1992; Ph.D. 2002; Senior Academic Professional Lecturer in Classics, Greek, and Latin 2014, 2003.

MARK W. PERSON, B.A. University of Wyoming 1983; M.A. 1986; Senior Academic Professional Lecturer in German 2017, 2008.

BÉNÉDICTE SOHIER, B.A. Stephen F. Austin State University 2006; M.A. Indiana University Bloomington 2008; Associate Academic Professional Lecturer in French 2015, 2009.

YAN ZHANG, B.A. Harbin Institute of Technology 2000; M.A. Heilongjiang Provincial Academy of Social Sciences 2002; Senior Academic Professional Lecturer in Chinese 2016, 2006.

Associate Academic Professionals Temporary Lecturers:

Noah Miles, Adriana Noya-Salgueiro

Professors Emeriti:

M. Ian Adams, Lewis Bagby, Lowell A. Bangerter, Klaus D. Hanson, Francis S. Heck, Philip G. Holt, Joseph Krafczik, Hannelore Mundt, Jean-Louis G. Picherit, Duane Rhoades, Pavel Sigalov

The Modern and Classical Languages department offers work leading to the B.A. degree with majors and minors in French, German, and Spanish. A minor is offered in Classical Civilizations, Chinese, Latin and Japanese. The M.A. is available in Spanish. Courses are also offered in literature, linguistics and translation.

Foreign Language Requirements

All candidates for the B.A. and B.S. degree in the College of Arts and Sciences who matriculated before Fall 2015 are required to complete the equivalent of 8 semester hours of work in a single modern or classical language. Students with prior exposure to the language may be granted college credit after taking an online examination administered by the department; students must take this examination before completing registration for a language course (for regulations governing credit by examination, refer to Credit Available to Undergraduate Students in this *Catalog*). An advanced placement, AP, examination in the language with a score of 4 or higher satisfies the language requirement in most languages, as do CLEP and IB scores (see section on Credit by Examination on the department website).

Students who have had a foreign language in high school should take the online examination to determine the course in which they should enroll and to avail themselves of the opportunity to receive credit by examination. Students who have completed their language requirement can enroll for additional language courses of their choice, something strongly advised for those who wish to reach adequate levels of proficiency in the language or wish to study abroad. Check the Catalog or website for special sections targeted for students with varied experiences in the language.

Undergraduate Major

A language major usually requires 30-31 semester hours of work in a single language beyond 2030. To include a language option in the humanities/fine arts interdisciplinary program, students must complete at least 12 hours above the 2030 level.

Students completing an undergraduate major in our department will meet the following learning goals:

1. attain proficiency in another language in all four of the basic skills (speaking, listening, reading, and writing);
2. gain understanding of other cultures; and
3. develop skills in research critical thinking, analysis, and writing on subjects appropriate to the field of study.

Students will meet the following learning outcomes to:

1. demonstrate proficiency in conversation;
2. demonstrate reading comprehension of texts written in the language;
3. produce grammatical, idiomatic compositions in the target language;
4. gain essential knowledge about the history, traditions, customs, and ways of thinking of at least one other culture;
5. demonstrate understanding of works of literature read in the original language; and
6. produce well-reasoned and clearly articulate research papers on subjects appropriate to their field.

Minor

In general, students desiring to complete a minor in a foreign language will be required to complete a program of 18 semester hours above 2030.

Teaching Certification

For those wishing to pursue teaching certification, contact the Department of Secondary Education.

Native Language Credit

Students are not allowed university credit for language courses in their native language below the 4000 level, but may receive credit for literature courses below that level.

Study Abroad

There are many opportunities for students to study abroad and students are encouraged to do so.

Graduate Study

The Department of Modern and Classical Languages offers programs leading to the master of arts degree in Spanish. Contact the department for further details or check the department website.

Program Specific Admission Requirements

Admission to the graduate program in a specific language is open to students who have completed an undergraduate major, or the equivalent, in the same subject and who meet the minimum requirements set forth in this *Catalog*.

Students entering the graduate program from other institutions may be required to make up deficiencies in areas covered by required courses in this department's undergraduate programs.

Life Sciences Program

Life Sciences Program

107 Aven Nelson Building, 766-4158 Web site: www.uwyo.edu/lifescience

Program Director: Jonathan Prather

The Life Sciences Program consists of all LIFE prefix courses. These courses support a wide range of life science majors and several non-life science majors across campus. The number of LIFE courses taken by students in each major is determined by the departments that offer the majors. The curriculum intends to provide science majors with both breadth and depth in the basic life sciences, and nonscience majors with exposure to key concepts in biology and an understanding of the connections between science and society. The program courses also expose students to the fields of cell and molecular biology, genetics, ecology, and evolution, and they familiarize students with the diversity of life on the planet. Courses within the curriculum address four fundamental goals at a level appropriate for each course: 1. Acquisition, Application and Synthesis of Knowledge 2. Communication Skills 3. Critical Thinking and Problem Solving 4. Research Skills The Life Sciences courses listed below were previously offered under the BIOL prefix. All courses listed below are now offered through the LIFE prefix.

Professor:

JONATHAN F. PRATHER, B.S. University of Virginia 1995; Ph.D. Emory University 2001; Professor of Zoology and Physiology 2021, 2009.

Department of Music

Music 2049 Buchanan Center for the
Performing Arts, (307) 766-5242
FAX: (307) 766-5326

Web site: www.uwyo.edu/music

Department Head: J. Scott Turpen

Professors:

ROBERT BELSER, B.M.E. Central Missouri State University 1977; M.S. M.E University of Illinois 1982; D.M.A. University of Iowa 1994; Professor of Music 2008, 1995. Director of Bands, Conducting, Music Education.

THERESA L. BOGARD, B.M. University of Colorado 1983; M.M. Eastman School of Music 1985; D.M.A. University of Colorado 1990; Professor of Music 2004, 1992. Keyboard, Keyboard Area Coordinator, Piano.

JOHN FADIAL, B.M. North Carolina School of the Arts 1987; M.M. Eastman School of Music 1989; D.M.A. University of Maryland 1995; Professor of Music 2015, 2008. Violin.

ANNE GUZZO, B.M. University of New Mexico 1992; M.A. University of California, Santa Cruz 1996; Ph.D. University of California, Davis 2002; Associate Professor of Music 2011, 2006. Composition, Theory.

MICHAEL GRIFFITH, B.M.E. Michigan State University 1973; M.M. 1975; D.M.A. University of Colorado 1994; Professor of Music 2001, 1989. Conducting, Woodwinds.

JAMES PRZYGOCKI, B.M. Western Michigan University 1979; M.M. Indiana University 1984; Professor of Music 2005, 1993. Viola, String Methods, Music Education.

J. SCOTT TURPEN, B.M.E. Boise State University 1994; M.M. University of Georgia 1996; D.M.A. 1999; Professor of Music 2012, 2001. Saxophone.

KATRINA ZOOK, B.M. Oberlin College 1986; M.M. University of California-Santa Barbara 1992; D.M.A. Eastman School of Music 2000; Professor of Music 2011, 1999. Voice, Vocal Pedagogy, Music History, Associate Chair.

Associate Professors:

HOLLY DALRYMPLE, BM, Texas State University; MM, University of Texas-Austin; DMA, University of North Texas; Associate Professor of Music 2019, 2013. Director of Choral Activities.

BLAKE MCGEE, B.M. University of Minnesota 2001; M.M. 2004; D.M.A. University of Oregon 2008; Associate Professor of Music 2016, 2010. Clarinet, Musicology.

CRYSTAL SIEGER, B.M. Ohio State University 1992; M.M. University of Arizona 1994; Ph.D. 2012; Assistant Professor of Music 2014. Music Education.

BETH VANDERBORGH, B.M. Manhattan School of Music 1988; M.M. Eastman School of Music 1990; D.M.A. University of Maryland 1995; Associate Professor of Music 2014, 2008. Cello, Graduate Coordinator.

CHI-CHEN WU, B.F.A. National Taiwan Normal University 1998; M.M. 2202; D.M.A. New England Conservatory 2006; Assistant Professor of Music 2012. Piano and Collaborative Piano.

Assistant Professors:

JOSEPH CARVER, B.M.E. 2007 Ohio University; M.M. 2014 Ohio University; Ph.D. 2019 The Ohio State University. Associate Director of Bands.

BEN MARKLEY, B.M. Fort Hays State University 2005; M.A. New York University 2007; D.M.A. University of Colorado-Boulder 2010; Assistant Professor of Music 2016. Jazz Studies.

BRIAN MURRAY, B.M. University of North Texas 2010; MME, Florida State University 2015; DMA, University of North Texas 2020. Assistant Professor of Music 2020. Choral Music Education.

TIGER ROBISON, B.M.E. University of Hartford 2005; M.S. Central Connecticut State University 2012; Ph.D. University of Hartford 2016; Assistant Professor of Music 2017. Music Education.

DAVID WHARTON, B.M. Oberlin Conservatory 2009, M.M. Yale School of Music 2011, D.M.A. University of Connecticut 2019. Assistant Professor of Music 2020. Trumpet.

ANDREW WHEELOCK, B.M.E. Central Michigan University 2013; M.M. University of Illinois 2015; D.M.A. 2018; Assistant Professor of Music 2018. Percussion.

Academic Professional Lecturers:

SHERRY SINIFT, B.M. Western Michigan University 1979; M.M. Indiana University 1981; Academic Professional Lecturer 2010. Violin, UW String Project.

JENNIFER TURPEN, B.M.E. SUNY-Potsdam 1996; M.M. University of Georgia 2000; D.M.A. 2000; Academic Professional Lecturer, Senior 2017, 2003. Theory, Saxophone.

Lecturers:

Kato, Riner

Part-time Lecturers:

Erlandson, Flagg, Fourt, Harvey, Hoffman, Latchininsky, Smith, Strampe, Stucki, Teppa, Uno-Jack, Watt

Professors Emeriti:

Steve Barnhart, David Brinkman, Gordon Childs, Julia Combs, Rodney Garnett, Frederick Gersten, Brian Hanly, Larry Hensel, Edgar Lewis, Kathleen McKeage, William Stacy, Carlyle Weiss

The Department of Music offers undergraduate and graduate degree programs which combine scholarship with performance, theory with practice and the academic with the creative. It also provides an opportunity for the study and performance of music by university students who are not majors in music. By giving concerts, workshops and lectures throughout the state of Wyoming through the Fine Arts Outreach Program, the music department serves as a musical resource for the entire state. The music department is fully accredited by the National Association of Schools of Music.

Procedures and requirements are listed in the music department *Student Handbook* which is available online at www.uwyo.edu/music/forms/index.html. The music department *Student Handbook* and the *University Catalog* are binding documents for the degree programs listed below. Students must receive a "C" or better in all courses designated MUSC to satisfy department requirements. The foreign language requirement for the Bachelor of Music in Performance Vocal Emphasis degree may be satisfied with a "C" or better in all courses. A student's transfer courses must meet all of these requirements to be accepted for credit.

An audition is required to become a Music major or minor. The 3 Steps to Becoming a Music Major are:

1. Apply for admission to the University of Wyoming (www.uwyo.edu/admissions/).
2. Audition for admittance as a Music major and for Music scholarships. Audition and scholarship information may be found at www.uwyo.edu/music. All Music majors and minors MUST audition to be admitted to the Music program.
3. Perform at an acceptable level, and you are in!

Degrees

Bachelor of Arts (with major in music): A program designed for the student who desires a broadly-based liberal arts program.

Bachelor of Music Performance: A fouryear course of study designed for students who wish to prepare for a professional career as performer and applied teacher.

Bachelor of Music Education: A fouryear course of study for the student who wishes to prepare for a career as a teacher of music in elementary or secondary schools in the instrumental, vocal, and general music fields.

Certificates

Music Entrepreneurship Certificate: The certificate provides a basic understanding of music marketing principles and practical hands-on experience that allows one to enter the workforce with a marketable skill set in the areas of arts promotion and management. A certificate may be pursued on its own or in conjunction with any university degree program. https://www.uwyo.edu/music/certificates/music_entrep_index.html

Audio Technology Certificate: The certificate provides a basic understanding of audio principles and practical hands-on experience that allows one to enter the commercial music workforce with a marketable skill set. Students will learn how to record and manipulate recorded sounds as well as provide live sound reinforcement for live concerts or events. Certificate may be pursued on its own or in conjunction with any university degree program.

Performer's (post-baccalaureate) Certificate

A non-degree course of study for the student seeking to improve professional performance skills. The program consists of a total of 30 credit hours from applied lessons, ensembles and electives to be selected in consultation with the major adviser. Prerequisites are demonstrated evidence of advanced performance proficiency through a live or recorded audition, undergraduate degree in music, and admission to the university.

Music for Other Students

Music as an elective subject. Students from other departments of the university may, with consent of their adviser and applied instructor, elect private or class lessons in applied music (with or without previous training) and may enroll in any theory, music literature or activity course for which they are qualified. See the music department Student Handbook for requirements for a minor in music.

Organizations. Performance organizations include the Happy Jacks, Marching Band, Symphonic Band, Wind Ensemble, Collegiate Chorale, Symphony Orchestra, Chamber Orchestra, Singing Statesmen, Bel Canto, Women's Choir, and Opera Theatre. Other groups are brass, woodwind, string, percussion and piano ensembles, Vocal Jazz, Civic Chorus and Jazz Ensemble. Membership is open to qualified students in all colleges and departments of the university. Each year, in addition to frequent appearances on the campus, several of these organizations and groups tour the region.

Music Fees

For Individual Instruction:

One 1/2-hour lesson weekly, per semester \$150.00

One 1-hour lesson weekly, per semester \$300.00

For Music 4510, 4520, 4530, 4540, 4550 and 4560 (courses taken in the form of private lessons) a fee of \$85.00 is assessed each semester.

Practice Rooms:

per semester \$35.00

Music instrumental fee, per semester \$25.00

Music locker fee, per student per semester \$15.00

Public School Methods fee, per class \$5.00

Undergraduate Study

Learning Outcomes

Bachelor of Arts in Music

All music majors must successfully complete MUSC 0200 Convocation (0 credit, S/U) each semester in residence and must enroll in lessons and one major ensemble per semester. Each ensemble course is deemed to be a unique course even though the course number is not unique. To fulfill this degree requirement students will be expected to enroll in ensembles at the lower and upper divisions a minimum of four times with a career maximum of 8. Consult your advisor and the Music Handbook for specific information.

Learning Outcomes

Graduates of the UW Department of Music will develop the skills, concepts, and sensitivities essential to the professional life of a musician (NASM Handbook, p. 85).

At the completion of the Bachelor of Arts degree in Music, students will be able to: (1) demonstrate a level of competence as solo and ensemble performers appropriate for a musician educated in the liberal arts, (2) demonstrate specific knowledge in music theory, music history, and general studies appropriate for their professional goals, and (3) demonstrate the ability to think, speak, and write clearly and effectively about the art of music.

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	1
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3
USP H Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	1
A 1000-level Ensemble.....	1
USP Q Course	3
USP H Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 2030.....	3

MUSC 2035.....	1
MUSC 2050.....	3
MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP V Course	3
USP PN Course	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 2055.....	3
MUSC 3255.....	0
MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP PN Course	3
USP COM2 Course.....	3
Elective	3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4070.....	3
Upper division MUSC electives.....	6
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1
A&S Core Diversity in the U.S. Course	3
Elective	3

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1
A&S Core Global Awareness Course	3
Upper division MUSC elective*.....	3
Electives	6

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 5000-level Applied Lessons V.....	1
A 3000-level Ensemble.....	1
USP COM3 Course.....	3
Upper division MUSC elective.....	3
Electives	6

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 5000-level Applied Lessons V.....	1
A 3000-level Ensemble.....	1
Upper division MUSC electives*.....	6
Electives	6

Degree Total 120

*Upper Division MUSC Electives: See complete list in Undergraduate Music Handbook.

University and College Requirements

In addition to the major requirements listed above, students must complete all university and College of Arts and Sciences requirements listed elsewhere in this *Catalog*. A minimum of 42 hours of the total degree must be at the junior/senior level. Check with your adviser about music courses which fulfill University Studies Program requirements.

Bachelor of Music in Performance

All music majors must successfully complete MUSC 0200 Convocation (0 credit, S/U) each semester in residence and must enroll in lessons and one major ensemble per semester. Each ensemble course is deemed to be a unique course even though the course number is not unique. To fulfill this degree requirements students will be expected to enroll in ensembles at the lower and upper divisions a minimum of four times with a career maximum of 8. All string and vocal emphases must pass the piano proficiency test during their sophomore year. Class Piano 1-4 is highly recommended for those with little piano background. All wind and percussion emphases must pass Class Piano 1-2 with a B or better or may substitute the Piano Literacy exam in their place. Consult your advisor and the Music Handbook for specific information.

Learning Outcomes

Graduates of the UW Department of Music will develop the skills, concepts, and sensitivities essential to the professional life of a musician (NASM Handbook, p. 85).

At the completion of the Bachelor of Music degree in Performance, students will be able to: (1) demonstrate excellence as solo and ensemble performers to provide a basis for a professional career as a musician, (2) demonstrate specific knowledge in music theory, music history, and instrumental pedagogy to provide a basis for a professional career as a performing musician, and (3) demonstrate the ability to think, speak, and write clearly and effectively about the art of music.

University and College Requirements

In addition to the major requirements listed above, students must complete all university and College of Arts and Sciences requirements listed elsewhere in this Catalog. A minimum of 42 hours of the total degree must be at the junior/senior level. Check with your adviser about music courses which fulfill University Studies Program requirements.

Upper Division Music Electives

Upper division music electives vary per emphasis. Please see the Undergraduate Music Handbook for a full listing.

Winds and Percussion Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	2
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	2
A 1000-level Ensemble.....	1

USP Q Course3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0

MUSC 2030.....3

MUSC 2035.....1

MUSC 2050.....3

MUSC 3000-level Applied Lessons III.....2

A 1000-level Ensemble.....1

USP PN Course3

A&S Core Global Awareness Course3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 2040.....3

MUSC 2045.....1

MUSC 2055.....3

MUSC 3255.....0

MUSC 3000-level Applied Lessons III.....2

A 1000-level Ensemble.....1

USP PN Course3

A&S Core Diversity in the U.S. Course3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....0

MUSC 4070.....3

MUSC 4000-level Applied Lessons IV.....2

A 3000-level Ensemble.....1

Upper division MUSC electives.....6

USP COM2 Course.....3

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 3500.....0

MUSC 4615.....	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	6
USP V Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4040.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP COM3 Course.....	3
USP H Course	3
Elective	3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4590.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP H Course	3
Elective	3

Degree Total 120

String Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

Passing the Piano Literacy exam any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	2
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3
USP H Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	2
A 1000-level Ensemble.....	1
USP Q Course	3
USP H Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 2030.....	3
MUSC 2035.....	1
MUSC 2290.....	1
MUSC 2050.....	3
MUSC 3000-level Applied Lessons III.....	2
A 1000-level Ensemble.....	1
USP PN Course	3
USP V Course	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 2040.....	3

MUSC 2045.....	1
MUSC 2050.....	3
MUSC 2295.....	1
MUSC 2395.....	0
MUSC 3255.....	0
MUSC 3000-level Applied Lessons III.....	2
A 1000-level Ensemble.....	1
USP PN Course	3
USP COM2 Course.....	3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4070.....	3
MUSC 4651.....	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	6

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 3500.....	0
MUSC 4615.....	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	3
A&S Core Global Awareness Course	3
Elective	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4040.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1

Upper division MUSC electives.....6

USP COM3 Course.....3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 4590.....2

MUSC 5000-level Applied Lessons V.....2

A 3000-level Ensemble.....1

Upper division MUSC elective.....3

A&S Core Diversity in the U.S. Course3

Elective3

Degree Total 120

Vocal Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....0

MUSC 1030.....3

MUSC 10351

MUSC 1290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2320.....2

MUSC 2270-06.....2

A 1000-level Ensemble.....1

USP COM1 Course3

USP FYS Course3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 1003.....3

MUSC 1040.....3

MUSC 1045.....1

MUSC 1295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2325.....	2
MUSC 2000-level Applied Lessons II.....	2
A 1000-level Ensemble.....	1
USP Q Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 2030.....	3
MUSC 2035.....	1
MUSC 2050.....	3
MUSC 2290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 3000-level Applied Lessons III.....	2
A 1000-level Ensemble.....	1
USP H Course/Foreign Language	4

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 2040.....	3
MUSC 2045.....	1
MUSC 2055.....	3
MUSC 2295.....	3

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2395.....	0
MUSC 3255.....	0
MUSC 3000-level Applied Lessons III.....	2
A 1000-level Ensemble.....	1
USP H Course/Foreign Language	4

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4070.....	3

MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	5
USP COM2 Course.....	3

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 3500.....	0
MUSC 4610	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	5
UPS V Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP COM3 Course.....	3
USP PN Course	3
A&S Core Diversity in the U.S. Course	3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4590.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP PN Course	3
A&S Core Global Awareness Course	3

Degree Total 120

Keyboard Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 1030.....3
MUSC 10351
MUSC 2000-level Applied Lessons II.....2
MUSC 1280.....1
USP COM1 Course3
USP FYS Course3
USP H Course3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 1003.....3
MUSC 1040.....3
MUSC 1045.....1
MUSC 2000-level Applied Lessons II.....2
MUSC 1280.....1
USP Q Course3
USP H Course3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 2030.....3
MUSC 2035.....1
MUSC 2050.....3
MUSC 3000-level Applied Lessons III.....2
MUSC 1280.....1
USP PN Course3
USP V Course3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 2040.....	3
MUSC 2045.....	1
MUSC 2055.....	3
MUSC 2395.....	0
MUSC 3255.....	0
MUSC 3000-level Applied Lessons III.....	2
MUSC 1280.....	1
USP PN Course	3
USP COM2 Course.....	3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4070.....	3
MUSC 4600.....	2
MUSC 4000-level Applied Lessons IV.....	2
MUSC 3280.....	1
Upper division MUSC electives.....	6

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 3500.....	0
MUSC 4000-level Applied Lessons IV.....	2
MUSC 3280.....	1
Upper division MUSC electives.....	5
A&S Core Global Awareness Course	3
Elective	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4040.....	2
MUSC 4650.....	3
MUSC 5000-level Applied Lessons V.....	2

MUSC 3280.....	1
Upper division MUSC elective.....	3
USP COM3 Course.....	3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4590.....	2
MUSC 5000-level Applied Lessons V.....	2
MUSC 3280.....	1
Upper division MUSC elective.....	3
A&S Core Diversity in the U.S. Course	3
Elective	3

Degree Total 120

Bachelor of Music Education

All music majors must successfully complete MUSC 0200 Convocation (0 credit, S/U) each semester in residence and must enroll in lessons and one major ensemble per semester. Each ensemble course is deemed to be a unique course even though the course number is not unique. To fulfill this degree requirement students will be expected to enroll in ensembles at the lower and upper divisions a minimum of four times with a career maximum of 8. All music majors must pass the piano proficiency test during their sophomore year. Class Piano 1-4 is highly recommended for majors with little piano background. Consult your advisor and the Music Handbook for specific information.

Learning Outcomes

Graduates of the UW Department of Music will develop the skills, concepts, and sensitivities essential to the professional life of a musician (NASM Handbook, p. 85).

At the completion of the Bachelor of Music Education degree, students will be able to: (1) demonstrate skill as solo and ensemble performers who can work as professional educators, (2) demonstrate specific knowledge in music theory, music history, and instrumental and vocal pedagogy to provide a basis for a professional career as a music educator, (3) demonstrate the ability to think, speak, and write clearly and effectively about the art of music, and (4) demonstrate the pedagogical background and teaching experience to function as effective K-12 music educators.

University and College Requirements

In addition to the major requirements listed below, students must complete all university requirements listed elsewhere in this Catalog. A minimum of 42 hours of the total degree must be at the junior/senior level. Check with your adviser about music courses which fulfill University Studies Program requirements.

Bachelor of Music Education - Brass, Woodwind, & Percussion Emphasis

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 1030.....3
MUSC 10351
MUSC 1290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 1370.....1
MUSC 2000-level Applied Lessons II.....1
USP COM1 Course3
USP FYS Course3
USP H Course3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 1003.....3
MUSC 1025.....2
MUSC 1040.....3
MUSC 1045.....1
MUSC 1295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....1
A 1000-level Ensemble.....1
USP Q Course3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 1340.....1
MUSC 13522
MUSC 1360.....1
MUSC 2030.....3
MUSC 2035.....1
MUSC 2050.....3

MUSC 2290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 3000-level Applied Lessons III.....1

A 1000-level Ensemble.....1

USP COM2 Course.....3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 13122

MUSC 1332.....2

MUSC 2040.....3

MUSC 2045.....1

MUSC 2055.....3

MUSC 2295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2395.....0

MUSC 3255.....0

MUSC 3265.....0

MUSC 3000-level Applied Lessons III.....1

A 1000-level Ensemble.....1

USP V Course3

JUNIOR YEAR: Fall Hrs.

EDST 2450.....3

MUSC 0200.....0

MUSC 1322.....2

MUSC 4070.....3

MUSC 4455.....3

MUSC 4705.....1

MUSC 4750.....1

MUSC 4000-level Applied Lessons IV.....1

A 3000-level Ensemble.....1

JUNIOR YEAR: Spring Hrs.

EDEX 2484.....	3
MUSC 0200.....	0
MUSC 4380.....	2
MUSC 4460.....	3
MUSC 4620.....	1
MUSC 4780.....	2
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1
USP PN Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 3015.....	3
MUSC 4155	0
MUSC 4465.....	3
MUSC 4715	1
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
USP PN Course	3

SENIOR YEAR: Spring* Hrs.

MUSC 4700.....	8
MUSC 4710	8

*No other coursework may be taken during residency; requires 2.750 UW GPA and 3.000 GPA in major content courses.

Degree Total 121

Bachelor of Music Education - String Emphasis

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3

MUSC 10351

MUSC 1290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....1

A 1000-level Ensemble.....1

USP COM1 Course3

USP FYS Course3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 1003.....3

MUSC 1025.....2

MUSC 1040.....3

MUSC 1045.....1

MUSC 1295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....1

A 1000-level Ensemble.....1

USP Q Course3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0

MUSC 13522

MUSC 1340.....1

MUSC 1360.....1

MUSC 2030.....3

MUSC 2035.....1

MUSC 2050.....3

MUSC 2290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 3000-level Applied Lessons III.....1

A 1000-level Ensemble.....1

USP COM2 Course.....3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 13122

MUSC 1332.....2

MUSC 2040.....3

MUSC 2045.....1

MUSC 2055.....3

MUSC 2295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2395.....0

MUSC 3255.....0

MUSC 3265.....0

MUSC 3000-level Applied Lessons III.....1

A 1000-level Ensemble.....1

USP V Course3

JUNIOR YEAR: Fall Hrs.

EDST 2450.....3

MUSC 0200.....0

MUSC 1322.....2

MUSC 4455.....3

MUSC 4705.....1

MUSC 4070.....3

MUSC 1*** Second String Instrument1

MUSC 4000-level Applied Lessons IV.....1

A 3000-level Ensemble.....1

JUNIOR YEAR: Spring Hrs.

EDEX 2484.....3

MUSC 0200.....0

MUSC 4460.....3

MUSC 4620.....	1
MUSC 4780.....	2
MUSC 1*** Second String Instrument	1
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1
USP PN Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 3015.....	3
MUSC 4155	0
MUSC 4715	1
MUSC 4465.....	3
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
USP PN Course	3
USP H Course	3

SENIOR YEAR: Spring* Hrs.

MUSC 4700.....	8
MUSC 4710	8

*No other coursework may be taken during residency; requires 2.750 UW GPA and 3.000 GPA in major content courses.

Degree Total 126

Bachelor of Music Education - Vocal Emphasis

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

MUSC 2320.....	2
MUSC 2270-06.....	1
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1025.....	2
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1
MUSC 2000-level Applied Lessons II.....	1
A 1000-level Ensemble.....	1
USP Q Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1340.....	1
MUSC 1352	2
MUSC 1360.....	1
MUSC 2030.....	3
MUSC 2035.....	1
MUSC 2050.....	3
MUSC 2290.....	1
MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP COM2 Course.....	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1312	2

MUSC 1332.....	2
MUSC 2040.....	3
MUSC 2045.....	1
MUSC 2055.....	3
MUSC 2295.....	1
MUSC 2395.....	0
MUSC 3255.....	0
MUSC 3265.....	0
MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP V Course	3

JUNIOR YEAR: Fall Hrs.

EDST 2450.....	3
MUSC 0200.....	0
MUSC 1322.....	2
MUSC 4455.....	3
MUSC 4705.....	1
MUSC 4070.....	3
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1

JUNIOR YEAR: Spring Hrs.

EDEX 2484.....	3
MUSC 0200.....	0
MUSC 4460.....	3
MUSC 4620.....	1
MUSC 4790.....	2
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1
USP PN Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 3015.....	3
MUSC 4155	0
MUSC 4465.....	3
MUSC 4715	1
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
USP PN Course	3
USP H Course	3

SENIOR YEAR: Spring* Hrs.

MUSC 4700.....	8
MUSC 4710	8

*No other coursework may be taken during residency; requires 2.750 UW GPA and 3.000 GPA in major content courses.

Degree Total 124

Graduate Study

The Department of Music offers programs leading to the Master of Music in Performance and to the Master of Music Education.

The following prerequisites and credit hours will pertain to individual lessons for all the instruments and voice listed below. All students enrolled in MUSC 5080 through MUSC 5670 levels will be required to take a jury examination at the end of the semester to determine, in part, the final grade. (See current fee schedule for listing of fees in Individual Lessons.)

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this *Catalog*, the Department of Music requires that applicants for graduate programs submit supplementary documentation of their preparation for advanced study in music.

Those interested in graduate study in music are encouraged to contact the Graduate Studies Coordinator for the Department of Music, Dr. Beth Vanderborgh (bvander@uwyo.edu), or the Area Coordinator for each instrument or voice cited on the Department of Music website (www.uwyo.edu/music/).

In order to apply, please submit the following via the University of Wyoming's online application system (www.uwyo.edu/admissions/apply.html):

- three letters of recommendation
- the Graduate Teaching Assistantship application
- academic transcripts

A minimum undergraduate cumulative GPA of 3.000 is required. The GRE is not required for admission consideration.

All accepted graduate students in the Mast of Music (MM) or Master of Music Education (MME) programs will take the Graduate Entrance Examinations in music history and music theory prior to matriculation. If a student does not pass one or more sections, they must take an online refresher course prior to undertaking advanced coursework.

International applicants who are not native English speakers must submit TOEFL or IELTS scores (TOEFL minimum = 76, IELTS minimum = 6.5). If an international applicant wishes to be considered for a Graduate Teaching Assistantship, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center if you have questions regarding the OPI (www.uwyo.edu/elc/international-teaching-assistants/graduate_admissions/index.html).

Applicants for the MM program should also request an audition and apply for music scholarship consideration via the Audition and Scholarships link found on the Graduate page of the Department of Music website (www.uwyo.edu/music/graduate_students/index.html). Applicants for the MME program should send their supporting documents (video of teaching/rehearsing, statement of music education philosophy, writing sample) directly to Dr. Crystal Sieger, Music Education Coordinator (csieger@uwyo.edu).

Master of Music Education

An earned, documented Bachelor of Music Education degree from an accredited institution of higher learning.

One year of teaching experience plus: An active background in music education, A DVD of classroom teaching and/or rehearsing,

A one- to three-page statement of music education philosophy,

Three letters of recommendation, one from an immediate supervisor, of teaching effectiveness.

A writing sample from an extensive undergraduate research paper.

Learning Outcomes

1. Students will demonstrate the advanced musical and pedagogical knowledge and research/writing skills necessary to enhance their teaching abilities in a P-16 vocal and/or instrumental teaching position.
2. Students will demonstrate the advanced musical and pedagogical knowledge and research/writing/and communication skills necessary to solve contemporary music problems.

Master of Music in Performance

An earned, documented bachelor of music performance or bachelor of arts from an accredited institution of higher learning.

Live audition (preferred), live remote video audition, or Inks to an online video demonstrating:

A strong sense of musicality, Technical proficiency, Stylistically correct performance practices in at least three historical periods, where applicable,

A working knowledge of the standard repertoire,

Also, a portfolio of work showing concentrated activity on the major instrument or voice area.

Learning Outcomes

1. Graduate students will be excellent performers on voice or instrument.
2. Graduate students will demonstrate the advanced musical and pedagogical knowledge and research writing skills necessary to begin their professional performing career and/or demonstrate their readiness to teach at the college and/or university level and/or pursue
doctoral degrees.

Program Specific Graduate Assistantships

Graduate assistantships are awarded on a competitive basis to defray some of the costs of graduate study and to provide practical experience working under the guidance of faculty members.

Criteria that are taken into account in awarding assistantships include: academic preparation, performing ability, and special skills that would prove valuable in carrying out the duties of the assistantship, as well as, needs of the department.

To be considered for a graduate assistantship, the candidate must be fully admitted through the university. The application for an assistantship is accessed via the UW Graduate Admissions application. After considering the merits of the application, the department then nominates candidates to the university. Applications for assistantships are due by February 15.

Program Specific Degree Requirements

Master's Programs

Each of the degree programs consists of 30 semester hours of work composed of the following elements:

Basic music core (11 hours)

MUSC 5310. Bibliographical Research, 2 hours

Upper-division music history, 3 to 6 hours

Upper-division music theory, 3 to 6 hours

Major area courses (12-16 hours)

Thesis requirement (Plan A, four hours); (Plan B, zero hours)

The thesis requirement may be fulfilled under the Plan B paper/lecture-recital as appropriate to the specific degree program. A proposal for a thesis or Plan B paper must be submitted to and approved by the student's graduate committee chair.

Electives (0 to 7 hours)

Master of Music Education Plan A or Plan B

To earn a Master of Music Education, students must complete the following requirements:

Basic music core, (11 hours)

Major area courses (12 - 15 hours)

EDRE 5530. Introduction to Research, 3 hours

MUSC 5760. Music Education Seminar, 2 hours

MUSC 5720. Music Supervision, 2 hours

Music education electives, 5-8 hours

Thesis requirement (0 to 4 hours) Plan A:

MUSC 5960. Thesis Research, four hours (the thesis must be on a music education topic), or

Plan B: Plan B paper, plus extra courses, 0 hours Electives (4 to 7 hours)

Master of Music in Performance Plan B

To earn a Master of Music in Performance, students must complete the following requirements:

Basic music core (11 hours minimum)

Major area courses (16 hours minimum)

MUSC 5480-5670. Private Lessons in major instrument or voice. A minimum of 8 hours.

MUSC 5770-5890. Ensembles, 2 hours

MUSC 5680. Graduate Recital, 2 hours.

A faculty jury must approve a recital given for credit one month prior to the performance. The faculty jury will determine the grade after the performance.

MUSC 5390. Performance Practice and Interpretation, 2 hours

MUSC 5320. Advanced Seminar, 3 hours MUSC 4***. Pedagogy (instrument specific), 2 hours

Requirement in lieu of thesis:

Plan B paper, or 1-hour lecture-recital

Foreign language requirement (voice majors only). Singers must demonstrate acceptable proficiency in singing in Italian, German, French, and English.

Electives (0 to 3 hours)

Both degrees require successful completion of the written comprehensive exams, which cover theory, history, and the major area.

Music (MUSC)

Individual Lessons: All students enrolled in MUSC 2080 through MUSC 5670 levels will be required to take a jury examination at the end of the semester to determine, in part, the final grade. (See current fee schedule for listing of fees in individual lessons.)

Students must receive a "C" or better in all courses designated MUSC to satisfy department degree requirements. A student's transfer courses in music must also reflect a "C" or better to be accepted for credit.

USP Codes are listed in brackets by the 2003 USP code followed by the 2015 USP code (e.g. [QB♦Q]).

Department of Philosophy and Religious Studies

Philosophy

122 Ross Hall, (307) 766-3204

Web site: <https://www.uwyo.edu/philrelig/about-us/philosophy/index.html>

E-mail: philosophy@uwyo.edu

Department Head: Susanna L. Goodin

Professors:

HARVEY HIX, B.A. Belmont College 1982; M.A. University of Texas, Austin 1985; Ph.D. 1987; Professor of Philosophy and Creative Writing 2013.

JEFFREY A. LOCKWOOD, B.S. New Mexico Institute of Mining and Technology 1982; Ph.D. Louisiana State University 1985; Professor of Philosophy and Creative Writing 2006.

Associate Professors:

SUSANNA L. GOODIN, B.A. Texas Technical University 1981; M.A. Rice University 1985; Ph.D. 1990; Associate Professor of Philosophy 1998, 1992.

FRANZ-PETER GRIESMAIER, University of Vienna 1986; M.A. University of Colorado 1988; Ph.D. University of Arizona 1997; Associate Professor of Philosophy 2006, 2000.

EDWARD D. SHERLINE, B.A. Princeton University 1982; M.A. University of Chicago 1983; Ph.D. University of Illinois-Chicago 1990; Associate Professor of Philosophy 1996, 1989.

Assistant Professor:

BRADLEY RETTLER, B.S. Crown College 2004; M.A. Biola University 2008; Ph.D. University of Notre Dame 2014; Assistant Professor of Philosophy 2018.

Senior Academic Professional Lecturer:

ROBERT S. COLTER, B.A. The University of Puget Sound 1992; M.A. University of Colorado 1995; Ph.D. Northwestern University 2001; Academic Professional Lecturer 2013, 2007.

Professors Emeriti:

James Forrester, Richard L. Howey, James A. Martin

About the Program

Philosophy starts with those hard questions we all ask at some time or another. Some important questions of meaning and justification can't be answered by making observations or doing experiments. Philosophy is the effort to deal with these problems through sustained, hard, and critical thinking. Philosophy is good preparation for careers that call for you to use your mind, without prejudice but with rigor.

The Philosophy Department offers an undergraduate major, three undergraduate minors, and a graduate MA.

For details on each of these programs, see the department's web site.

Graduate Study

The Department of Philosophy offers the master of arts degree under the Plan A or Plan B.

Program Specific Admission Requirements

A writing sample of no more than 3,000 words on any subject in philosophy.

A statement describing specific philosophical interests.

Program Specific Graduate Assistantships

The department offers two to three graduate assistantships yearly on a competitive basis. These assistantships carry a tuition and fee waiver, plus a stipend. For more information, please contact the department.

Religious Studies

122 Ross Hall, (307) 766-3204

Web site: <https://www.uwyo.edu/philrelig/about-us/relstudy/>

Email: relstudies@uwyo.edu

Department Head: Susanna L. Goodin

Program Director: Tyler Fall

Professor

PAUL V. M. FLESHER, B.A. University of Rochester 1979; M.Phil. Oxford University 1982; Ph.D. Brown University 1988; Professor of Religious Studies 2012, 1993.

Assistant Professors

CATHERINE HARTMANN, B.A. University of Virginia in 2011, M.A. University of Chicago 2013, Ph.D. Harvard University 2020; Assistant Professor of Religious Studies 2020

TAMMY HEISE, B.A. Hendrix College 1998; M.A. Vanderbilt University 2006; Ph.D. Florida State University 2016; Visiting Assistant Professor of Religious Studies 2015, Assistant Professor of Religious Studies 2020.

Senior Academic Professional Lecturer

TYLER S. FALL, B.A. Mary Washington College 1999; M.A. University of Oregon 2004; M.F.A. University of Wyoming 2009; Associate Academic Professional Lecturer of Religious Studies 2017, 2012.

MARY L. KELLER, B.A. Williams College 1987; M.A. Syracuse University 1992; Ph.D. 1999; Associate Academic Professional of Religious Studies 2017, 2012.

SETH WARD, B.A. Yale University 1974; M.A. 1978; M.Phil. 1979; Ph.D. 1984; Senior Academic Professional of Religious Studies 2017, 2003.

About the Program

Throughout history, religion has played an important role in shaping cultures and societies. Religious beliefs have inspired armies in their wars and leaders in their decisions. Religions have provided the foundation for ethical behavior and in many societies have been the primary source of education. In today's world, religions remain important, influencing our responses to 9/11, the Arab Spring, the Philosophy and Religious Studies, Middle East crisis, and other events in regions around the world. Even in our own secular United States, religions and their beliefs play a major role in our debates over public policy.

The Religious Studies department offers a range of courses in the academic study of religions. These courses seek to acquaint students with religious beliefs and behavior, helping them to understand the ability of religions to define the world in which their adherents live and the power religions have to influence the behavior of their followers. Religious Studies courses cover a broad range of religions, both modern and historical. Some courses focus on understanding a single religion in a limited time period, while others compare aspects of different religions. Yet further courses focus on religious expression, studying how religious beliefs are depicted in literature, film, art and music. Many of these courses are offered by the Religious Studies department, while others can be found in various departments, including anthropology, art, English, history and sociology.

Graduate Study

At present, no program for a graduate degree in religious studies is offered; however, some courses may be counted at the graduate level.

Department of Physics and Astronomy

204 Physical Sciences Building,

(307) 766-6150

FAX: (307) 766-2652

Web site: www.uwyo.edu/physics

Department Head: Jinke Tang

Professors:

MICHAEL S. BROTHERTON, B.S. Rice University 1990; M.A. University of Texas at Austin 1992; Ph.D. 1996; Professor of Physics and Astronomy 2014, 2002.

YURI DAHNOVSKY, Ph.D. Institute of Chemical Physics, Moscow 1983; Professor of Physics 2007, 2000.

DANIEL A. DALE, B.S. University of Minnesota 1993; M.S. Cornell University 1996; Ph.D. 1998; Professor of Physics and Astronomy 2009, 2001.

HENRY A. KOBULNICKY, B.S. University of Iowa 1991; M.S. University of Minnesota 1993; Ph.D. 1997; Professor of Physics and Astronomy 2014, 2002.

ADAM D. MYERS, M.S. Durham University, United Kingdom 2000; Ph.D. 2004; Associate Professor of Physics and Astronomy 2017, 2011; Professor of Physics and Astronomy Fall 2022

H. EDWARD SEIDEL, B.S. College of William and Mary 1981; M.S. University of Pennsylvania 1983; Ph.D. Yale University 1988; Professor of Physics and Astronomy 2020.

JINKE TANG, B.S. Jilin University 1982; M.S. Iowa State University 1990; Ph.D. 1989; Professor of Physics 2007.

Associate Professors:

TEYU CHIEN, B.S. National Taiwan Normal University 2001; Ph.D. University of Tennessee-Knoxville 2009; Associate Professor of Physics 2019, 2013.

MICHAEL J. PIERCE, B.S. University of Oklahoma 1980; M.A. University of Hawaii 1983; Ph.D. 1988; Associate Professor of Physics and Astronomy 2005, 2001.

WENYONG WANG, B.S. Nankai University 1993; M.S. Yale University 1999; Ph.D. 2004; Associate Professor of Physics 2014, 2008.

Assistant Professors:

JIFA TIAN, B.S. Beijing Normal University 2003; Ph.D. University of Chinese Academy of Sciences/Institute of Physics, CAS 2009; Assistant Professor of Physics 2018.

Academic Professional Lecturers:

RÜDIGER MICHALAK, Dipl. Phys FZ Julich 1989; Ph.D. 1993; Academic Professional Lecturer in Physics and Astronomy 2007, 2004.

Assistant Lecturer:

AYSEUR BICER, B.S. Ege University 2006; M.S. 2009; Ph.D. Texas A&M University 2018; Assistant Lecturer in Physics 2019.

JESSE FEDDERSEN, B.S. Indiana University 2013; M.S. Yale University 2015; Ph.D. Yale University 2019; Assistant Lecturer in Physics and Astronomy 2020.

Adjunct Professors:

Gabrielle Allen, Pu Du, Paul Marquard, William Rice, Zhaohui Shang, Tim Slater, Hannah Jang-Condell, Edmund Synakowski.

Professors Emeriti:

Ronald W. Canterna, Paul E. Johnson, A. Raymond Kunselman, Terry P. Roark, James M. Rosen, Jimmie Verley, David R. Thayer.

Physics originated in antiquity as the study of natural philosophy. As such, it attempts to describe the universe within the context of both physical laws and the fundamental particles of nature. The broad scope of physics runs from the microscopic nuclear structure and that of the elementary particles themselves to the macroscopic, the galaxy and evolution of the universe as a whole. Today the subject is generally divided into broad areas such as condensed matter, nuclear, elementary particles, astrophysics, etc. The department maintains competence in most major branches of physics and offers instruction in these areas at both the undergraduate and graduate levels. In addition, it has a strong interest and involvement in science education.

Learning Outcomes

The B.S. and B.A. in Physics, the B.S. in Astronomy, and the B.A. in Physics and Physics Education all have the broad objectives enumerated below. These objectives are designed to promote the success of our majors in their chosen career path, whether that takes them into academia, secondary teaching, industry or further education:

1. Provide students with problem-solving and data-manipulation skills appropriate to the growing range of scientific and technological careers in academia or industry.
2. Develop students' oral, written, interpersonal and communication skills.
3. Provide students with skills in experimental design, data collection, and data analysis through research experiences in a laboratory/computational/telescope setting.
4. Educate students in the application of mathematical tools that will be useful for them to achieve success in a postcollege career.
5. Provide a conceptual and analytical understanding of the core areas of physics and their specialty area.
6. Provide students with an understanding of scientific reasoning, i.e., the roles of theory, hypothesis, and experiment in the scientific method.

The B.S. in Physics and the B.S. in Astronomy are primarily designed for students who wish to pursue post-graduate education or to have a more in-depth physics background. The Physics B.A. is primarily designed for students interested in pursuing a double major, or a professional career. The B.A. in Physics and Physics Education is structured for those interested in pursuing a secondary science teaching career.

Undergraduate Curriculum

The four-year physics programs are the Bachelor of Arts in physics and the Bachelor of Science in physics. The Bachelor of Science programs are intended for students who will pursue a career or a graduate degree in the field, whereas the Bachelor of Arts program is primarily geared toward those who are interested in pursuing physics as a second major. The department also offers a Bachelor of Science degree in Astronomy and Astrophysics.

Graduate Study

The Department of Physics and Astronomy offers the degrees of master of science in physics, master of science in teaching, and doctor of philosophy. Advanced degrees in physics may be based on experimental or theoretical research in physics or astrophysics.

Please refer to the departmental homepage at <http://www.uwyo.edu/physics/> for the programmatic updates, or contact the department directly.

Program Specific Admission Requirements

We will begin to review applications in late January. Both the GRE general and physics subject exams are optional, and we will review all applications on their total merits. Students of all backgrounds, ethnicities, genders and countries of origin are encouraged to apply at <http://www.uwyo.edu/admissions/apply-online.html>

Applications should include:

- Resume or CV
- Undergraduate transcript
- A Personal Statement that says why you want to pursue a PhD, why Wyoming is a good fit for you, and what experiences you've previously had completing long-term projects
- Three letters of recommendation (this will be done through the application website)
- GRE scores Both the GRE general and physics subject exams are optional.
- TOEFL for non-native English speakers
- Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Program Specific Graduate Assistantships

The Physics and Astronomy Department commits to providing first- and second-year students with teaching assistantships for the nine-month academic year. More advanced students are generally supported on federal grants or fellowships. Both teaching and research assistantships carry a full tuition waiver and insurance. Summer assistantships are often available to students making satisfactory progress. Refer to <http://www.uwyo.edu/physics/> for current amounts.

School of Politics, Public Affairs, and International Studies

**207-208 Arts and Sciences Building,
(307) 766-6484**

Web site: www.uwyo.edu/sppais

School Head: Stephanie Anderson

SPPAIS Faculty:

Professors:

STEPHANIE B. ANDERSON, B.S.F.S. Georgetown University 1989; M.Sc. The London School of Economics and Political Science 1990; Ph.D. University of Cambridge 1996; Professor of Political Science 2017, 2005.

R. MCGREGGOR CAWLEY, B.A. Kearney State College 1971; M.A. Colorado State University 1974; Ph.D. 1981; Professor of Political Science 1997, 1987.

TEENA J. GABRIELSON, B.A. Macalester College 1992; M.A. University of California - Davis 1997; Ph.D. 2002; Professor of Political Science 2019, 2006.

ANDREW D. GARNER, B.S. Kennesaw State University 2002; Ph.D. University of Mississippi 2007; Professor of Political Science 2014, 2008.

JEAN A. GARRISON, B.A. University of Wyoming 1990; M.A. University of South Carolina 1992; Ph.D. 1996; Professor of Political Science, International Studies 2010, 2001.

JAMES D. KING, B.A. Michigan State University 1974; M.A. Western Michigan University 1977; Ph.D. University of Missouri-Columbia 1983; Professor of Political Science 1999, 1992.

BRENT L. PICKETT, B.A. Wichita State University 1989; M.A. University of Colorado at Boulder 1991; Ph.D. 1995; Professor of Political Science - Casper 2010, 2005.

ROBERT A. SCHUHMAN, B.S. Appalachian State University 1987; M.P.A. 1989; Ph.D. Virginia Polytechnic Institute and State University 1995; Professor of Political Science 2013, 1995.

Associate Professors:

NEVIN AIKEN, B.A. University of Western Ontario 2003; M.A. 2004; Ph.D. University of British Columbia 2010; Associate Professor of Political Science and International Studies 2016, 2010.

YI-LING CHEN, B.S. National Taiwan University 1989; M.S. 1992; Ph.D. Rutgers University 2000; Associate Professor of International Studies and Geography 2015, 2010.

NICHOLAS CRANE, B.A. The Ohio State University 2006; M.A. 2008; Ph.D. 2014; Assistant Professor of Geography and International Studies 2016.

ZOE PEARSON, B.A. University of California Los Angeles 2005; M.A. Ohio State University 2010; Ph.D. 2016; Assistant Professor of Geography and International Studies 2016.

JUSTIN T. PICCORELLI, B.A. Loyola Marymount University 2004; M.P.A. Cleveland State University 2009; Ph.D. 2014; Assistant Professor of Public Administration 2015.

THOMAS R. SEITZ, B.S. University of the State of New York 1988; M.A. University of Kent at Canterbury 1989; Ph.D. University of Cambridge 1997; Associate Professor of International Studies 2015, 2009.

Assistant Professors:

JASON B. MCCONNELL, B.S. University of Wyoming 1998, MA 2003, J.D. 2005; Ph.D. Washington State University 2017; Assistant Professor of Political Science 2018.

GABEL C. TAGGART, B.S. Brigham Young University 2010; M.P.P. 2013; Ph.D. Arizona State University 2017; Assistant Professor of Public Administration 2018.

Senior Academic Lecturer:

ANNE ALEXANDER, B.B.A. New Mexico State University, 1991; M.S. 1993; Ph.D. University of Wyoming, 2001; Senior Academic Lecturer, 2019, 2013; Interim Provost and Vice President for Academic Affairs 2020.

Associate Lecturer:

RUTH BJÖRKENWALL, B.A. University of California at Berkeley, 1989; M.A. 2004; Associate Lecturer 2018, 2013.

Professors Emeriti:

Winberg Chai, Larry Hubbell, Garth Massey, Margaret M. Murdock, Stephen C. Ropp, Oliver Walter

Associate Professor Emeritus:

Alan E. Schenker

Adjunct Faculty:

(see department section following name for academic credentials)

Tanja Börzel, political science, Freie Universitaet Berlin
Roger Coupal, agriculture and applied economics
Michael Harkin, anthropology
Mark Peterson, management and marketing
Thomas Risse, political science, Freie Universitaet Berlin
Amy Roberts, elementary and early childhood education
Chris Rothfuss, international studies
Mona Schatz, social work
Ed Sherline, philosophy
J.J. Shinker, geography
Lilia Soto, American studies and latina/o studies
Jim Thurman, international studies, political science - Central Wyoming College

International Studies

Undergraduate Learning Outcomes

Goal 1. Students graduating with a BA in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective.

Goal 2. Students graduating with a BA in international studies will have the capability to critically read, write about, discuss, and engage in scholarly inquiry related to international processes and issues.

Goal 3. Students graduating with a BA in international studies will have a minimal level of fluency in a second language and are expected to experience a foreign locale in which to use the second language skills.

Goal 4. Students will be made aware of career and post-graduate opportunities suitable for an international studies major.

Graduate Learning Outcomes

All students who graduate with a Master's degree in international studies will be able to:

- Engage in independent empirical inquiry that makes an original contribution to the field of study;
- Think critically and reason logically about a problem and the ways it can be answered;
- Employ the best recognized methods appropriate to their research;
- Effectively develop alternative explanations, use theories and concepts to guide the research project, and conduct the work in such a way that disproof is possible; and
- Present their work intelligently, with both written and oral capability at a level of professional expectations.

They will have a broad understanding of:

- International affairs;
- The diversity of national cultures and social structures;
- Political and economic systems;
- Major global trends and problems

International Studies Major

Students graduating with a degree in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective. uwyo.edu/sppais.

Core Courses

Students take 9 hours of core coursework. INST 2350 (Introduction to Global Studies) and INST 2310 (Introduction to International Relations) provide the theoretical framework for the global and regional tracks. INST 4950 (Capstone) provides the culminating experience for

students completing the B.A. degree in international studies and fulfills the COM3 writing requirement for the University Studies Program.

Area of Focus

Students will complete a minimum of 18 hours of coursework in two specific areas of focus, choosing a global and regional track. Students must complete a minimum of 9 hours in each track.

Global Tracks - Governance and Conflict Resolution; Economic Systems; Culture and Social Issues; Sustainable Development and the Environment

Regional Tracks - Africa and the Middle East; Asia, Europe and the Former Soviet Union; Latin America

Global and regional tracks have suggested Gateway courses. Most Gateway courses fulfill University Studies requirements. All INST students are required to take the Regional Gateway course in their chosen region, either: INST 2230 (Introduction to Asian Studies),

INST 2240 (Introduction to African Studies), INST 2250 (Introduction to Latin American Studies), or INST 2280 (Introduction to European Studies)/POLS 2200 (Politics of Europe and the EU). These courses fulfill the COM2 requirement for University Studies Program and counts towards the 9 hours required for the Regional Track.

Foreign Language

Students must complete a four semester sequence in a single foreign language or show an equivalent level of proficiency. Language courses must be conversational language courses. American Sign Language is not considered a foreign language.

Electives

Students must take 9 hours of elective courses from the international studies curriculum, 6 of which must be upper division. The following Gateway courses can count for the elective requirement: ANTH 1200, ECON 1000, INST 1060 or GEOG 1000, INST/ POLS 1200,

INST 1330.

All required courses for the major must be passed with a grade of C or better. There are numerous special topics courses offered during the academic year and these courses can fulfill the international studies requirements with approval from your adviser. Students are

encouraged to satisfy the USP Q (quantitative reasoning) requirement by taking STAT 2070, Introductory Statistics for Social Sciences.

International Study Abroad and Internship Opportunities

All International Studies majors are strongly encouraged to consider taking part in a semester long study abroad program or a shorter-term faculty-led international fieldwork or study abroad courses taught by UW faculty (typically offered during the Summer and Winter

breaks) as a way to earn course credit towards their International Studies degree. In addition, International Studies majors are also encouraged to consider participating in paid or unpaid international internship opportunities as a way of earning additional academic credit

towards their International Studies degree. For more information on international study abroad exchanges, faculty-led fieldwork courses and internship opportunities, please visit the UW Abroad Office at: uwoyo.edu/geo/eda/index.

Global Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

Sustainable Development and the Environment

Suggested Gateway Courses: ENR 1100, ECON 1010, ECON 1020, GEOG 1000, GEOL 1600, SOC 1000

AGEC 4460 - Agriculture and Economic Development

AGEC 4660 - Community Economic Development

ANTH 4310 - Environmental Anthropology

ECON 4700 - Economic Development

ENR 2000 - Environment and Society

GEOG 3030 - Geography and Development

GEOG 3550 - Natural Hazards and Society

GEOG 4420 - Tourism and Recreation

GEOL 3500 - Global Change: A Geological Perspective

GEOL 3600 - Earth and Mineral Resources

GEOL 3650 - Energy: A Geological Perspective

INST/AGEC 3860 - Econ of World Food/Ag

INST 4060 - NGOs, Development, and Culture

INST/SOC 4110 - Sociology of Development

INST/POLS 4255 - Politics of Developing Nations

INST 4475 - Sustainable Development & Environment

INST 4580 - Gender, Global Change and Development

MKT 4590 - Sustainable Business Practices

POLS 4350 - Sustainable Development and Global Policy

Economic Systems

Suggested Gateway Courses: ECON 1000, ECON 1010, ECON 1020. NOTE: Some courses from this curriculum require ECON 3020.

AGEC 4460 - Agriculture and Economic Development

AGEC 4660 - Community Economic Development

AGEC 4880 - International Agricultural Trade, Markets and Policy

BUSN 4540 - Global Business Issues
ECON 4700 - Economic Development
ECON 4720 - International Trade
ECON 4740 - International Finance
FIN 4460 - Multinational Finance
INST/BUSN 2000 - Intro to International Business
INST/GEOG 3050 - Economic Geography
INST/AGEC 3860 - Economics of World Food and Development
INST/SOC 4370 - Global Political Economy
INST/MKT 4540 - International Marketing
INST/ECON 4710 - Comparative Systems
MKT 4590 - Sustainable Business Practices

Culture and Social Issues

Suggested Gateway Courses: ANTH 1200, SOC 1000
ANTH 4300 - Anthropology of Religion
ANTH 4350 - Medical Anthropology
ANTH 4380 - Visual Anthropology
ART 4650 - International Study in Art
COJO 3190 - Cross-Cultural Communication
GEOG 4570 - Cultural Geography
HIST 4405 - American Encounters to 1850
HIST 4406 - American Encounters from 1850
INST/SOC 3000 - Social Change
INST/ANTH 3420 - Anthropology of Global Issues
INST/HLSC 4100 - Global Public Health
INST/WMST 4155 - Women, War and Health
INST/WMST 4175 - Gender, Women and Health
INST/WMST 4240 - Global Sex Work and Trafficking
INST/ANTH 4350 - Culture Change

INST 4590 - Women of India

INST 4650 - Women, Gender and Migration

INST/SOWK 4881 - Intl Social Welfare/Social Dev.

ANTH/MUSC 3015 - Introduction to Music of the World's People

MUSC 4050 - Advanced Studies in World Music

RELI 2225 - History of Christianity

RELI 2255 - Introduction to Judaism

WMST 3500 - Gender and Society

ZOO 4110 - HIV/AIDS

Governance and Conflict Resolution

Suggested Gateway Courses: GEOG 1000, POLS 1200, SOC 1000

ANTH 4320 - Political Anthropology

CRMJ 4280 - Comparative Criminal Justice

GEOG 4590 - Geography of Conflicts

INST 3200 - Comparative Political Cultures

INST/WMST 4155 - Women, War, and Health

INST/SOC 4300 - The World System

INST/POLS 4330 - American Foreign Relations

INST/POLS 4340 - International Organizations

INST 4360 - International Peace & Conflict

INST 4375 - Transitional Justice

INST/HIST 4380 - History of Human Rights

INST 4455 - Drug War Geopolitics in the Americas

INST/GEOG 4560 - Global Cities

INST/HIST 4582 - 20th Century Foreign Relations

PHIL 3250 - Global Justice

POLS 3300 - Model United Nations

POLS/GEOG 4013 - Political Geography

POLS 4710 - Emerging Democracies

POLS 4870 - Seminar: International Relations

POLS 4875 - Seminar: Comparative Foreign Policy Analysis

POLS 4890 - Seminar: Comparative Government and Politics

Regional Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

Africa and the Middle East

Gateway Course for this Concentration: INST 2240, Introduction to African Studies

AAST/INST 2240 - Introduction to African Studies

AAST/ANTH/ART 2730 - African Creativity and Ritual

AAST/HIST 3120 - Africa Since 1800

AAST 3130 - Global Impact of African Cultures

AAST 3670 - African Diaspora

ENGL 2190 - African Literature

HIST/RELI 2320 - History of Islam

HIST 3220 - History of the Modern Middle East

HIST/WMST 4335 - Women and Islam

INST 3400 - Politics and Society of Turkey

INST/AAST 4050 - Dev., Africa, and Culture

POLS 3270 - Government and Politics of the Middle East

RELI 2040 - Religions of the Middle East

RELI 2450 - Traditional African Religion

Asia

Note: The Asian Studies minor is different from this concentration.

Gateway Course for this Concentration: INST 2230, Introduction to Asian Studies

HIST 2040 - Imperial China

HIST 2041 - Modern China

HIST 2460 - Traditional Japan
HIST 2461 - Modern Japan
HIST 3400 - Mongol Empire
HIST 4510 - Modern Far East: China, Japan and India
INST 2230 - Introduction to Asian Studies
INST/SOC 3100 - Chinese Society
INST 4200 - China and Globalization
INST 4250 - Economic Development in Asia
INST/SOC 4680 - Shanghai: Past and Present
POLS 4230 - Governments and Politics of Asia
POLS 4240 - Culture, Society, Political Economy in East Asia
RELI 2050 - Religious Landscapes of Asia
RELI 2315 - History of Hinduism
RELI 3340 - Mysticism, Yoga, and Enlightenment in the East
RELI 3344 - Gods, Avatars, Heroes, and Mystics
WMST 4590 - Women of India

Europe and the Former Soviet Union

Note: The European Studies minor is different from this concentration.

Gateway Course for this Concentration: INST 2280, Introduction to European Studies, or INST 2200, Politics of Europe and the European Union

FREN 3110 - Contemporary French Civilization
GERM 3006 - 20th Century German Culture
HIST/RELI 2080 - Holocaust
HIST 2240 - History of Russia from 1855
HIST 3110 - Modern Germany
HIST 4170 - Europe in the 19th Century
HIST 4180 - Europe in the 20th Century
HIST 4270 - France: Old Regime and Revolution
HIST 4280 - France Since 1814

HIST 4290 - History of the Soviet Union

HIST 4310 - World War II in Europe

HIST 4315 - Central Europe and the Holocaust

HIST 4320 - Memory and National Identity

HIST 4330 - European Gender and Women's History

POLS 2200 - Politics of Europe and the European Union

POLS 3220 - Government and Politics of Russia and the FSU

POLS 4220 - European Union

RELI 4150 - Christianity, Jews, and Muslims in Iberia

WMST 4330 - European Gender and Women's History

Latin America

Gateway Course for this Concentration: INST 2250, Introduction to Latin American Studies

AAST 2410 - Survey of AfroCaribbean Cultures

GEOG 4500 - Landscapes of the Americas

HIST 2380 - Latin America Civilization

HIST 4492 - Indian Cultures of Latin America

HIST 4495 - Colonial Mexico

HIST 4496 - History of Mexico

INST 2250 - Introduction to Latin American Studies

INST/POLS 4290 - Inter-American Relations

INST 4445 - Drug War Geopolitics in the Americas

INST 4475 - Politics of Ntl. Resources in Latin America

INST/LTST 4485 - U.S. Latino Diaspora

INST 4490 - Ethical Trade in Latin America

INST 4495 - Indigenous Social Movements of Latin America

INST/LTST 4650 - Women, Gender and Migration

POLS 2290 - Government and Politics of Latin America

POLS 4890 - Populism and Liberal Democracy

General Requirements for the International Studies Major

A student must complete 36 hours of course work and 16 hours of foreign language.

Concurrent Major

A concurrent major is a second major pursued alongside the primary major. The majors can be in one or more colleges. One degree is awarded from the college of the primary major. University Studies requirements need only be satisfied once.

Dual Degree

A dual degree is a second degree pursued either in the same college as the first degree or in another college. University Studies requirements need only be satisfied once. Students must meet all the college and major requirements for both majors. Students must complete at least 30 credit hours (minimum 12 upper-division hours) beyond the credit hours required for the degree with the smallest number of credit hours required. An academic advisor for each degree is required.

Second Bachelor's Degree

Students pursuing a second bachelor's degree must earn a minimum of 30 additional credit hours from UW, 12 of which must be upper-division. A student must also fulfill all of the college and major requirements, however, University Studies requirements only need to be met once if the first degree is from UW.

Undergraduate Minors

Students can minor in 3 areas by fulfilling one of the following sets of requirements:

International Studies Minor

A minor in international studies requires 12 hours of a single foreign language and 15 hours of international studies curriculum, with a minimum of 9 hours at the 3000-level or above.

Asian Studies Minor

The Asian Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of an Asian region or a single country. The program emphasizes a social science approach to the study of Asian history, politics, society, and culture with options to

include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Asia is defined first and foremost as a geographic entity to include Western, Northern, Central, South and East Asian areas. Thus, for example,

countries such as modern Turkey and areas such as the 'Middle East' can rightly be included in 'Asia' alongside areas more traditionally understood as part of Asia such as China and India.

Asian Studies Minor Course Requirements (18 credits)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 Credit Hours)

All Asian Studies Minor students must complete one of two required Gateway courses, either INST 2230 - Introduction to Asian Studies (G/COM2) or POLS 3270 - Government and Politics of the Middle East, depending on their primary area of interest within Asia.

Asian Studies Area Courses (15 Credit Hours)

Asian Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved Asian Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition to the

approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Asian Studies Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to

review the International Studies Newsletter each semester to see what Asian Studies Area courses are currently being offered.

Approved Asian Studies Area Courses

ART 2720 - Introduction to the Art and Culture of Islam

ART 4650 - International Study in Art (Turkey/India)

CHIN 1101 - Taste of China

CHIN 2041 - Contemporary and Traditional Chinese Culture

CHIN 3160 - See Movies, Touch China

ENR 3300 - Environmental Policy, Conservation and Development in India

HIST 2040 - Imperial China HIST 2041 - Modern China

HIST/RELI 2320 - History of Islam

HIST 2460 - Traditional Japan

HIST 2461 - Modern Japan

HIST 2470 - Civilization of India

HIST 3210 - The Islamic World in the Premodern Era

HIST 3220 - History of the Modern Middle East

HIST 3400 - Mongol Empire

HIST/WMST 4335 - Women and Islam

HIST 4520 - Modern Far East: China, Japan and India

INST 2230 - Introduction to Asian Studies

INST/SOC 3100 - Chinese Society

INST 3400 - Politics and Society of Turkey

INST 4200 - China and Globalization

INST 4250 - East Asia Society and Economy

INST 4560 - Global Cities

INST/WMST 4590 - Women of India

INST 4680 - Shanghai: Past and Present

LANG 2150 - History and Culture of Manga

LANG 3105 - Survey of Japanese Literature

LANG 3140 - History and Culture of Anime

LANG 4800 - Japanese Film

POLS 3270 - Government and Politics of the Middle East

POLS 4230 - Governments and Politics of Asia

RELI 2040 - Religions of the Middle East

RELI 2050 - Religious Landscapes of Asia

RELI 2315 - History of NonWestern Religions

RELI/PHIL 3320 - Eastern Thought

RELI 3340 - Mysticism, Yoga, and Enlightenment

RELI 3344 - Gods, Avatars, Heroes, and Mystics

SOC 3050 - Japanese Society

Optional Asian Study Abroad Component

Asian Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Asia to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards fulfillment of

the Asian Studies Area Course requirement on the approval of the student's designated minor advisor. Optional Asian Foreign Language Component Asian Studies Minor students are also strongly encouraged to learn an Asian foreign language as part of their progression

towards completion of the Minor. Accordingly, up to eight (8) lower-division (1000-2000) credit hours of an Asian foreign language may be counted towards fulfillment of the Asian Studies Area Course requirement. 'Asian' languages at UW include Japanese, Chinese and

Arabic. However, Asian Studies Minor, students need not necessarily be limited to the three languages currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be fulfilled by other Asian language

instruction at UW, other relevant in-country summer intensive programs, or language-focused study abroad programs.

European Studies Minor

The European Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of a European region or a single country. The program emphasizes a social science approach to the study of modern European history, politics, society, and

culture with options to include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Europe is defined first and foremost as a geographic entity running from the Atlantic to the Urals and from Scandinavia to the

Mediterranean and the Caucasus Mountains. Courses that transcend these boundaries should include the study of Europe in a prominent way to count toward the minor.

European Studies Minor Course Requirements (18 credits)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 credit hours)

All European Studies Minor students must complete one of two required Gateway courses, either INST 2280 - Introduction to European Studies (COM2) or POLS 2200 - Politics of Europe and the European Union (COM2).

European Studies Area Courses (15 credit hours)

European Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved European Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition

to the approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to review the

International Studies Newsletter each semester to see what European Studies Area courses are currently being offered.

Approved European Studies Area Courses

A&S 2200 British Life and Culture

FREN 2130 - Contemporary French Culture

FREN 3110 - Contemporary French Civilization

FREN 4085 - Studies in French Culture

GERM 3006 - 20th Century German Life and Civilization

GERM 3150 - German History and Culture

GERM 4265 - Divided Nation: Politics and Culture in Germany 1945 - 1990

GERM 4285 - 20th/21st Century German Film

HIST 2080 - Holocaust

HIST 2240 - History of Russia from 1855

HIST 3110 - Modern Germany

HIST 4170 - Europe: 19th Century

HIST 4180 - Europe: 20th Century

HIST 4190 - Europe: 1930 - Present

HIST 4195 - European Economic History

HIST 4270 - France: Old Regime/Revolution

HIST 4280 - France Since 1814

HIST 4290 - History of the Soviet Union

HIST 4310 - World War II in Europe

HIST 4315 - History, Politics and Memory of the Holocaust in Europe

HIST 4320 - Memory and National Identity in 20th C Europe

HIST/WMST 4330 - European Gender and Women's History

HIST 4420 - Britain's Global Empires

INST 2280 - Introduction to European Studies

INST/POLS/SOC 4330 - The World System

INST 4380 - International History of Human Rights

INST 4881 - International Social Welfare and Social Development

POLS 2200 - Politics of Europe and the European Union

POLS 3220 - Government and Politics of Russia and the FSU

POLS 4215 - European Union

RELI 4150 - Christianity, Jews and Muslims in Iberia

Optional European Study Abroad Component

European Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Europe to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards

fulfillment of the European Studies Area Course requirement on the approval of the student's designated minor advisor.

Optional European Foreign Language Component

European Studies Minor students are also strongly encouraged to learn an European foreign language (other than English) as part of their progression towards completion of the Minor. Accordingly, up to eight (8) lower division (1000-2000) credit hours of an European

foreign language may be counted towards fulfillment of the European Studies Area Course requirement. 'European' languages at UW include French, German, and Spanish. However, European Studies Minor students need not necessarily be limited to the three languages

currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be fulfilled by other European language instruction at UW, other relevant in-country summer intensive programs, or language-focused study abroad

programs. All required courses for the major must be passed with a grade of C or better. A course cannot simultaneously fulfill more than one major requirement.

Graduate Study

Students take the Plan A (thesis). Students must have a minimum of 26 hours of graded non-thesis coursework and 4 hours of thesis.

Program Specific Admission Requirements

Admission is open to all students holding a bachelor's degree in any major. Foreign students, who are non-native English speakers, must pass the Oral Proficiency Interview (OPI).

Program Specific Degree Requirements

Students must meet three requirements: 1) Each student must take INST 5400. 2) Each student must take INST 5200. 3) Each student must demonstrate proficiency in a foreign language, accomplished in the course of the program or from previous experience or

coursework. Foreign language hours do not count toward the M.A. degree. The program also offers a joint International Studies/Environment and Natural Resources degree. See www.uwyo.edu/sppais for specific degree requirements.

Plan A (thesis)

Students are encouraged to construct, with the adviser's approval, a program that focuses their own intellectual interests and career plans. To promote that end, students should be prepared to file a plan of study with the graduate adviser during the second semester of

coursework. No later than the second semester in residence, each student shall select a graduate committee to oversee his or her academic work. The committee will be chaired by the student's major professor and must have at least one member from outside of The

School of Politics, Public Affairs, and International Studies. Students also will prepare a thesis proposal and give a presentation of their preliminary project before the International Studies faculty and complete a thesis prospectus defense with their graduate committee by

the end of their second semester. Students must pass an oral examination at the completion of their program. Normally, examination will center on the thesis, but may also encompass coursework of the candidate.

Required Coursework

Advanced Theory Course

INST 5200 Graduate Proseminar in International Studies

Research Methods Course

INST 5400 International Social Science Research Methods

Graduate Minor in International Studies

A graduate minor in international studies provides students in graduate programs other than international studies with the opportunity to acquire a basic graduate-level familiarity with international relations, global processes and cultural diversity around the world. Students

acquire a foundation in intergovernmental relations and research methodology. Beyond this, students work closely with a graduate director to fashion a program of study appropriate for their interests and post-graduate plans. The minor complements several other graduate

degree programs.

Prerequisites for Admission

Declaration of an international studies minor is contingent on admission to a master's or doctoral degree program. Application is in the form of a letter of interest to the director of the program, including the background, anticipated course of study, and reason for seeking

the minor. An interview with the director is also required. All prerequisites for entering the graduate program in international studies as a major apply to the minor with the exception of proficiency in a second language. Students must be prepared for coursework in

international studies at the graduate level and be willing to take prerequisite courses if necessary.

Course and Committee Requirements

Graduate students minoring in international studies must satisfy the requirements of their graduate major and take twelve credits of guided graduate coursework in international studies. With the approval of the department of the graduate major, these twelve hours may also

count toward the major. Students are required to take at least one advanced theory course (INST 5200) and one advanced research methods course. All courses will be determined in consultation with the program director.

Political Science

Political Science is the study of how societies govern themselves and interact with one another. Courses of instruction in the Political Science major are offered in the following subfields: American politics, comparative government, international relations, political philosophy, public law, and public administration. Areas of focus include analysis of government structures and processes, citizens' influence on government, policy content, philosophical concepts and traditions, political systems of other states, and resolution of conflicts between nations. By developing critical thinking and analytical skills, the major prepares students for effective participation in the political process, successful careers in the public and private sectors, and further study in law, political science, and public administration.

In 1925, the state legislature passed a law requiring the study of the U.S. and Wyoming constitutions by all University of Wyoming students. Political Science 1000 satisfies this requirement, but the requirement can also be satisfied by special examination given periodically by the School of Politics, Public Affairs, and International Studies.

Learning Outcomes

We continuously and actively assess the Political Science undergraduate curriculum to ensure that the following learning outcomes are being met for each of our graduates:

1. Acquisition of a knowledge and understanding of the values, beliefs, and institutions that constitute governing processes;
2. Acquisition of an understanding of the distinctions among the major subfields of the discipline including: American politics and law; international relations; comparative politics; and political theory;
3. Development of a knowledge and understanding of citizens' roles within governing processes;
4. Acquisition of a knowledge of the theories and analytic skills necessary to evaluate conflicting arguments, assemble and present appropriate evidence, and make reasoned conclusions from the evidence available;
5. The ability to communicate effectively, both orally and in written form.

Undergraduate Major

In addition to the university and college requirements listed elsewhere in this bulletin, a major in political science requires 33 department hours. Students are required to complete the following four introductory courses: POLS 1000; POLS 1200 or POLS 1250; POLS 2310; and POLS 2460 or POLS 3600. Students are also required to take at least one seminar in political science (and its prerequisites); 8 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages; STAT 2050 or STAT 2070; and a minimum of 9 hours of upper division credit in political science. A maximum of 6 hours of internship credit may be

applied toward the 33 hours required for the political science major. Only those political science courses in which a grade of C or better has been earned may be used to satisfy departmental requirements.

Most university studies courses and lower division political science courses should be completed prior to the junior year. Additional information about the political science major may be obtained from the School of Politics, Public Affairs, and International Studies:

www.uwyo.edu/sppais.

5 Year B.A./M.A. Program in Political Science

The Political Science 5 Year B.A./M.A. Program offers highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor's degree (whether B.A. or B.S.) and thereby earn a graduate degree more efficiently. Political science majors with a cumulative major GPA of 3.5 or higher may be invited to apply at the outset of the second semester of the junior year. Interested students will submit an application and 2 letters of recommendation, at least one from a political science faculty to be reviewed, along with unofficial, current UW transcripts, by the M.A. Director and Committee. Upon provisional acceptance into the program in the junior year, students will be required to take the GRE. GRE scores will be considered for full and final acceptance to the M.A. program, which will be made once the student has completed the bachelor's degree.

Provisional acceptance to the 5 Year B.A./M.A. program in Political Science will allow students to apply up to six credit hours of 5000-level courses toward both the B.A./B.S. and M.A. degree programs. To earn graduatelevel credit, students must achieve at least a 3.000 in the course. By successfully completing up to six credit hours of graduate coursework during their senior year, these students will have demonstrated their ability to do graduate level coursework as undergraduates, easing their transition into the Master's Program in Political Science. Interested students may reserve up to six additional credits for graduate study that do not apply to the undergraduate degree by securing appropriate approvals as explained in the Registrar's "Request to Reserve Coursework for Graduate Credit" prior to taking the coursework. Students will be granted the BA/BS upon completion of the credit hours required for the undergraduate degree in political science. Students must complete the BA/BS before formally entering the MA program. To remain in good standing in the program, students must maintain a cumulative and departmental GPA of 3.200 and earn at least a 3.000 in all 5000-level courses. Failure to meet the GPA requirements places a student on probation for one semester. If the GPA requirement is not met after that semester, the student will be suspended from the program. Students in the program are encouraged to take the Plan B option. Please see the Graduate Study section to find the degree requirements of the M.A. in Political Science.

Undergraduate Minors

The school offers optional undergraduate minors in American politics, international relations and comparative government, public law, and political theory. Eighteen hours are required in each minor, including 9 hours of upper-division courses and one seminar. A maximum of 3 hours of internship credit may be applied towards the 18 hours required for the political science minor. At least 12 credit hours in a minor must be from courses not counted toward the student's major. Information relating to specific courses fulfilling minor requirements may be obtained from the School of Politics, Public Affairs, and International Studies: www.uwyo.edu/sppais.

American Politics Minor

A minor in American Politics requires POLS 1000 - American and Wyoming Government, either POLS 4850 - Seminar in American Political Institutions or POLS 4840 - Seminar in Public Law, and 12 hours from an approved list of courses, with a minimum of 9 hours at the 3000-level or above.

Approved American Politics Minor courses:

POLS 2000 - Current Issues in American Government
POLS 2070 - Politics of State & Local Government
POLS 2410 - Introduction to Public Administration
POLS 2430 - Parties, Interest Groups, & Elections
POLS 2450 - Politics & Media

POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3100 - Politics and the Judicial Process
POLS 3520 - Voting & Participation in America
POLS 3550 - Political Communication
POLS 3600 - American Political Thought
POLS 4051 - Environmental Politics
POLS 4052 - Federal Land Politics
POLS 4100 - Constitutional Law: Institutional Powers
POLS 4110 - Constitutional Law: Civil Liberties & Civil Rights
POLS 4330 - American Foreign Relations
POLS 4420 - Seminar in Public Administration (Max. 6)
POLS 4430 - U.S. Presidency
POLS 4435 - Presidential Elections
POLS 4520 - Public Opinion
POLS 4530 - U.S. Congress
POLS 4550 - Internship in Government (dept. approval required)(1-6)
POLS 4560 - Washington Semester Program (Max. 6)
POLS 4710 - Topics in _____ (dept. approval required)(Max. 9)
POLS 4720 - Workshop in Practical Politics (Max. 6)
POLS 4840 - Seminar in Public Law (Max. 6)
POLS 4850 - Seminar in American Politics and Institutions (Max. 6)

International Relations and Comparative Politics Minor

A minor in International Relations and Comparative Politics requires POLS 2310 - Introduction to International Relations, either POLS 1200 - Non-Western Political Cultures or POLS 1250 - Introduction to Comparative Politics, either POLS 4870 - Seminar in International Relations or POLS 4890 - Introduction to Comparative Government and Politics, and 9 hours from an approved list of courses, with a minimum of 6 hours at the 3000-level or above.

Approved International Relations and Comparative Politics Minor courses

POLS 2200 - Politics of Europe and the European Union
POLS 2290 - Government & Politics of Latin America
POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3200 - Comparative Political Cultures
POLS 3220 - Government & Politics of Russia and FSU
POLS 3270 - Government & Politics of the Middle East
POLS 3300 - Model United Nations (Max. 6)
POLS 4013 - Political Geography
POLS 4215 - European Union
POLS 4230 - Government & Politics of Asia

POLS 4255 - Politics of Developing Nations
POLS 4260 - Democratization & Regime Change
POLS 4290 - Inter-American Relations
POLS 4330 - American Foreign Relations
POLS 4340 - International Organizations
POLS 4350 - Sustainable Development & Global Policy
POLS 4360 - International Peace & Conflict
POLS 4375 - Transitional Justice
POLS 4445 - Drug War Geopolitics in the Americas
POLS 4475 - Politics of Natural Resources in Latin America
POLS 4600 - Political Violence
POLS 4710 - Topics in _____ (dept. approval required)(Max. 6)
POLS 4870 - Seminar in International Relations (Max. 6)
POLS 4890 - Seminar in Comparative Government and Politics (Max. 6)

Political Theory Minor

A minor in Political Theory offers an opportunity for interdisciplinary study. Required are POLS 2460 - Introduction to Political Theory, POLS 3600 - American Political Thought, POLS 4810 - Seminar in Political Theory, and 9 hours from an approved list of courses in political science and other disciplines, with a minimum of 6 hours at the 3000-level or above.

Approved Political Theory Minor courses

POLS 2330 - Environmental Ethics
POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3050 - Athenian Democracy
POLS 3610 - Classics in Environmental Thought
POLS 3620 - Environmental Justice
POLS 4090 - Anglo-American Jurisprudence
POLS 4160 - Legal Philosophy
POLS 4640 - Political Philosophy: Ancient & Medieval
POLS 4650 - Political Philosophy: Modern
POLS 4660 - Political Philosophy: Contemporary
POLS 4710 - Topics in _____ (dept. approval required) (Max. 6)
PHIL 2200 - Social & Political Philosophy (Max. 6)
SOC 3900 - Social Theory

Public Law Minor

A minor in Public Law offers an opportunity for interdisciplinary study. Required are POLS 4100 - Constitutional Law: Institutional Powers, POLS 4110 - Constitutional Law: Civil Liberties & Rights, POLS 4840 - Seminar in Public Law, and 9 hours from an approved list of courses in political science and other disciplines, with a minimum of 3 hours at the 3000-level or above.

Approved Public Law Minor courses

POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3100 - Politics and the Judicial Process

POLS 4090 - Anglo-American Jurisprudence
POLS 4160 - Legal Philosophy
POLS 4710 - Topics in _____ (dept. approval required) (Max. 6)
AGEC 3400 - Agricultural Law
COJO 4500 - Mass Communication Law
CRMJ 2210 - Criminal Law
CRMJ 3110 - Criminal Courts & Processes
CRMJ 4140 - Criminal Legal Procedure
CRMJ 4350 / SOC 4350 - Sociology of Law
CRMJ 4540 / WMST 4540 - Women, Crime, and Law
CRMJ 4730 / PSYC 4730 - Psychology and Law
HIST 4515 - American Legal History
MGT 1040 - Legal Environment of Business

Teacher Education

The teacher certification program in Secondary Social Studies Education, with a concurrent major in Political Science is available through the College of Education. A minimum 2.500 UW grade point average and a 2.500 grade point average in Political Science and Social Studies content are required to change majors. Further information may be found under the College of Education section in this Catalog.

Major or Minor in Environment and Natural Resources

The Haub School of Environment and Natural Resources (ENR) offers a second major or minor for students interested in interdisciplinary training in the policy, legal, economic, scientific, ethical, and other perspectives associated with ENR challenges. The Haub School uses problem-based learning and interdisciplinary team teaching. Students of all disciplines are welcome to take classes in ENR or add ENR to their degree program. Contact the Haub School at (307) 766-5080, haub.school@uwo.edu, or www.uwo.edu/haub.

Graduate Study

The master of arts and the master of public administration are offered by the School of Politics, Public Affairs, and International Studies. The school's mission is to give graduate students an understanding of the theories and methods necessary for success in (1) research or in post-baccalaureate study in any of the subfields in political science, (2) high school teaching in social science, or (3) careers in policy analysis or public administration in local, state, or federal government, or international governmental, non-profit, or non-governmental organizations. Our graduate students have progressed to senior positions in government, the U.S. Foreign Service, and international organizations; they have pursued rewarding careers in education and the private sector; and they have advanced to Ph.D. programs in political science and related fields.

Program Specific Admission Requirements

Master of Arts in Political Science

Admission is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.0 GPA. Foreign students, who are non-native English speakers, must pass the Oral Proficiency Interview (OPI).

Master of Public Administration (M.P.A.)

Admission is competitive and is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.00 GPA, 2 letters of recommendation, a letter of intent, and a short analytic writing sample. Foreign students, who are non-native English speakers, must also pass the Oral Proficiency Interview (OPI). Only one class, POLS 5000, may be taken prior to full admission into the program with permission of the MPA director.

Program Specific Degree Requirements

Master's Programs

Master of Arts in Political Science, Plan A (thesis)

At least 30 hours of graduate credit, to include:

POLS 5510. Public Policy and Program Management.

POLS 5680. Research Methods for Political Science.

POLS 5684. Empirical Analysis for Public Administration.

POLS 5810. Seminar in Political Philosophy.

At least 6 additional hours of coursework in political science.

A maximum of 9 hours of coursework in disciplines other than political science.

A minimum of 4 hours thesis research.

A master's thesis demonstrating independent research, written under the supervision of the major professor.

An oral examination conducted by the graduate committee covering all coursework and the thesis.

No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.

Students must maintain a graduate GPA of 3.000.

Master of Arts in Political Science, Plan B (non-thesis)

At least 30 hours of graduate credit, to include:

POLS 5510. Public Policy and Program Management.

POLS 5680. Research Methods for Political Science.

POLS 5684. Empirical Analysis for Public Administration.

POLS 5810. Seminar in Political Philosophy.

At least 6 additional hours of coursework in political science.

A maximum of 12 hours of coursework in disciplines other than political science.

Plan B paper that reflects the quality but not scope of a master's thesis, written under the supervision of the major professor.

An oral examination conducted by the graduate committee covering all coursework and the Plan B paper.

No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.

Students must maintain a graduate GPA of 3.000.

Master of Public Administration Plan B (non-thesis)

Thirty-nine hours of graduate credit, to include:

21 hours of core credit,
6 hours of option-core credit,
12 hours of approved elective credit.

Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits. Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/electronic class discussion. Students must maintain a graduate GPA of 3.000.

Master of Public Administration/Juris Doctor

See the M.P.A. Director and/or the College of Law for information. Students must be accepted to both programs.

Department of Psychology

135 Biological Sciences Building,
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FAX: (307) 766-2926
Web site: www.uwyo.edu/psychology
Department Chair: Sean McCrea

Professors:

KAREN BARTSCH ESTES, B.S. Colorado State University 1981; M.A. Oxford University 1983; Ph.D. University of Michigan 1988; Professor of Psychology 2007, 1992.

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CYNTHIA M. HARTUNG, B.S. University of Wisconsin-Madison 1990; M.A. University of Kentucky 1993; Ph.D. 1998; Professor of Psychology 2019, 2007.

SEAN M. McCREA, B.A. Bucknell University 1996; Ph.D. Indiana University 2002; Professor of Psychology 2019, 2009.

CHRISTINE L. McKIBBIN, B.S. Michigan State University 1991; M.S. University of North Texas 1994; Ph.D. 1997; Professor of Psychology 2019, 2007.

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CAROLYN M. PEPPER, B.S. Western Michigan University 1989; M.A. State University of New York at Stony Brook 1992; Ph.D. 1995; Professor of Psychology 2011, 2002.

BENJAMIN M. WILKOWSKI, B.A. Ohio University 2002; M.S. North Dakota State University 2005; Ph.D. 2008; Professor of Psychology 2020, 2008.

Associate Professors:

JOSHUA D. CLAPP, B.A. University of Wyoming 2003; M.A. State University of New York at Buffalo 2008; Ph.D. 2012; Associate Professor of Psychology 2018, 2012.

KYLE P. De YOUNG, B.S. University of Iowa 2004; M.A. State University of New York at Albany 2008; Ph.D. 2011; Associate Professor of Psychology 2020, 2016.

ALISON R. LOOBY, B.A. University of California-San Diego 2002; M.A. State University of New York at Albany 2007; Ph.D. 2011; Associate Professor of Psychology 2020, 2016.

MEREDITH E. MINEAR, B.S. University of Illinois at Urbana-Champaign 1994; Ph.D. University of Michigan 2004; Associate Professor of Psychology 2019, 2013.

Assistant Professor:

KAYLA A. BURD, B.A. Hofstra University 2010; M.A. Cornell University 2016; Ph.D. 2018; Assistant Professor of Psychology 2020.

CHRISTINA MCDONNELL, B.A. University of Notre Dame 2018; M.A. University of Notre Dame 2014; Ph.D. University of Notre Dame 2018; Assistant Professor of Psychology 2021.

KASEY STANTON, B.S. Montana State University 2012; M.A. University of Notre Dame 2014; Ph.D. University of Notre Dame 2018; Assistant Professor of Psychology 2021.

ANNE STEVENS, B.A. Davidson College 2007, M.A. Appalachian State University 2014; Ph.D. University of Wyoming 2020; Clinical Assistant Professor of Psychology 2021.

Academic Professional Lecturer:

CATHERINE P. CARRICO, B.A. Austin College; Ph.D. University of Northern Colorado; Clinical Associate Professor 2020.

TARA K. CLAPP, B.A. State University of New York at Buffalo 2005; M.S. Niagara University 2010; Associate Academic Professional Lecturer in Psychology 2018, 2012.

SCOTT FRENG, B.S. Black Hills State University 1995; M.A. University of South Dakota 1998; Ph.D. University of Nebraska - Lincoln 2001; Senior Lecturer in Psychology 2013, 2003.

MARIA I. KUZNETSOVA, B.A. Syktyvkar State University-Russia 2000; M.S. University of South Carolina-Aiken 2005; Ph.D. Virginia Commonwealth University 2011; Associate Academic Professional Lecturer in Psychology 2017, 2011.

Professor Emeritus

George Blau, David Estes, Charles J. Ksir, Karen B. Nicholas

The Department of Psychology offers coursework at several levels:

1. Introductory courses for students in other programs who wish an elementary knowledge of psychology.

2. Courses supportive of work in other majors.
3. An undergraduate major that is sufficiently flexible to allow students to prepare for graduate programs in psychology, professional schools (e.g. law, medicine) or for employment after graduation.
4. Graduate course work leading to the Ph.D. in clinical psychology, social psychology, cognition/cognitive development, or psychology and law.

Facilities are available for course work and laboratory experiences in areas of psychology such as cognition, personality, social, biological psychology, cognitive development, and psychology and law.

Students who wish to increase chances of employment related to their undergraduate majors should consult an adviser concerning areas of specialization within psychology.

Students planning graduate work in psychology should consult with their faculty adviser concerning career choices and development.

Learning Outcomes

We expect that our Psychology graduating students will have:

1. a basic knowledge of psychology and related fields.
2. the ability to evaluate the assumptions, purposes, methods, and results of psychological research and scholarship.
3. skills in teamwork, leadership, writing, speaking and listening, especially concerning psychology-related topics.

Credit by Examination

Credit by examination will be allowed only for PSYC 1000. The examination accepted is the College Level Examination Program (CLEP); the passing score is 50.

Advanced Placement

The psychology department will accept a score of 4 on the AP exam for credit in PSYC 1000, effective Fall 2015.

Undergraduate Major

A major requires a minimum of 33 semester hours and may not exceed 60 hours in psychology. Of these, 18 hours must be at the 3000 level or above. These upper-division courses must also be taken from at least two different members of the psychology department faculty listed in this *Catalog*.

Students must complete the following courses:

PSYC 1000 General Psychology

PSYC 2000 Research Psychological Methods

Four of five cores:

Biological,

PSYC 2210 Drugs and Behavior **or** PSYC 2080 Biological Psychology

Developmental,

PSYC 2300 Developmental Psychology

Clinical,

PSYC 2340 Abnormal Psychology

Social,

PSYC 2380 Social Psychology

Cognitive,

PSYC 3120 Cognitive Psychology

Additionally **one** of the following restricted enrollment (seminar or writing intensive) courses is required: PSYC 4040, 4150, 4250, 4320, 4350, 4380, 4390, 4400, 4740, 4860.

Also required are 6 hours of anthropology, communication/journalism, criminal justice, economics, political science, or sociology; LIFE 1003 or 1010; and STAT 2050 or 2070.

One approved 3-4 credit hour STEM course: CHEM 1000, CHEM 1020, COSC 1010, COSC 1100, KIN/ZOO 2040, KIN/ ZOO 2041, LIFE 2002, LIFE 2022, LIFE 2023, LIFE 2050, MATH 1050, MATH 1405, MATH 2200, MICR/MOLB 2021, PHYS 1050, PHYS 1110, STAT 2000, STAT 3050, or ZOO 3600.

Students who have an established UW GPA and who wish to change their major to Psychology, or to add Psychology as a major, will be required to have a UW GPA of at least 2.500.

For graduation, students must receive a C or better grade in all courses taken to satisfy department requirements.

Psychology courses taken 15 or more years ago will not be used to satisfy degree requirements.

Undergraduate Minors

The Department of Psychology offer two undergraduate minors: psychology and aging studies.

Psychology

A minor in psychology requires 18 semester hours in psychology. These must include PSYC 1000 or equivalent and 9 hours at the 3000- level or above. A grade of C or better is required in all minor courses.

Students seeking a minor must have 12 hours exclusive to the minor and not used in the major.

Aging Studies

A minor in aging studies requires 18 credit hours. These must include the following:

Core Courses

NURS 2240, FCSC 2110, HLSC 4985

Elective Courses - 9 credits

6 credits must be outside student major

Academic Standards

At least 12 credit hours in a minor must be from courses that are not being counted toward the student's major. No grade below a C is acceptable for courses applied to the minor.

Background Check

Students seeking the minor in Aging Studies will be required to obtain a background check as specified by College of Health Sciences policy. Please contact us for specific information.

Program Plan

Complete the Program Plan of Study with both your major academic advisor and your minor advisor.

Graduate Study

The Department of Psychology offers the doctor of philosophy in psychology with programs in clinical (APA accredited) psychology, social psychology, cognition/ cognitive development, and psychology and law.

Program Specific Admission Requirements

The deadline for receipt of all application materials is December 1.

We only admit students one time per year. Our graduate students begin their programs of study in the fall semester.

Although our graduate programs technically consist of separate master's and doctoral degree components, only students who are applying for, and who expect to complete, the doctoral program are considered for admission. That is, we do not offer a terminal master's degree.

Application materials include the application, one to two page statement of purpose, undergraduate and graduate (if applicable) transcripts, curriculum vitae, and three letters of recommendation. An application fee of \$50 is required.

Applications are evaluated based on the applicants' academic qualifications (e.g., undergraduate GPA, graduate GPA if applicable, course specific grades) and stated research and (if applicable) clinical interests. Particular attention is paid to the goodness of fit between the applicant's expressed research/clinical interests and the particular strengths and offerings of our program.

Our program does not employ a set of formal "cut-offs" with regard to any of the quantitative application elements (e.g., undergraduate/graduate GPA). Often a strong record in one area may make up for a weakness in another area. Applicants interested in information on the qualifications of admitted students should consult the student summary data (www.uwyo.edu/psychology).

Program Specific Graduate Assistantships

Applicants are considered for graduate assistantships at the time of admission. Graduate students typically receive some departmental financial support for the first four years.

Program Specific Degree Requirements

Master's Programs Plan A (thesis)

In addition to the general requirements specified in this Catalog, the following are required: (1) successful completion and oral defense of a thesis; (2) PSYC 5060. Statistical Methods in Psychology - 3 hours or STAT 5050. Statistical Methods in Biological Science - 3 hours; PSYC 5300. Applied Multivariate Analysis - 3 hours or STAT 5055. Statistical Methods for Biologists II - 3 hours; PSYC 5520. Research Design in Psychology - 3 hours; (3) at least 9 hours in 5000-level courses exclusive of those listed above and exclusive of research and thesis research credit.

A minimum of 30 semester hours is required (26 coursework hours and 4 thesis hours).

Doctoral Programs

Clinical Psychology

Students complete a four-year, on-campus sequence of required courses covering core areas of psychology and clinical competency. In addition, the following are required: successful completion of a thesis, a preliminary comprehensive examination, a dissertation, two summer clerkships, and a full year APA accredited internship.

Social Psychology, Cognition/Cognitive Development, or Psychology and Law

Students complete course requirements in topics designated as core areas of psychology, a preliminary comprehensive examination, and a research-based dissertation.

Department of Theatre and Dance

2099 Buchanan Center for the
Performing Arts, (307) 766-2199

Web site: uwyo.edu/thd/

Department Head: **Margaret Wilson**

Professors:

CECILIA ARAGÓN, B.S. McMurry University 1991; M.A. University of New Mexico 1996; Ph.D. Arizona State University 2003; Professor of Theatre and Dance 2017, 2005.

MARGARET WILSON, B.A. University of Wyoming 1981; M.S. 1987; Ph.D. Texas Woman's University 2007; Professor of Theatre and Dance 2016, 2005.

Associate Professor:

PATRICK KONESKO, B.A. Saginaw Valley University 2008; M.A. Bowling Green State University 2009; Ph.D. 2013; Assistant Professor of Theatre and Dance 2015, 2021.

Assistant Professors:

CATHERINE FOLDENAUER, B.S. University of California, Davis 2006; M.F.A. California Institute of the Arts 2021; Assistant Professor of Theatre and Dance 2020.

SCOTT TEDMON-JONES, B.F.A. University of Wyoming 2001; M.F.A. Carnegie Mellon University 2010; Assistant Professor of Theatre and Dance 2018.

Assistant Lecturers:

JASON BANKS, B.F.A. University of Florida 2004; M.F.A. The Ohio State University 2007; Assistant Lecturer FTRC 2020.

ANDREW LIA, B.A. Augustana College 2009; M.F.A. California Institute of the Arts 2013; Assistant Lecturer FTRC 2020.

Adjunct Professor:

Neil F. Humphrey

Emeritus Professors:

Rebecca Hilliker, Patricia Tate, Ron Steger, Larry Hazlett, Leroy Hodgson

Degrees Offered

The Department of Theatre and Dance offers curricula leading to the B.A. degree and the Bachelor of Fine Arts and courses which fulfill a part of University Studies and various colleges' requirements, including the College of Arts and Sciences.

Curricula

Students may not take a course for S/U credit to satisfy course requirements in the major. This does not apply to courses offered for S/U only. Requirements for students majoring in the areas of the department are indicated below.

Theatre

The study of theatre provides students with a broad understanding of the art of theatre in a liberal arts college. The study of theatre is considered to provide a basis for more specialized theatre study in a graduate or professional school. The liberal arts education in theatre together with extensive experience in the production program also provides the foundation for a professional career in theatre, motion pictures, or television drama for those individuals with special desires and abilities. Secondary teaching certification in theatre can be obtained through this program of study.

Dance

The dance concentration within the Department of Theatre and Dance is designed to provide students with a broad foundation in the humanities and specific emphasis in performance and production aspects of dance. Students pursuing this course of study will have opportunities to attain technical competency in ballet and/or modern dance, to perform in yearly dance productions, to obtain practical experience in the fundamentals of teaching dance and to gain experience in technical theatre as an aid to dance production. The program seeks to provide a comprehensive view of dance as an artistically expressive medium, as well as a creative and recreational tool to human expression.

Students completing this program will qualify for more advanced private instruction as well as advanced academic instruction.

All dance students are matriculated into the BA degree. Students wishing to apply for the BFA in Dance Performance or BFA in Dance Science do so the second semester of their freshman year.

Students must receive a C or better in all courses designated THEA to satisfy department degree requirements. A student's transfer courses in Theatre and Dance must also reflect a C or better to be accepted for credit. A grade of C- does not meet the requirement.

Outcomes:

Our goal is to nurture artists and scholars within aesthetic, social, critical, historical and contemporary performance and dance idioms, who appreciate cultural literacy and respect diversity, who think critically, who master discipline-specific performance and production skills, and who foster knowledge and make compelling artistic choice on stage.

The Theatre and Dance Department expects that upon graduation all students will be able to:

- Demonstrate or detail the basic production process and make an informed assessment of quality in all areas of theatre and dance,
- Honor and represent historical, contemporary, and cultural diversity in academic and performance settings,
- Articulate the intersection of their personal, aesthetic, and social/political ideas in relation to a particular play, performance work or production,
- Develop collaborative skills, communicate effectively and function in a variety of contexts with self-knowledge, resilience, and resourcefulness, both in performance and in creation,
- Understand the demands and expectations of the profession,
- Synthesize and utilize knowledge from courses in the breadth of the discipline,
- Recognize and be familiar with postgraduate training opportunities in professional theatre, dance and academia.

Scholarships

A number of scholarships are available to interested majors in theatre or within the dance option. The University Theatre also maintains a summer company. Applications should be sent to the Department of Theatre and Dance, Dept. 3951, 1000 E. University Ave., Laramie, WY 82071.

Departmental Activities/ Organizations

The department sponsors one of the largest all-student activities on campus. Nearly 150 students take part in its productions each season. All students are eligible to participate in its productions through auditions.

Productions are mounted in the Buchanan Center for the Performing Arts which includes a flexible proscenium theatre, thrust theatre and experimental-studio theatre complete with scenic and costume support facilities.

Auditions, open to all university students, are publicly announced for each production. Qualified students may receive credit in performance and production areas (THEA 2050).

The Wyoming Summer Theatre presents a season of plays of varying types during the summer session. Theatre majors and minors are urged to spend at least one summer working with this group.

Graduate Study

At present, no program for graduate degrees in theatre and dance is offered.

Department of Zoology and Physiology

114 Aven Nelson

(307) 766-4207

Web site: www.uwyo.edu/Zoology

Department Head: Robert S. Seville

Professors:

MERAV BEN-DAVID, B.S. Tel Aviv University 1984; M.S. 1988; Ph.D. University of Alaska 1996; Professor of Zoology and Physiology 2010, 2000.

CRAIG W. BENKMAN, B.A. University of California at Berkeley 1978; M.S. Northern Arizona State University 1981; Ph.D. State University of New York at Albany 1985; Robert Berry Professor of Ecology, Professor of Zoology and Physiology 2004.

MICHAEL E. DILLON, B.S. University of Texas, Austin 1998; Ph.D. University of Washington 2005; Professor of Zoology and Physiology 2021, 2009.

JACOB R. GOHEEN, B.S. Kansas State University 1998; M.S. Purdue University 2002; Ph.D. University of New Mexico 2006; Professor of Zoology and Physiology 2020, 2010.

MATTHEW J. KAUFFMAN, B.A. University of Oregon 1992; Ph.D. University of California, Santa Cruz 2003; Professor of Zoology and Physiology 2021, 2006.

JONATHAN F. PRATHER, B.S. University of Virginia 1995; Ph.D. Emory University 2001; Associate Professor of Zoology and Physiology 2021, 2009.

FRANK J. RAHEL, B.A. Kenyon College 1974; M.S. University of Wisconsin 1977; Ph.D. 1982; Professor of Zoology and Physiology 1998, 1985.

ROBERT S. SEVILLE, B.S. San Diego State University 1981; M.S. University of Wyoming 1987; Ph.D. 1992; Professor of Zoology and Physiology 2011, 1995.

QIAN-QUAN SUN, B.Sc. Shandong Normal University 1990; M.S. 1993; Ph.D. St. Andrews University 1998; Professor of Zoology and Physiology 2016, 2004.

Associate Professors:

MATTHEW D. CARLING, B.S. University of Michigan 1997; M.S. University of Idaho 2002; Ph.D. Louisiana State University 2008; Associate Professor of Zoology and Physiology 2017, 2011.

ANNA D. CHALFOUN, B.A. Smith College 1995; M.S. University of Missouri-Columbia 2000; Ph.D. University of Montana-Missoula 2006; Associate Professor of Zoology and Physiology 2016, 2011.

BRIAN D. CHERRINGTON, B.A. Washington University 1996; M.S. Colorado State University 2001; Ph.D. 2005; Associate Professor of Zoology and Physiology 2017, 2011.

AMY C. KRIST, B.A. State University of New York at Potsdam 1991; Ph.D. Indiana University 1998; Associate Professor of Zoology and Physiology 2017, 2004.

AMY M. NAVRATIL, B.S. Colorado State University 1999; Ph.D. 2005; Associate Professor of Zoology and Physiology 2019, 2011.

KARA PRATT, B.A.S. University of Delaware 1989; Ph.D. Brandeis University 2004; Associate Professor of Zoology and Physiology 2017, 2011.

ANNIKA W. WALTERS, B.A. Princeton University 2002; M.S. Yale University 2006; Ph.D. 2009; Associate Professor of Zoology and Physiology 2019, 2011.

Assistant Professors:

NICOLE L. BEDFORD, B.S. University of British Columbia 2010; Ph.D. Harvard University 2019; Assistant Professor of Zoology and Physiology 2021.

RILEY FEHR BERNARD, B.Sc. Linfield College 2007; M.Sc. University of Hawaii Hilo 2011; Ph.D. University of Tennessee 2015; Assistant Professor of Zoology and Physiology, 2020.

SARAH M. COLLINS, B.A. Lewis & Clark College 2007; Ph.D. Cornell University 2015; Assistant Professor of Zoology and Physiology 2018.

FETZER, WILLIAM WARREN, B.S. University of Wisconsin-Madison 2005; M.S. Cornell University 2009; Ph.D. 2013. Assistant Professor of Zoology and Physiology 2020.

YUN LI, B.S. University of Science and Technology of China 1996; M.S. 1998; Ph.D. University of Texas Health Center at San Antonio 2003; Assistant Professor of Zoology and Physiology 2018.

JEROD A. MERKLE, B.S. University of Arizona 2006; M.S. University of Montana 2011; Ph.D. Université Laval 2014; Assistant Professor of Zoology and Physiology 2018.

ADAM C. NELSON, B.S. University of Montana 2001; Ph.D. University of Utah 2011; Assistant Professor of Zoology and Physiology 2021.

COREY E. TARWATER, B.S. University of California, Davis 1999; M.S. University of Illinois, Urbana-Champaign 2006; Ph.D. 2010; Assistant Professor of Zoology and Physiology 2015.

W.D. (TREY) TODD, B.S. Baylor University 2005; M.A. University of Iowa 2009; Ph.D. 2012; Assistant Professor of Zoology and Physiology 2019.

Assistant Professor of Practice:

BETHANN G. MERKLE, B.A. University of Montana 2007; M.F.A. University of Wyoming 2017; Assistant Professor of Practice 2021.

Senior Academic Professional Research Scientist:

ZHAOJIE ZHANG, B.S. Shandong University 1985; M.S. 1988; Ph.D. University of Oklahoma 1999; Director, Microscopy Core Facility, University of Wyoming 2001; Senior Research Scientist in Zoology and Physiology 2012.

Assistant Academic Professional Research Scientist:

JONATHAN PATRICK KELLEY, A.B. Harvard 2001; Ph.D. University of California, Davis 2012; Assistant Research Scientist in Zoology and Physiology 2018.

Professors Emeritus:

Harold L. Bergman, Steven W. Buskirk, Francis W. Flynn, Zoltan M. Fuzessery, Robert P. George, William A. Gern, Robert O. Hall, Henry J. Harlow, Wayne A. Hubert, Robert M. Kitchin, J.A. Lillegraven, Frederick G. Lindzey, James R. Lovvorn, Carlos Martinez del Rio, David B. McDonald, Graham Mitchell, James D. Rose, Joan Smith-Sonneborn

Academic Professional Lecturer Emeritus:

Jane Beiswenger

Wyoming Cooperative Fish and Wildlife Research Unit Unit:

Wyoming Cooperative Fish and Wildlife Research Unit Unit Leader: Matthew W. Kauffman

Assistant Unit Leader for Fisheries: Annika W. Walters

Assistant Unit Leader for Wildlife: Anna D. Chalfoun

Department of Zoology and Physiology

The Department of Zoology and Physiology offers a variety of courses in the biological sciences that encompass many aspects of animal form, function, and biology. Whether you are interested in the intricacies of cell biology or the complexities of ecosystem functioning and whether you want to become a wildlife biologist or a physician, we offer a major that will suit your needs.

Undergraduate Degrees:

Students can choose from three undergraduate degrees: physiology, wildlife and fisheries biology and management, or zoology.

Learning Outcomes for Undergraduates

The learning outcomes that direct the teaching of the department's degrees and which we expect our graduates to have acquired are:

- Competence in basic sciences;
- Competence in the content of the specific courses that constitute the principal knowledge of the degree;
- Ability to comprehend, analyze, and interpret biological data where appropriate; and
- Ability to synthesize information from the biological literature, and communicate it effectively in writing or orally.

Undergraduate Minors:

Minors in human and animal physiology, wildlife fisheries biology management, neuroscience, and zoology are offered.

Graduate Study

The Department of Zoology and Physiology offers programs leading to the master of science and the doctor of philosophy in zoology and physiology. We also participate in graduate programs through the Neuroscience Program and the Program in Ecology.

Program Specific Admission Requirements

Admission is open to all students who meet the minimum requirements set forth in the admissions section of this *Catalog*.

Research and teaching assistantships are available for graduate students working toward the M.S. or Ph.D. degrees. Applicants can apply for this financial assistance at the time they apply for admission to graduate standing. Applications must be completed by February 15 in order to be considered for the following academic year.

Information on how to apply to the graduate program in the Department of Zoology and Physiology is detailed on our web site. Begin by identifying a faculty member in our department whose research interests are similar to yours. We will only consider an application if a faculty member has indicated a willingness to serve as the student's adviser. After finding a potential adviser, e-mail a completed departmental application form, a copy of your curriculum vitae, copies of college transcripts, and recommendation letters to him or her. Our graduate admissions committee will review all applications and make decisions on admission based on the availability of funding and a commitment from a faculty member to serve as the adviser. Students recommended for admission will then be asked to fill out an application to the University of Wyoming and pay a non-refundable application fee.

Consult the website, www.uwyo.edu/zoology, to find out about faculty research.

Learning Outcomes for M.S. Students

1. Comprehend and synthesize advanced knowledge in a specific area of biology.
2. Collect and analyze data to address a research question.
3. Summarize research findings and communicate them effectively in writing and orally.

Learning Outcomes for Doctoral Students

1. Comprehend and synthesize advanced knowledge in a specific area of biology.
2. Develop a research project which constitutes a substantial and original contribution to the field of study.
3. Summarize research findings and communicate them effectively in writing and orally.

College of Business

310 Business Building

Website: <http://business.uwyo.edu>

Rob Godby, Interim Dean

Phone: (307)766-4194 FAX: (307)766-4028

Peter M. and Paula Green Johnson Student Success Center (307) 766-8249

The College of Business prepares students for careers by providing quality education in business disciplines, creating and disseminating knowledge, and assisting in Wyoming's economic development. The College of Business expects the highest level of integrity from our administration, faculty, staff, students, and alumni.

The College of Business grew from roots established in 1899 when the UW School of Commerce was founded. While the programs offered have changed over the years, the college remains firmly committed to academic excellence and positive student experiences.

The college has three academic departments: accounting and finance; economics; and management and marketing. The college also houses the College of Business Peter M. and Paula Green Johnson Student Success Center which is instrumental in maintaining the college's link with the business world.

These units are committed to preparing all College of Business students to enter our rapidly-changing world. Successful graduates are fully prepared to compete in their chosen professions or in graduate school. More importantly, they are well-educated individuals prepared to live fulfilling lives, and to meet the challenges presented by the complex ethical, moral and cultural contexts of our times.

College of Business Learning Outcomes

The College of Business expects that its graduates:

1. Will be competent in their field of study
2. Will be effective problem solvers
3. Will be ethical
4. Will be professional
5. Will be effective communicators

AACSB Accreditation

The business degree programs offered by the College of Business are accredited by AACSB-International. AACSB standards ensure that College of Business students are provided comprehensive, high-quality, well-rounded degree programs. The "Common Body of Knowledge" and the "Advanced Business Standing" (ABS) as described on the following pages have been developed to meet the AACSB accreditation standards.

A minimum of 50% of COB courses required for the major must be taken from the degree-awarding institution.

Programs of Study

Undergraduate Degrees

BSB - Bachelors of Science in Business

BSE - Bachelors of Science in Economics

The Majors are as follows:

- Accounting, B.S. (BSB-ACCT)
- Business Economics, B.S. (BSB - CBEC)
- Entrepreneurship, B.S. (BSB - ENTR)
- Finance, B.S. (BSB - FIN)
- Management, B.S. (BSB - MGT)
- Marketing, B.S. (BSB - MKT)
- Professional Sales, B.S. (BSB - SELL)
- Economics, B.S. (BSE - ECON)

The Minors are as follows:

- Banking and Financial Services Minor
- Blockchain Minor
- Data Analytics Minor
- Economics Minor
- Entrepreneurship Minor (for nonbusiness students only)
- Hospitality Business Management Minor
- Leadership Minor
- Professional and Technical Selling Minor
- Real Estate Minor

Graduate Degrees

Master of Science

Accounting, M.S.

Economics, M.S.

Finance, M.S.

Business Administration, M.B.A.

Business Administration, Online, M.B.A.

Doctor of Philosophy

Economics, Ph.D.

Marketing, Ph.D.

Certificate Programs

Certified Financial Planning Certificate (Graduate)

Energy Business Certificate (Graduate)

Student Services

Academic Advising

All College of Business undergraduate students are advised by professional academic advisers in the College of Business Peter M. and Paula Green Johnson Student Success Center. Advising can be reached by e-mail (success@uwoyo.edu) or by phone (307-766-8249).

Career Services

The Career Services unit connects students and employers in ways that lead to meaningful experiences and job opportunities. Business students are encouraged to explore career options and grow their career readiness by completing the Pokes Professionalism Badge and engaging in multiple internships. Students also have the option to apply for local, national, and international internships starting their first year and may be able to receive credit for their work. Networking with employers is highly encouraged and offered through a series of fairs, events, and in-class projects. One-on-one assistance and workshops are also available to students for things such as: internship or job searching; resume creation, review, or targeting; and career coaching or counseling. Individual appointments may be scheduled by email (success@uwoyo.edu) or by phone, (307) 766-8249.

Student Responsibilities

College of Business students are responsible for knowing and meeting requirements for graduation. In addition to degree requirements, all College of Business students must complete the advanced business standing requirements prior to enrollment in most upper-division (3000/4000-level) College of Business courses (see Advanced Business Standing (ABS) Prerequisites section).

All students must have already completed any prerequisites listed (in addition to ABS for COB students), including having the appropriate class standing. Students not meeting the prerequisites are identified and administratively dropped from those courses each semester.

Requirements for the Bachelor of Science Degree

Candidates for the Bachelor of Science degree in the College of Business must meet university, college, and departmental requirements. Degree candidates for the B.S. degree in the College of Business also must have a minimum 2.500 cumulative University of Wyoming (UW) grade point average and a 2.500 grade point average in College of Business courses at the time of graduation. In addition, economics majors also must hold a minimum 2.500 grade point average for all economics courses. College of Business degree candidates must earn a minimum of 120 semester hours depending on major including:

I. University Studies Requirements:

All first year students who enter the University of Wyoming (UW) and students who enter a Wyoming Community College (CC) are required to meet the USP 2015 requirements for graduation. Wyoming CC students transferring to UW with an Associate of Arts or Associate of Science degree will have course work evaluated per the General Education Articulation Agreement between the University of Wyoming and Wyoming Community Colleges. Non-resident transfer students and Wyoming CC transfer students without an associate's degree will have course work evaluated on a course-by-course basis, based on all approved USP courses. Academic advisers will help students select the appropriate courses to satisfy university studies requirements. Some College of Business requirements also meet university studies requirements.

A. Basic skills (USP 2015) Hrs.

1. First-year seminar (FYS) Choose from list of approved courses, Credits: 3

2. Writing

- a. USP Communication 1 course, Credits: 3
 - b. USP Communication 2 course- Mid-level communication or 2000-4000-level communication intensive course- Choose from list of approved courses, Credits: 3
 - c. USP Communication 3 course- Upper-level communication or 3000-4000-level communication intensive course, Credits: 3
3. Physical and Natural World (PN) (Two courses required-choose from list of approved courses), Credits: 6
 4. Human Culture (H) (Two courses required-choose from list of approved courses), Credits: 6
 5. U.S. and Wyoming Constitutions (V), Credits: 3
 6. Quantitative Reasoning (Q), Credits: 3

II. Electives

The number of hours of elective credit and upper-division (3000-/4000-level) credit varies by department. Economics majors will take 48-51 hours of free electives. A maximum of 6 credit hours each at the freshman/sophomore and junior/senior-level military science courses may be applied to degrees in the College of Business.

A. Non-Business electives Hrs

1. Non-Business electives. May include MATH 1400, Credits: 3-9

B. Free electives Hrs.

1. Free electives from any college. May require upper-division (3000/4000-level) courses, with the total number of credits needed dependent on major.

Students **may not** take courses for S/U (satisfactory/unsatisfactory) credit to satisfy university studies or college requirements, course requirements in the major, or courses outside the college required by the major department curriculum.

III. Advanced Business Standing: (excludes Economics majors)

College of Business majors must satisfy the following advanced business prerequisites prior to enrolling in most upper-division (3000- /4000- level) College of Business courses:

1. Achieve junior standing by completing a minimum of 60 earned semester hours;
2. Complete 10 specific courses with a grade of C (not C-) or better in each. These ten courses are: ECON 1010 and 1020, USP Communication 1 and 2 courses, ACCT 2010 and 2020, IMGT 2400, MATH 2200 and 2205 or MATH 2350 and 2355 and STAT 2050 or 2070.
3. Achieve a cumulative UW institution grade point average or transfer grade point average of at least 2.500. Note: Transfer grades are not counted in the UW GPA (see UW Catalog http://www.uwyo.edu/registrar/university_catalog/grade.html for additional information). Transfer students who have not attended the University of Wyoming, and therefore do not have an established UW institutional/cumulative GPA, and who have completed the required ten (10)

courses with a C or better, have 60 earned credit hours, and have a 2.500 cumulative TRANSFER GPA will be awarded ABS.

IV. Common Body of Knowledge: (excludes Economics majors)

College of Business majors take a common set of courses that expose them to the basic concepts, processes and technical skills necessary to complete a well-rounded high quality business education. The common body of knowledge includes ACCT 2010, ACCT 2020, DSCI 2100, ECON 1010, ECON 1020, FIN 2100, IMGT 2400, MGT 2010, MGT 2100, MKT 2100, and MGT 4800. Grades of C (not C-) or above required.

V. Minimum requirements:

Achieve a cumulative College of Business and UW institution grade point average of at least 2.500. Complete 50% of the business credit hours from UW. Earn grades of C or above in common body of knowledge and major specific core courses. Earn a passing score on the Senior Exit Exam required for all College of Business majors.

Requirements for Non-College of Business Majors

Students in non-College of Business majors who wish to enroll in College of Business upper-division courses need not meet the advanced business standing prerequisites. However, they are required to meet individual course prerequisites listed in the University Catalog, including class standing.

Acceptance of Transfer Credit

The College of Business complies with UW policies regarding transfer credit discussed in the front section of this bulletin. The college has special course transfer arrangements with Wyoming community colleges that allow some courses taken at community colleges at the lower-division (freshman-sophomore) level to transfer for upper-division (junior) credit. Wyoming community college transfer students should contact the GJSSC for details.

Students transferring from other AACSB accredited colleges and universities will have their courses reviewed for transfer on a course-by-course basis.

The College of Business does not accept transfer credits for COB courses with equivalents at UW when the grade earned was less than a C.

Where appropriate, College of Business course equivalency will be granted for transfer courses at the 3000 and 4000 level if such coursework was completed at an AACSB or EQUIS institution only. Any coursework completed at an institution that does not meet that qualification will not be considered for upper division equivalency.

The UW College of Business is AACSB accredited and therefore follows AACSB's current guidelines* to maintain accreditation.

The primary goal of this transfer policy is to ensure coursework accepted from other institutions is comparable to coursework required by our college's degree programs and ensure that the majority of learning is completed at the institution awarding the degree while simultaneously allowing measured flexibility in acceptance of transfer credits as allowed by AACSB accreditation in support of student progress and degree completion.** For example, at the time of this policy's creation, the number of business credit hours for the College of Business's undergraduate majors is fifty-four (54) credit hours (this includes the business common body of knowledge courses). Therefore, to align with AACSB standards, a minimum of twenty-seven (27) credit hours of business coursework in the major must be earned in residence at the University of Wyoming.

In addition to the transfer policies defined in the University of Wyoming catalog, the College of Business has established the following policies in support of AACSB Standards governing the transfer of credit for equivalent business courses. Courses will be considered for transfer according to the additional criteria below. Students may transfer up to a total of twenty-seven (27) hours of business credits, either solely lower division courses or a mix of lower division and upper division courses, as follows:

- Students may transfer up to twenty-seven (27) lower division (1000/2000 level) business credits to the Common Body of Knowledge.
 - Lower division courses from regionally accredited institutions will be evaluated for equivalency and approved by the UW Office of the Registrar on an annual basis.
- Students may transfer up to nine (9) upper division (3000/4000 level) business credits according to the following guidelines:
 - Transferring upper division business credits to be included in the twenty-seven (27) credits reduces the number of lower division credits a student is able to transfer.
 - Courses from AACSB/EQUIS accredited institutions will be evaluated for equivalency and approved by the College of Business.
 - Courses from regionally accredited, non-AACSB/EQUIS institutions will be accepted as upper division elective credit in accordance with the transfer policies defined in the University of Wyoming catalog.
 - The College of Business has collaborative provisions (detailed in separate articulation agreements) that allow students from Wyoming's community colleges to transfer up to nine (9) credit hours of 2000 level coursework to satisfy up to nine (9) credit hours of 3000 level coursework that has been evaluated by the College of Business. These courses will be evaluated annually for equivalency***.

* A requirement of the accreditation process (as reflected in Standard 6 of the 2020 Business Standards) is for accredited colleges to have clear policies regarding transfer coursework.

** As noted by AACSB: "transfer credit related to business disciplines is normally limited to no more than half of the program requirements" (2020 AACSB Standards, p. 13).

*** Per college-specific articulation agreements, students may be able to transfer coursework satisfying completion of the following courses: ACCT 3070, ACCT 3230, ACCT 3240 or ACCT 3430.

Accounting, Management, and Marketing Online Programs

The College of Business offers the opportunity to pursue online degree programs in the areas of accounting, management, and/ or marketing accredited by AACSB and delivered through distance education. These online delivery programs are designed to help students maximize their flexibility in the business world.

The online accounting, management, and marketing degrees are offered almost in their entirety through the University of Wyoming, with the exception that students must have taken MATH 2350/2200 and MATH 2355/2205 through another institution as they are not offered online consistently through UW. The University of Wyoming College of Business works closely with our Wyoming community college partners to assist students in taking and transferring these math courses and other courses that align with our curriculum. Students are able to take a variety of transferable 1000 and 2000 level courses from Wyoming Community Colleges, in consultation with academic advisors, and then complete their upper division coursework from the University of Wyoming.

Students will be required to apply to UW and meet UW admissions criteria prior to enrolling in any College of Business program. Students must also attain a 2.500 GPA for graduation for both College of Business and UW courses, complete and submit an anticipated graduation date form, and must pass the Senior Exit Exam (BUSN 4990) to graduate.

To ensure you the availability of required courses in this program, enrollment into courses is managed and approved by the College of Business Peter M. and Paula Green Johnson Student Success Center.

College of Business Minors

Minors are available to on-campus students through the College of Business in the areas of banking and financial services, blockchain, data analytics, economics, entrepreneurship (not available to College of Business majors), hospitality business management, leadership, professional and technical selling, and real estate. Minors requirements may often be met by simply focusing the elective credits available in a student's major.

The minors program consists of course requirements of 15 hours of study. A minimum grade of C must be earned in each course. Certification of a successful minor program completion occurs as part of the DegreeWorks progress report, and the Office of the Registrar notes the completion of the minor on student transcripts. Minors must be approved by the Peter M. and Paula Green Johnson Student Success Center.

Students must have a minimum 2.500 cumulative UW GPA. Students must maintain a cumulative 2.500 GPA in the required College of Business courses for the minor to be awarded. Non-College of Business students must meet the individual course prerequisites listed in the catalog, although they need not meet the advanced business standing requirements. A minimum of 50% of COB courses must be taken from the degree-awarding institution.

Cooperative Undergraduate Programs

The Concentration in Environment and Natural Resources

College of Business majors may earn a cross major in Environment and Natural Resources (ENR) in cooperation with the UW School of Environment and Natural Resources. The appropriate use of natural resources and awareness of environmental consequences of decisions have become major issues for business. Exposure to ideas, skills and sensibilities in these areas is critical to future business people. Students majoring in economics may elect an environment and natural resources concentration in which an economics approach to problem solving is stressed. For more information call the ENR office at (307) 766-5089.

Graduate Study

The College of Business is comprised of three academic departments: accounting and finance, economics, and management and marketing. The faculty of these departments cooperate in the presentation of graduate work leading to the following degrees:

Master of Business Administration

Master of Science in Accounting

Master of Science in Economics

Master of Science in Finance

Doctor of Philosophy in Economics

Doctor of Philosophy in Marketing

The College of Business faculty is firmly committed to the excellence of its graduate programs. The graduate programs in the College of Business are accredited by AACSB International. The three academic departments coordinate course offerings to support all of the graduate degree programs; the M.B.A. program in particular is a college-wide effort.

Cooperative Graduate Programs

The Concentration in Environment and Natural Resources

College of Business graduate students may earn an interdisciplinary minor in environment and natural resources (ENR) in cooperation with the UW School of Environment and Natural Resources. The appropriate use of natural resources and awareness of environmental consequences of decisions have become major issues for all areas of business and economics. The School of Environment and Natural Resources is designed to move beyond the strictly disciplinary design and management of their long-term solutions. The school seeks to attract outstanding graduate students from a variety of disciplines, who are eager to pursue careers that engage other professionals, policymakers, and the public in finding innovative ways to resolve complex environmental and natural resource issues. To pursue a minor in ENR, students must first be admitted to another master's or doctoral degree program offered at the University of Wyoming. For more information call the ENR office at (307) 766-5080.

Department of Accounting and Finance

252 East Business Building,

(307) 766-3807

FAX: (307) 766-3802

Web site: www.uwyo.edu/acct-fin

Department Chair: Mitchell Oler

Professor:

ERIC N. JOHNSON, B.A. Whittier College 1978; M.B.A. Arizona State University 1982; Ph.D. 1989; Clara R. Toppan Professor of Accounting 2011; Professor of Accounting 2013, 2011. MS Accounting Graduate Director.

ALI NEJADMALAYERI, B.Sc. University of Tehran 1993; M.B.A. Texas A&M University-Kingsville 1997; Ph.D. University of Arizona 2001; John A. Guthrie Endowed Chair in Banking and Financial Services; Professor of Finance 2018.

Associate Professors:

NICOLE CHOI, B.A. Chungbuk National University 2002; M.B.A. Washington State University 2004; Ph.D. 2009; Associate Professor of Finance 2015, 2009. MS Finance Graduate Director.

MITCHELL OLER, Bachelors of Commerce, University of Alberta 1997; M.S. Brigham Young University 1998; Ph.D. University of Washington 2006. Associate Professor of Accounting 2019, 2015.

KENNETH ZHENG, B.A. Southwestern University of Finance and Economics, China; M.S. University of Texas at Dallas 2007; Ph.D. University of Texas at Dallas, 2011; Associate Professor of Accounting 2021, 2015.

Assistant Professors:

TA-TUNG (STEPHANIE) CHENG, B.S. National Chengchi University 2010; M.S. Michigan State University 2013; Ph.D. Georgia State University 2020; Assistant Professor of Accounting 2020.

MACKENZIE FESTA, B.S. West Virginia University 2010; M.P.A. 2013; Ph.D. 2017; Assistant Professor of Accounting 2017.

AARON ROSENBLUM, B.A. University of Central Florida 2010; M.S. Florida State University 2013; Ph.D. 2018; Assistant Professor of Finance 2018.

PATRICK WITZ, B.B.A. University of Massachusetts at Amherst 2012; Ph.D. Cornell University 2020; Assistant Professor of Accounting 2020.

TENG (TIM) ZHANG, B.S. Shandong University 2010; M.S. University of North Carolina at Chapel Hill 2012; Ph.D. Georgia Institute of Technology 2015; Assistant Professor of Finance 2018.

Academic Professionals:

EVEN BRANDE, B.S. University of Wyoming 1991; M.B.A. 1993.

JENN KOZA, B.S. Chadron State College 2004; M.S. 2007; D.B.A. Walden University 2016; Assistant Lecturer of Finance 2019.

JAMES GUNDERSON, B.A. University of Nebraska 1977; Ph.D. University of Minnesota 2004; Assistant Lecturer of Finance 2014.

JENNIFER A. KREISER, B.S. University of Alabama 2001; M.S. 2002; Senior Lecturer of Accounting 2019.

ANDREW MCKAMEY, B.S. Colorado State University; M.S. Colorado State University; Assistant Lecturer of Accounting 2020.

AMBER MERCIL, B.S. University of Wyoming 2004; M.S. University of Oregon 2006; Associate Lecturer of Accounting 2021, 2014.

PHILIP W. TREICK, B.S. University of South Florida 1987; Assistant Lecturer of Finance 2016.

Emeriti:

Penne L. Ainsworth
Richard G. Elmendorf
George R. McGrail
Suzanne S. Roe
Frederic P. Sterbenz
Kenton B. Walker
Stuart K. Webster

Accounting Major

The basic objectives of the accounting program are twofold: to provide students who do not intend to major in accounting with the basis for understanding the role accounting plays in business today and to provide those students who desire to major in accounting with the educational background necessary for lifelong learning and a rewarding career in the accounting profession. The curriculum offered by the department attempts to blend the conceptual with the practical. Exposure to the underlying conceptual framework of accounting provides a basis for dealing with emerging accounting issues, while examination of technical pronouncements enables students to gain insight into practical issues encountered in an accounting environment.

Accounting majors may enter the professional world of accounting from a variety of directions. Choices available in the form of elective courses enable students to chart a course that leads them toward public accounting, private accounting, governmental or not-for-profit accounting, as well as other specialties that rely on a strong accounting background. Those students seeking professional certification, such as the CPA, CMA or CIA, are able to satisfy requirements to sit for these professional examinations by completing the undergraduate accounting degree.

All accounting majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All accounting courses for the major require a minimum grade of C.

A complete curriculum sheet is available from the College of Business Peter M. and Paula Green Johnson Student Success Center in the College of Business Building.

Please Note:

Students who anticipate taking the CPA examination should be aware of the Wyoming statute governing eligibility to sit for the exam. Please see the state board's web site for information: cpaboard.state.wy.us. The current combined curricula (B.S. and M.S.) enable students to satisfy the educational requirements to sit for the CPA exam in Wyoming and other jurisdictions.

Graduate Study

Accounting is an integral part of the College of Business degree programs. The department offers courses in support of college graduate degree programs, as well as a master of science in accounting (MS in Accounting) degree. The MS in Accounting degree was developed in response to emerging needs of the accounting profession. Those students who wish to become professional accountants, whether that be in a corporate setting, a not-for-profit setting, or public accounting, will find the MS in Accounting degree to be one that enables them to develop both the personal and professional skills needed to enjoy a productive career.

The MS in Accounting program satisfies the Wyoming requirements for individuals to take the Certified Public Accountant (CPA) exam and it further develops students' professional skills. The MS in Accounting program focuses on the two main areas of development: 1) advanced accounting and business education, and 2) professional skills development-including written, oral, interpersonal communication, computer applications, critical thinking, and adaptability.

The MS in Accounting degree is designed for students who have completed an undergraduate degree in accounting in the United States. However, it is possible to be admitted to the program once deficiency courses are successfully completed. Those holding a bachelor's degree from within the U.S., but not in accounting, and international applicants can still apply for admission once the deficiency courses are successfully completed. We do not provisionally or conditionally admit students to our program.

Program Specific Admission Requirements

Admission to the Master of Science in Accounting program generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U. S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.0 scale. If you do not meet this minimum preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.

- GRE or GMAT optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.).
- Official transcripts of all undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Office of Admissions at 1000 E. University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the department Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.

Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.

•Interview.

You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.

•Interview.

You will be contacted by our program office to participate in a virtual interview that can be

completed at your convenience. • Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

NOTE: These are the minimum requirements and do not guarantee admission or funding. The University of Wyoming MS in Accounting program does not personally or conditionally admit students.

*Please refer to the AICPA Site (www.aicpa.org) to check on the requirements you will need to fulfill in your state if you plan to sit for the CPA Exam.

Additional requirements for International Applicants:

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 540 on the paper-based test (TOEFL PBT) or a score of 76 on the internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 6.5. An applicant whose native language is English and is a citizen of one of the following countries or who has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency. Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.

- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions). (not applicable for distance education students).

- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university may be exempt from providing proof of English proficiency.

Additionally, to be admitted to the Master of Science in Accounting program, a student demonstrate competency in the following subject matters/courses:

- ACCT 3230 Intermediate I & ACCT 3430 Intermediate II (External Financial Reporting)
- ACCT 3240 Cost I (Advanced Managerial Accounting)
- ACCT 3070 Tax I (Tax Accounting, must cover US income taxation for individuals)
- ACCT 4060 Audit I (must cover US Generally Accepted Auditing Standards and/or International Standards on Auditing)

*These courses may be completed through any regionally accredited university or college. A minimum grade of B (a 3.0 on a 4.0 scale) is considered evidence of proficiency.

*Evidence of proficiency in these areas can also be demonstrated by relevant professional experience on a case-by-case basis. Please contact the program office for additional information.

Each candidate who applies to the University of Wyoming Master of Science in Accounting or Finance program is evaluated individually by our faculty and program directors. We consider each part of the application in a holistic assessment, including the candidate's reasons for pursuing the degree, interview responses, prior academic performance, work experience, and letters of recommendation.

Students are admitted on a rolling basis with applications evaluated as soon as they are completed. It typically takes no more than two weeks to receive an admission decision.

Application Deadlines

Fall Admission

- Block 1 Final Deadline: June 30

- Block 2 Final Deadline: October 1
- Priority Deadline: May 1

Spring Admission

- Block 1 Final Deadline: December 1
- Block 2 Final Deadline: February 1
- Priority Deadline: October 1

Summer Admission

- Final Deadline: April 1
- Priority Deadline: February 1

International applicants: Please be advised that there are additional university requirements that may take additional processing time - you are encouraged to apply prior to the application deadline if possible to ensure that if admitted, all required documentation can be provided prior to the term of entry.

Program Specific Degree Requirements

Master of Science in Accounting

The objectives of the master of science in accounting degree program are:

- To provide students with an advanced understanding of the field of accounting,
- To provide students with specific advanced knowledge of the sub-topics within accounting,
- To provide students with professional skills that will enable them to enjoy productive and rewarding careers in accounting and other accounting-related areas.

The program consists of a minimum of 30 semester hours of graduate coursework. Students must complete coursework in accounting and elective business and/or non-business areas. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level non-accounting courses (approximately six hours). Non-accounting courses should be selected in consultation with the student's graduate adviser. Non-accounting courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director, prior to the first day of such classes.

Students must take these 5 core accounting courses (minimum 15 credit hours):

ACCT 5030. Advanced Financial Accounting

ACCT 5040. Seminar in Managerial Accounting

ACCT 5060. Auditing II

ACCT 5070 Tax II Accounting Elective

ACCT 5065 Fraud Examination or ACCT 5066 Seminar on Mangement Fraud

A maximum of six hours may come from 4000- level courses offered in the College of Business or in other colleges at the University of Wyoming.

NOTE: ACCT 4010, 4020, 4050, 4060, 4100, 4600, 4900, and 5000 are not applicable for M.S. accounting students' programs of study.

The student must complete the required coursework (both graduate and prerequisite) with a minimum GPA of 3.000 (on a 4.000 scale).

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid dismissal.

Students must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student will be immediately dismissed from the program.

Finance Major

Modern business is characterized by its emphasis upon finance. The application of sound financial management principles often will be the difference between success and failure in business.

Courses prescribed for those who wish to major in finance are designed to provide a background for financial management of business concerns and, if students desire, to specialize in bank management, corporation finances and investment management. Since financial policies of business enterprises are subject to economic principles which make all businesses financially interdependent and sensitive to disturbances in the economic structure, students in this field should study the economic, as well as the technical, administrative aspects of finance and accounting. Prescribed work in this area attempts to emphasize all three phases of the subject.

All finance majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All finance courses for the major require a minimum grade of C.

A complete curriculum sheet is available from the Academic Advising unit of the GJSSC of the College of Business Building.

Graduate Study

The Master of Finance program will allow students to obtain advanced training built on the foundations of principles and practices of modern finance. The MS in Finance is a rigorous, yet practical program that encompasses the fundamentals as well as cutting-edge topics in investment analysis, portfolio management, financial modeling, risk management, and fixed income securities. The MS in Finance program aims to make you well prepared to evaluate and react to change with confidence and to develop effective solutions to meet the needs of markets and industries.

The objectives of the master of science in finance are:

To provide students with an advanced understanding of the field of finance.

To provide students with specific advanced knowledge of the subtopics within finance.

To provide students with professional skills that will enable them to enjoy productive and rewarding careers in finance and other finance-related areas.

Program Specific Admission Requirements

Admission to the Master of Science in Finance program generally requires:

- Completed University of Wyoming Graduate Admissions Application and nonrefundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.000 scale.

- GRE/GMAT Optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.).
- Official transcripts of all undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Office of Admissions Office of Admissions Office at 1000 E.University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Note: These are the minimum requirements and do not guarantee admission or funding. The University of Wyoming MS in Finance program does not provisionally or conditionally admit students.

Additional Requirements for International Applicants:

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 540 on the paper-based test (TOEFL PBT) or a score of 76 on the internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 6.5. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions). (not applicable for distance education students)
- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university may be exempt from providing proof of English proficiency.

Prerequisites

No prerequisite courses will be required if you have completed a business or STEM bachelors or masters degree from a regionally accredited college or university with the minimum preferred 3.0 GPA (based on a 4.0 scale).

Applicants without a business or STEM related undergraduate or graduate degree with a minimum 3.0 GPA must provide evidence of proficiency in the following areas:

Business Math and Statistics

Financial Management

Application Deadlines

Each candidate who applies to the University of Wyoming Master of Science in Accounting or Finance program is evaluated individually by our faculty and program directors. We consider each part of the application in a holistic assessment, including the candidate's reasons for pursuing the degree, interview responses, prior academic performance, work experience, and letters of recommendation.

Students are admitted on a rolling basis with applications evaluated as soon as they are completed. It typically takes no more than two weeks to receive an admission decision.

Fall Admission

- Block 1 Final Deadline: June 30

- Block 2 Final Deadline: October 1
- Priority Deadline: May 1

Spring Admission

- Block 1 Final Deadline: December 1
- Block 2 Final Deadline: February 1
- Priority Deadline: October 1

Summer Admission

- Final Deadline: April 1
- Priority Deadline: February 1

International Applicants: Please be advised that there are additional university requirements that may take additional processing time - you are encouraged to apply prior to the application deadline if possible to ensure that if admitted, all required documentation can be provided prior to the term of entry.

Program Specific Degree Requirements

Master of Science in Finance

The program consists of a minimum of 30 semester hours of graduate coursework. Students must complete coursework in finance and elective business and/or non-business areas. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level non-finance courses (approximately six hours). Non-finance courses should be selected in consultation with the student's graduate advisor. Non-finance courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director, prior to the first day of such class.

General Finance Track

- FIN 5310: Investment Management (3)
- FIN 5400: Financial Modeling (3)
- 15 credit hours Finance electives + 9 credit hours other business electives (maximum 6 credit hours can be 4000 level).

MS in Finance (CFP Track) Core - Required Courses

- FIN 5310: Investment Management (3)
- FIN 5070: Tax Planning for Financial Planners (3)
- FIN 5720: Retirement/ Insurance Planning (3)
- FIN 5750: Fundamentals of Financial Planning (3)
- FIN 5780: Estate Planning (3)
- FIN 5800: CFP Capstone (3)
- FIN 5400: Financial Modeling (3)
- Finance Electives (9ch) (maximum 6 credit hours can be 4000 level).

The student must complete the required coursework with a minimum GPA of 3.000 (on a 4.000 scale).

Student must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, student will be immediately dismissed from the program.

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid dismissal.

Department of Economics

260W Business Building, (307) 766-2175

Web site: www.uwyo.edu/economics

Department Chairman: David Aadland

Wyoming Excellence Chair in Conservation Economics:

H. JO ALBERS, B.S. Duke University 1985; M.E.S. Yale University 1987; Ph.D. University of California at Berkeley 1993; Professor of Economics 2014.

Wyoming Excellence Chair in Economics and McMurry Fellow:

DAVID C. FINNOFF, B.S. University of Wyoming 1994; Ph.D. 2001; Professor of Economics 2018, 2004.

H.A. (Dave) True, Jr. Chair in Petroleum and Natural Gas Economics:

CHARLES F. MASON, A.B. University of California 1977; Ph.D. 1983; Professor of Economics 1994, 1982.

Stroock Chair of Natural Resource and Environmental Economics:

JASON F. SHOGREN, B.A. University of Minnesota-Duluth 1980; Ph.D. University of Wyoming 1986; Professor of Economics 1995.

John S. Bugas Chair in Economics:

TODD CHERRY, B.S.B.A. Appalachian State University 1992; M.A. University of North Carolina Greensboro 1995; Ph.D. University of Wyoming, 1999. Professor of Economics, Graduate Director.

Professors:

TIMOTHY J. CONSIDINE, B.A. Loyola University 1975; M.S. Purdue University 1977; Ph.D. Cornell University 1981; Professor of Economics 2008.

Associate Professors:

DAVID M. AADLAND, B.A. Augustana College 1991; M.S. University of Oregon 1996; Ph.D. 1997; Department Chairman, 2018; Associate Professor of Economics 2005, 2003.

ROBERT GODBY, B.S. Trent University 1990; M.A. University of Guelph 1992; Ph.D. McMaster University 1997; Center for Energy Economics and Public Policy Director, and Associate Professor of Economics 2003, 1997.

THORSTEN M. JANUS, B.A. University of Copenhagen 2000; M.A. University of California at Santa Cruz 2003; Ph.D. 2006; Associate Professor of Economics 2012.

STEPHEN NEWBOLD, B.S. University of California, Davis 1995; M.S. 2002; Ph.D. 2002; Associate Professor of Economics 2018.

ALEXANDRE SKIBA, Specialist Diploma Rivne State Technical University 1999; M.S. Purdue University 2001; Ph.D. 2003; Associate Professor of Economics 2019, 2012.

LINDA THUNSTROM, M.S. Umea University, Sweden 1999; Ph.D. Umea University Sweden 2008; Associate Professor of Economics 2013.

KLAAS T. VAN 'T VELD, B.Sc. University of London 1992; M.S. University of California Berkeley 1993; Ph.D. 1997; Associate Professor of Economics 2010, 2004.

Assistant Professors:

BENJAMIN COOK, B.S. University of Wyoming 2003; Ph.D. 2011; Visiting Assistant Professor/Enhanced Oil Recovery Institute 2012.

FELIX NASCHOLD, B.S. University of London 1994; M.S. 1995; Ph.D. Cornell University 2008; Assistant Professor of Economics 2014.

Academic Professionals:

TYLER KJORSTAD, B.A. College of St. Scholastica 2009; M.S. University of Minnesota Duluth 2012; M.S. University of Wyoming 2014, Director of Undergraduate Studies in Economics.

Professors Emeriti:

Thomas D. Crocker, Owen R. Phillips, Sherrill Shaffer

Business Economics Major

The science of efficient allocation, economics has much to offer students in the way of general and specialized preparation for positions in business, as well as government and the academic profession.

All Business Economics majors must comply with requirements of the advanced business standing prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

A complete curriculum guide is available from the Peter M. & Paula Green Johnson Student Success Center in the College of Business.

Economics and Business Economics majors must hold a 2.500 cumulative grade point average in all economics courses at graduation, as well as a minimum 2.500 cumulative UW grade point average and a minimum 2.500 grade point average in all College of Business courses.

With approval of the department chair, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of 4000-level economics courses.

Students who intend to continue on to graduate work are urged to give special attention to courses in economics theory, statistics and mathematics. Those planning a career in econometrics or mathematical economics should consult the department head as to mathematics and statistics requirements in these fields of study.

Economics Undergraduate Major

This program is designed to meet the requirements of AACSB International (the Association to Advance Collegiate Schools of Business), the University of Wyoming, and the College of Business.

Minimum requirements include:

Minimum of 42 semester hours of 3000+ level courses. 30 of the 42 hours must be earned from UW.

2.50 grade point average in all College of Business courses, Economics courses, and all institution (UW) courses.

50% of the business credit hours must be from the University of Wyoming.

Grade of C or above required for University Studies Program: FY, CI, C2, and C3.

Grade of C or above required for common body of knowledge and major specific core courses.

A maximum of 6 hours at the 1/2000 level and 3/4000 level military science may be applied to degrees in the College of Business.

A complete curriculum guide is available from the Peter M. & Paula Green Johnson Student Success Center in the College of Business.

With approval of the department chair, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of the 4000-level economics electives.

This program allows considerable flexibility for the student to specialize in interdisciplinary study. For example, the student can be advised on selecting upper level division courses for pre-law study, political economy, environmental and natural resources, women's studies, and international studies.

Students who intend to continue in graduate work should give special attention to courses in economic theory, statistics and mathematics. Those planning a career in mathematical economics or econometrics should consult the department head regarding the mathematics and statistics requirements in these fields of study.

Graduate Study

The Department of Economics offers programs leading to a master of science degree in economics and the doctor of philosophy degree in economics.

Program Specific Admission Requirements

Economics Program

Admission to the economics graduate programs is granted to students who show high promise of success. Candidates of high promise generally have a cumulative grade point average of 3.000 or better (A=4.000) and score above 300 (for MS) and 310 (for PhD) combined on the verbal and quantitative sections of the GRE, with particular emphasis on strong quantitative and analytical scores. Such scores and grades do not guarantee admission.

The TOEFL is required for international students in accordance with University rules.

The Department of Economics requires that students have completed courses in intermediate micro and macro theory (ECON 3010, ECON 3020 or equivalent), statistics, and 6 hours of introductory calculus (MATH 2200, MATH 2205 or equivalent) for the MS program. A course in linear algebra (MATH 2050) is required for the PhD program.

Program Specific Degree Requirements

Master of Science in Economics

A minimum of 18 hours in economics is required; at least 15 of these must be at the 5000 level. A basic core sequence of ECON 5010 (macro), 5390 (math micro), 5530 (computational), 5230 (econometrics), and 5300 (game theory) is required, which completes 15 hours of 5000-level courses, which is required.

The student must complete 26 hours of coursework and 4 hours of ECON 5960 Thesis Research for the Plan A option. The student must complete 30 hours of coursework and a project for the Plan B option.

Students may take 4000-level courses for graduate credit up to 6 hours.

A maximum of 6 semester hours of graduate coursework not used toward any other degree from another institution may be applied to the M.S. economics program subject to regulations regarding transfer of credit listed in this bulletin and with the approval of the director of graduate studies.

At the beginning of the third semester, the student selects a major professor who directs the Plan A thesis or Plan B project. A graduate committee, nominated by the major professor, the student, and the department chair, conducts an oral examination of the student on the project or thesis and area he/she has studied in the program. A favorable report by the committee and approval by the Office of the Registrar complete the degree requirements.

The majority of students complete the M.S. degree within two years.

QuickStart Master of Science in Economics

UW undergraduates can complete the M.S. degree in just one year after completing their B.S. degree if they apply to the QuickStart M.S. program in their junior year. To be eligible, students must have (and maintain) a cumulative GPA of 3.200 or better as well as an Economics GPA of 3.200 or better. They are also required to take the GRE by the fall of their senior year and score above 300 combined on the verbal and quantitative sections combined. The GRE requirement can be waived by the Graduate Director or Director of Undergraduate Studies. Two letters of recommendation from UW economics faculty members are also required. Admission to the QuickStart program allows students to double-count 6 credits of courses taken as an undergraduate towards both the B.S. and M.S. degrees, and reserve an additional 6 credits of courses taken as an undergraduate towards the M.S. degree alone. This then leaves only 18 credits to be taken after completion of the B.S. degree, which is feasible in just one year.

Doctoral Program

Doctor of Philosophy in Economics

The doctor of philosophy degree in the field of economics at the University of Wyoming requires a minimum of 42 hours of coursework. All coursework must be at the graduate (5000) level.

The program is designed to give the student a strong foundation in economic theory and the basic quantitative tools necessary for professional research. If students receive a grade lower than an **A** during their first year, they must take a comprehensive exam in that field (microeconomics and/or econometrics) during the summer to continue to the second year of the PhD program. The program's qualifying exam takes the form of a research paper written during the second summer and defended to, and approved by, a faculty committee by early in the third year, with revisions and resubmission required by December. Students who pass the qualifying paper requirement receive an MS degree and move on in the PhD program, while students who fail this requirement receive the MS degree and fail out of the PhD program.

During the third year, or no later than the first few weeks of the fourth year, a graduate committee nominated by the student's major professor and the director of graduate studies conducts an oral examination of the student. The purpose of the oral examination is to determine whether the student has formulated a workable dissertation project and has the necessary skills to complete it.

Following successful completion of the dissertation, and completion of a departmental requirement of 30 hours of dissertation research, the student presents an oral defense to the graduate committee. The doctor of philosophy degree is granted on recommendation of the committee and approval by the Office of the Registrar, providing all other requirements have been satisfactorily fulfilled.

Department of Management and Marketing

College of Business 354, (307) 766-3124

FAX: (307) 766-3488

Web site: business.uwyo.edu/mgmtmkt

Department Chairman: Andrew Arnette

Professors:

PATRICK M. KREISER, B.A. John Carroll University 1997; M.B.A. University of Alabama 1999; Ph.D. 2004; Professor of Management and Rile Chair of Entrepreneurship and Leadership 2021, 2018.

MARK LEACH, B.S. University of Arizona 1991; Ph.D. Georgia State University 1998; Professor of Marketing 2016.

RICHARD C. MCGINITY, A.B. Princeton University 1966; M.B.A. Harvard Business School 1973; D.B.A. 1980; Bill Daniels Chair of Business Ethics 2007; Professor of Management and Marketing 2009.

C. MARK PETERSON, B.A. University of Virginia 1978; M.S. Georgia Institute of Technology 1989; Ph.D. 1994; Professor of Marketing 2014, 2007.

LINDA PRICE, B.A. University of Wyoming; M.B.A. University of Wyoming; Ph.D. University of Texas Austin; Professor of Marketing 2020.

ROBERT D. SPRAGUE, B.S.B.A. University of Denver 1980; J.D. 1985; M.B.A. University of Southern California 1999; Professor of Legal Studies in Business 2016, 2004.

Associate Professors:

ANDREW ARNETTE, B.S. Virginia Polytechnic Institute & State University 2000; M.B.A. Virginia Polytechnic Institute & State University 2002; Ph.D. Virginia Polytechnic Institute & State University 2010; Associate Professor of Decision Science 2018, 2012.

GRANT L. LINDSTROM, B.S. Utah State University 1981; M.B.A. University of Utah 1986; Ph.D. 1989; Associate Professor of Management 1996, 1990.

ELIZABETH A. MINTON, B.S. University of Alaska Southeast 2008; M.B.A. Idaho State University 2010; Ph.D. University of Oregon 2014; Associate Professor of Marketing 2018, 2014.

STEPHANIE A. ONETO, B.S. University of Nebraska-Lincoln 1999; M.A. University of Houston 2001; Ph.D. 2007; Associate Professor of Marketing 2014, 2007.

RONN J. SMITH, B.S. Montana State University 1999; M.A. Montana State University 2000; Ph.D. Washington State University 2004; Associate Professor of Marketing 2020.

CHASE THIEL, B.S. Idaho State University 2009; M.S. University of Oklahoma 2009; Ph.D. 2012; Associate Professor of Management 2019, 2016.

Assistant Professors:

MOLLY R. BURCHETT, B.A. Transylvania University 2009; M.A. University of Kentucky 2014; Ph.D. University of Kentucky 2020.

MATTHEW FOX, B.A. Colorado College 2000; M.B.A. University of Nevada 2007; Ph.D. Duke University 2015; Assistant Professor of Entrepreneurship 2018.

JACOB HOLWERDA, B.A. Cornell University 2006; M.S. Cornell University 2009; Ph.D. Cornell University 2014; Assistant Professor of Management 2020.

NICHOLAS PRINCE, B.S. Kansas State University 2004; M.B.A. Brigham Young University 2009; Ph.D. University of Illinois Urbana-Champaign 2015; Assistant Professor of Management 2016.

Academic Professionals:

R. CLIFFORD ASAY, B.S. Brigham Young University 1991; M.B.A. Portland State University 1998; Senior Lecturer 2011, 2006.

COREY A. BILLINGTON, B.S. Stanford University 1981; M.S. 1981; Ph.D. 1987; Professor of Practice 2015.

CASEY FROME, B.S. University of Wyoming 2009; M.P.A. 2014; J.D. 2014; Assistant Lecturer 2018.

ERIC J. KRSZJZANIEK, B.A. University of Wisconsin-Stevens Point 2005; M.A. University of Wyoming 2014; Ph.D. 2018; Assistant Lecturer 2018.

GREG C. LIVINGSTON, B.A. University of Wyoming 1996; M.A. 2018; Assistant Lecturer 2018.

Professors Emeriti:

Robert E. Allen, John H. Jackson, Anthony F. McGann, J. Brooks Mitchell, Terri L. Rittenburg, Robert G. Roe, Philip E. Varca, Larry R. Weatherford

The Department of Management and Marketing offers programs of study leading to the Bachelor of Science in Business degrees in (1) Management, (2) Marketing, (3) Entrepreneurship, and (4) Professional Sales. The departmental requirements for each of these degree programs are listed below.

All majors in the Department of Management and Marketing must meet requirements of the advanced business standing, complete the common body of knowledge, major courses, and MGT 4800 with a minimum grade of C (not C-).

Non-business majors may take business courses, and are not held to advanced business standing.

College of Business 3000- and 4000- level courses are reserved for those with junior or senior level standing whether majors or non-majors unless otherwise noted.

Decision Sciences

The decision sciences courses are a supplement for students with a variety of majors. The curriculum provides analytic skills based in both numerical data and behavioral evidence to facilitate problem solving, planning/project management, and decision making within organizations and across supply chains.

Entrepreneurship

The Entrepreneurship major is designed to assist students who wish to start their own businesses by providing them with exposure to the development and testing of business concepts. Analyzing the potential success of their concepts using a variety of tools and techniques, being flexible in developing new businesses and innovative ideas, and formulating and implementing business plans that will assist in the establishment and growth of these new ventures. The major provides students with exposure to issues involving family firms such as governance, succession and interpersonal relationships as well as innovation and change in existing organizations. Thus, the major focuses on entrepreneurship in both new ventures and established firms and prepares students to 1) start new businesses, 2) innovate in their own family firms, and/or 3) be entrepreneurial in an existing business.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Management

The Management major focuses on using resources to achieve goals in organizations. It studies the activities and operations that bring together human, financial, material, and information resources. Management majors should graduate with an understanding of the business world and a set of tools to manage successfully parts or all of an organization's operations. The Management degree allows students the ability to customize their degree within one of two tracks:

1) Human Resources Track - An experiential-learning focused program designed to prepare students to develop and manage the human capital of an organization. Students will be prepared to develop and implement policies and practices for recruitment, socialization, training, development, compensation, performance management, career planning, and employee relations. As more organizations move away from viewing employees as a commodity, toward an understanding that employees are a resource that can be developed into a distinct competitive advantage to ensure organizational success, sustainability, and reputation in the human resource function in the workplace will become increasingly important. This track will help employees understand the core functions of the area of human resource management are to a) recognize the potential of individuals for and within an organization and b) structure a positive, supportive, constructive work environment that will enable employees to work at their optimal capacity and achieve organizational goals.

2) General Management Track - A multi-faceted program designed to prepare students to manage multiple business functions across a variety of organizational types. A particular emphasis is to help develop interpersonal and problem-solving skills so they are capable of resolving a broad spectrum of problems for large or small organizations, or consult with organizations about these issues. This track is designed to provide students with a large degree of flexibility when considering different career paths, because students will be prepared to systematically think through the processes that organizations use to create and maintain sustainable competitive advantage. The track prepares students to work in for-profit businesses, non-profit organizations, entrepreneurial ventures, or in government organizations

The Management major, including both tracks, is available to students as an online degree completion program.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Marketing

Marketing is a societal process and a set of organizational functions for creating, communicating, and delivering value to customers and for managing relationships in ways to benefit local and global stakeholders. Marketing majors are employed in a wide variety of industries and governmental agencies where understanding and managing customer relationships are critical. Students find jobs in market research, advertising, public relations, professional selling, non-profit marketing, product management, retailing, digital marketing and brand management.

The Marketing Major is available to students as an online degree completion program.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Professional Sales

The Professional Sales major prepares students to manage business clients of for-profit and nonprofit organizations. Specifically, this major provides business students with coursework and opportunities to equip themselves with essential knowledge and skills required to begin professional careers in sales. Careers in sales offer independence,

ample financial reward, personal growth and opportunities for rapid advancement within organizations. Students that pursue a degree in professional sales will be challenged with industry engagement opportunities such as internships, and sales competitions. Students experience rigorous classroom experiences designed to develop the knowledge and practical skills needed to succeed during the first years of their sales careers including: oral and written communication skills, selling techniques and networking, the use of sales technology and customer information, and sales pipeline management.

All professional sales majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All professional selling courses for the major require a minimum grade of C.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Graduate Study

The Department of Management and Marketing offers a Ph.D. in Marketing. Some 4000- and 5000-level classes may be counted as graduate classes in other programs.

Doctoral Program

Doctor of Philosophy in Marketing

The Department of Management and Marketing offers a program leading to a Doctor of Philosophy in Marketing. The program of study draws from extant marketing theory, primarily in consumer behavior, combined with studies in the basic sciences (e.g., anthropology, psychology, sociology) and other applied sciences (e.g., environmental sciences) to create a base of knowledge acceptable for marketing scholarship in higher education, and a depth of knowledge conducive to a stream of publishable research in a specific topic area. Theoretical development is supplemented with course work in the gathering and analysis of qualitative and quantitative data, which prepares the student for rigorous exploration of marketing phenomena. Students are required to complete 72 semester hours and a scholarly dissertation that contributes to the knowledge foundations in marketing and contributes to the basic sciences that informed the inquiry. Semester hours will include core marketing classes, outside elective courses in statistics, basic social sciences, and/or interdisciplinary studies in environmental and natural resources, and dissertation work. First and second year research projects are also required, aimed at the student having published articles in respected marketing and social science journals before program completion. Comprehensive exam is completed at the end of the second semester.

All doctoral students are expected to teach while enrolled in the program. The program is designed to give students a strong research background and intensive teaching experience.

Application Deadlines

We begin accepting applications in October for the following fall semester. All completed applications must be submitted by February 1st.

Admission Requirements

- A bachelor's degree and working toward or completion of a master's degree from an accredited institution, preferably in business or a core social science discipline
- Completed application (i.e., all required materials submitted) on the UW Graduate Programs Applications system

- \$50 application fee paid to University Admissions
- Copies of **all** undergraduate and graduate program transcripts scanned and uploaded to the UW system, and official transcripts from each post-secondary institution attended submitted to the UW admissions office
- A valid GRE or GMAT score. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be requested from the testing organization and sent to UW
- Three strong letters of recommendation, including one or more from an academic. The letters must be uploaded by the recommenders to the UW system in MS Word or .pdf format
- A personal statement summarizing your interest in pursuing doctoral studies and speaking to questions or issues you wish to research. This document must be uploaded to the UW system as an MS Word or .pdf document
- For international students, Test of Foreign Language (TOEFL) scores are required. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be submitted to UW from the testing organization. A minimum TOEFL score of 76 (online) or 540 (paper) is required for admission.

Master of Business Administration (MBA)

Master of Business Administration (MBAM)

MBA & Professional Graduate Programs Office

1000 E. University Ave., Dept. 3275

Laramie, WY 82071

(307) 766-2482

Email: cobgradprograms@uwyo.edu

Web site: www.business.uwyo.edu/mba

MBA - General

Program Overview

The UW MBA Program delivers professional management education that connects principles, concepts, and intense case analysis with real world experience as tools for making business decisions. Students will develop leadership and managerial skills. UW MBAs will possess the education and training to compete in today's rapidly changing global business world.

Class sizes are small and diverse. Courses are taught by a select group of business faculty members. The total program experience (both inside and outside the classroom) is designed to provide experiential learning along with access to powerful networks.

Admission Requirements

A Faculty Admissions Committee, chaired by the Director of the MBA Program, will review all applicants. Application to the program is open to students who have a baccalaureate degree from an accredited university or college. Students with a baccalaureate degree in a business discipline or business administration are eligible for the program, but will not be allowed to waive any of the core course requirements. Please view the full list of admission requirements below.

Students whose native language is not English must submit TOEFL results (or another approved English proficiency exam). There are no exceptions for students from other UW colleges and schools seeking dual degrees. If an international applicant wishes to be considered for GA funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI) or an approved alternative to the OPI. Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please be advised that our program includes significant class discussion, substantial daily reading, many written assignments, and presentations.

Dual Degree Programs

The following dual degree programs are available:

- MS in Engineering / MBA
- Pharm. D. / MBA
- J.D. / MBA

Students will need to meet all MBA admission requirements and respective dual college/department requirements and be admitted to both degree programs in order to be considered for the dual degree program. The MBA core requirements are required of all students. After successful completion of all requirements, students in the dual degree program will graduate with two graduate level degrees.

Admission to the Master of Business Administration program generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.0 scale. If you do not meet this minimum preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.
- A GMAT or GRE score may be required as part of the application process as determined by the program director after reviewing the required application materials. Please reach out for additional information to cobgradprograms@uwyo.edu or 307-766-2482.
- Professional resume.
- Official transcripts of **all** undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Admissions Office at 1000. E. University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Note: These are the minimum requirements and do not guarantee admission or funding.

Prerequisites: No specific prerequisite courses are required. However, evidence of technical proficiency and/or prior business experience from your work history and transcripts are considered in the admissions process. If admitted to the program, all MBA students are required to take our MBA Foundations course, which establishes a baseline level of knowledge in Accounting, Finance, Economics, and Statistics.

Additional International Student Admission Requirements:

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 600 on the Paper-based test (TOEFL PBT) or a score of 100 on the Internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 7. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries *may be* exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions).
- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university *may be* exempt from providing proof of English proficiency.

Degree Requirements

- Thirty-six (MBA-MBA) credit hours of graduate coursework, including participation in all MBA Program activities (orientation, Jackson Leadership Summit, MBA Executive Speaker Series, Professional Development, Experiential Leadership Program, etc.). Please note that students enrolled in any dual degree MBA program are required to complete all MBA participation activities and the core coursework.
- This is a cohort based program and while the course sequence is highly structured, there may be the opportunity to extend the duration of the one-year program. Course sequence is subject to change at the discretion of the MBA Director.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Course of Study

Pre-Term: All admitted MBA students will complete a Foundations course prior to orientation, the experiential leadership program, and the Jackson Leadership Summit. Students may also receive pre-term assignments and/or pre-term prep course material.

MBA Core Requirements (27 credit hours) - Required of all MBA students as well as all Dual Degree MBA students.

- MBAM 5101 MBA Foundations. 1.
- MBAM 5202 Data and Decision Modeling. 3.
- MBAM 5104 Organizational Behavior and HRM. 3.
- MBAM 5208 Accounting for Managers. 3. OR MBAM 5208 Managerial Accounting. 3.
- MBAM 5204 Financial Management. 3.
- MBAM 5207 Marketing Management. 3.
- MBAM 5102 Operations Management. 3.
- MBAM 5330 Global Business Environment. 3.
- MBAM 5107 Decision Making I. 1.
- MBAM 5209 Decision Making II. 1.
- MBAM 5305 Strategic Management. 3. (includes international or domestic travel)

MBA Elective Requirements

- MBA-MBA students, including dual degree students, must take an additional 9 credit hours of 4000 or 5000 level College of Business courses. Dual degree students (JD/PharmD/MS) may take three (3) credit hours

outside the College of Business following dual degree agreement guidelines. Please contact your advisor for additional information.

**Note: A maximum of 12 credit hours may be taken at the 4000 level for graduate credit.*

Application Deadlines

- **Fall Admission Only**
 - Final Deadline: June 1
 - Priority Deadline: November 1
 - Scholarship Deadline: March 1

**International Applicants: Please be advised that there are additional university requirements that may take additional processing time - you are highly encouraged to apply prior to the application deadline to ensure that if admitted, all required documentation can be provided prior to the beginning of the term of entry.*

Additional Information

Tuition & Fees

Tuition and fee charges will not include the cost of textbooks. Please refer to University of Wyoming cost of attendance for additional information.

MBA Executive Speaker Series

Students participate in weekly meetings (primarily on Fridays) with business leaders from a wide variety of industries (business, government, and non-profit entities). The program takes place mostly on campus, but does include some travel. This program supplements the class work, provides discussion and learnings of business challenges, opens the students' horizons on career opportunities, and provides long-term networking opportunities.

Experiential Leadership Program

Students focus on improving leadership competence and focus on teamwork outside of the typical business element. This experience has been tailored to represent an experiential case study on effective leaders and effective teams. Substitute experiences can be discussed on a case-by-case basis.

Jackson Leadership Summit

Exclusive leadership development event for MBA students to network with an astute panel of individuals with proven business success. Topics usually focus on the global economy and strategic planning.

Campus to Online MBA Program

Students enrolled in the campus MBA program may, on a case-by-case basis apply credits from the Online MBA program (courses with an MBAX prefix) to their degree, and vice versa. Must be approved by the Program Director.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 in the MBA Program to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program and suspension from the University of Wyoming. Other requirements involving program dismissal include:

- A student who earns a grade of "D" or lower in any one course may have the opportunity to retake the course (MBAX or MBAM).

Online Master of Business Administration (MBAX)

MBA & Professional Graduate Programs Office

1000 E. University Ave., Dept. 3275

Laramie, WY 82071

(307) 766-2482

Email: cobgradprograms@uwyo.edu

Web site: www.business.uwyo.edu/mba

MBA-MBAX - General

Program Overview

The University of Wyoming offers a flexible Online MBA (EMBA). The Online MBA Program is specifically designed for experienced business professionals interested in an AACSB accredited, 100% online program that fits their busy schedules. This program is typically completed in two years and is tailored for professionals interested in enhancing their understanding of business disciplines and applying them to decision-making. With starts each Fall, Spring, and Summer, the cohort-based program consists of a minimum 30 credit hours of required coursework.

Program Admission Requirements

A Faculty Admissions Committee, chaired by the Director of the MBA Program, will review all applicants. Application to the program is open to students who have a baccalaureate degree from an accredited university or college. Students with a baccalaureate degree in a business discipline or business administration are eligible for the program, but will not be allowed to waive any of the core course requirements. Please see full list of admission requirements below.

Students whose native language is not English must submit TOEFL results, or results of another approved English proficiency exam. There are no exceptions for students from other UW colleges and schools seeking dual degrees. If an international applicant wishes to be considered for GA funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI) or an approved alternative. Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please be advised that our program includes significant class discussion, substantial daily reading, many written assignments, and presentations.

Admission to the Online Master of Business Administration program generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.0 scale. If you do not meet this minimum preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.
- GRE or GMAT Optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.).
- Professional resume. A minimum 2 years' professional work experience is preferred.
- Official transcripts of **all** undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Admissions Office at 1000 E. University Ave., Laramie,

WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.

- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Note: These are the minimum requirements and do not guarantee admission or funding.

Prerequisites: Prerequisite courses may be required as determined by the MBA Director. Please reach out to our office at cobgradprograms@uwyo.edu or 307-766-2482 for additional information.

Additional International Student Admissions Requirements

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 600 on the Paper-based test (TOEFL PBT) or a score of 100 on the Internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 7. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries *may be* exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions).
- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university *may be* exempt from providing proof of English proficiency.

Degree Requirements

- Thirty (30) credit hours of graduate credit as outlined in the Course of Study section.
- This is a cohort based program and while the course sequence is structured, there is a lot of opportunity for flexibility. This program can be completed in one or two years most commonly, but longer completion timelines can be discussed. Course sequence is subject to change at the discretion of the MBA Director.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F.

Course of Study

MBA Core Requirements (21 credit hours) - Required of all MBAX students.

- MBAX 5204 Financial Management. 3.
- MBAX 5207 Marketing Management. 3. or MBAX 5235 Marketing Analysis & Strategy. 3.
- MBAX 5202 Data and Decision Modeling. 3.
- MBAX 5104 Organizational Behavior & HRM. 3.
- MBAX 5330 The Global Business Environment. 3.
- MBAX 5208 Accounting for Managers. 3. or MBAX 5208 Managerial Accounting. 3.
- MBAX 5305 Strategic Management. 3.

MBA Elective/Concentration Requirements

- MBA-MBAX students must take an additional 9 credit hours of 5000 level College of Business courses.
- Energy Concentration students will complete the additional 9 credit hours of coursework as follows:
 - ACCT 5503 Fundamentals of Accounting in the Energy Industry. 3.
 - MGT 5504 Energy Industry Value Chain. 3.
 - FIN 5502 Energy Finance: Project Evaluation. 3.

Application Deadlines

- **Fall Admission**
 - Block 1 Final Deadline: June 30
 - Block 2 Final Deadline: October 1
 - Priority Deadline: May 1
- **Spring Admission**
 - Block 1 Final Deadline: December 1
 - Block 2 Final Deadline: February 1
 - Priority Deadline: October 1
- **Summer Admission**
 - Final Deadline: April 1
 - Priority Deadline: February 1

**International Applicants: Please be advised that there are additional university requirements that may take additional processing time - you are highly encouraged to apply prior to the application deadline to ensure that if admitted, all required documentation can be provided prior to the beginning of the term of entry.*

Additional Information

Tuition and Fees

Tuition and fee charges will not include the cost of textbooks. Please refer to University of Wyoming cost of attendance for additional information.

Online to Campus MBA Program

Students enrolled in the online MBA program may, on a case-by-case basis apply credits from the campus MBA program (courses with an MBAM prefix) to their degree, and vice versa. Must be approved by the Program Director.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 in the MBA Program to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program and suspension from the University of Wyoming.

- Maintain good academic standing at the program and university level and receive no letter grade of D or F.

College of Business Graduate Certificate Programs

MBA & Professional Graduate Programs Office

1000 E. University Ave., Dept. 3275

Laramie, WY 82071

(307) 766-2482

Email: cobgradprograms@uwyo.edu

Web site: www.business.uwyo.edu/mba

CERT-MBAE - Energy Business

CERT-CFP - Certified Financial Planning

Program Overview, Energy Business Certificate

The Certificate in Energy Business is composed of 9-credits of masters-level graduate coursework in the College of Business, with the primary goal of achieving mastery and professional skills common to functional business roles within the energy industry. Specifically:

- Develop a working understanding of the concepts and practices of Supply Chain Management to make strategic support decisions within the energy industry.
- Acquire the foundation necessary to work in the energy industry as a financial statement analyst, manager, auditor, or accountant.
- Utilize core capital budgeting, techno-economic cashflow modeling and other finance concepts to evaluate energy industry project investments.
- Demonstrate effective problem solving, written, and oral communication skills in the context of the energy industry.

Program Overview, CFP Certificate

The Certificate in Certified Financial Planning is composed of 18-credits of masters-level graduate coursework in the College of Business, with the primary goal of providing students with the education, training, and skills necessary to be able to sit for the Certified Financial Planner (CFP) examination. The curriculum is aligned with the CFP® Board's Principal Knowledge Topics and covers principles and practices of essential areas of financial planning, including:

- Wealth Management
- Investment Management
- Tax Planning
- Estate Planning
- Insurance and Retirement Planning

Program Admission Requirements

Admission to the graduate certificate programs generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred (based on a 4.0 scale). If you do not meet the preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.

- GRE or GMAT Optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.), but is not required.
- Professional resume. A minimum 2 years of professional work experience is preferred.
- Official transcripts of **all** undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Admissions Office at 1000. E. University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience (no need to schedule a meeting).

Note: These are the minimum requirements and do not guarantee admission or funding. The University of Wyoming College of Business Graduate Certificate programs do not admit students provisionally or conditionally.

CERT-MBAE Prerequisites: Applicants must provide evidence of proficiency in the following areas:

Managerial Accounting

Finance

CERT-CFP Prerequisites: Applicants must provide evidence of proficiency in the following areas:

Business Math and Statistics

Financial Management

*Evidence of proficiency in these areas is considered on a case-by-case basis but is commonly pursued through supplemental courses and/or relevant professional experience. Please contact the program office for additional information.

Additional International Student Admissions Requirements

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 600 on the Paper-based test (TOEFL PBT) or a score of 100 on the Internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 7. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries *may be* exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions).
- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university *may be* exempt from providing proof of English proficiency.

Degree Requirements, Energy Business Certificate

- 9 total credit hours of coursework to include:
 - FIN 5502 - Energy Finance: Project Evaluation. 3.

- ACCT 5503 - Fundamentals of Accounting in the Energy Industry. 3.
- MGT 5504 - Energy Industry Value Chain. 3.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student will be immediately dismissed from the program.

Degree Requirements, CFP Certificate

- 18 total credit hours of coursework to include:
 - FIN 5070 Tax Planning for Financial Planners. 3.
 - FIN 5310 Investment Management. 3.
 - FIN 5720 Insurance and Retirement Planning. 3.
 - FIN 5750 Fundamentals of Financial Planning. 3.
 - FIN 5780 Estate Planning. 3.
 - FIN 5800 CFP Capstone. 3.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student will be immediately dismissed from the program.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program and suspension from the University of Wyoming. Other requirements involving program dismissal include:

- A student who earns a grade lower than a "C" in any course must retake the course, or withdraw from the program.

College of Education

6 Education

Scott Thomas, John P. "Jack" Ellbogen Dean

Andrea C. Burrows: Associate Dean for Undergraduate Programs

Jenna M. Shim: Associate Dean for Graduate Programs

(307)766-6668 FAX: (307)766-3145 Building Phone:

Web site: www.uwyo.edu/education

The College of Education prepares teachers, counselors, administrators and other service personnel for positions in public education in Wyoming, throughout the nation, and the world. The teacher education program incorporates content area courses from the various colleges on campus with experiences in educational methodology. Programs are designed to provide students with a maximum amount of experience in the classroom.

Graduates of the College of Education are prepared to deal with youth growing up in a rapidly changing world. Programs are experiential, collaborative, outcomes based, and technologically supported. Emphasis is placed on professional ethics, a commitment to lifelong learning, and respect for all individuals in our culturally diverse society.

Organization of the College

The College of Education includes undergraduate teacher education and graduate studies in education. Schools offering undergraduate and graduate programs in the college include:

- **School of Teacher Education**

- **School of Counseling, Leadership, Advocacy, and Design**

Undergraduate and graduate education are supported by several units. The Teacher Preparation and Advising Office, McWhinnie Hall room 100, coordinates activities dealing with academic advising, field experiences, and teacher licensure.

The Wellspring Counseling Clinic provides counseling services to students, staff, faculty of the university, as well as the community at-large.

The College of Education, College of Arts and Sciences, Wyoming community colleges, many Wyoming districts, the Wyoming Professional Teaching Standards Board, and the Wyoming Department of Education are part of the Wyoming School-University Partnership, which grounds collaborative efforts across the state related to K-12 preservice and inservice education.

The Laboratory School, an Albany County School District entity, serves the college, the university, the school district, and the state as an educational center for research, development, instructional advancement, and inservice education. The school enrolls students in pre-school through eighth grade.

Computer laboratories in the college feature a wide range of capabilities including Internet access. The laboratory equipment is frequently updated to serve the needs of students, faculty and staff.

The Learning Resource Center is a branch of the university library system. Educational materials are available to serve the needs of K-12 students, university students, university faculty and public school faculty in Wyoming

Faculty in the College of Education

School of Counseling, Leadership, Advocacy, and Design

School Director: Peter Moran

Associate Professors:

KARA L. CARNES-HOLT, B.A. East Texas Baptist University 2000; M.S. Ed. Baylor University 2003; Ph.D. University of North Texas 2010; Associate Professor of Counselor Education 2016, 2010.

COURTNEY McKIM, B.S. Boise State University 2006; Ph.D. University of Nebraska 2011; Associate Professor of Educational Research 2020, 2011.

MICHAEL M. MORGAN, B.S. Brigham Young University 1993; M.S. Auburn University 1995; Ph.D. Purdue University 2003; Associate Professor of Counselor Education 2011, 2003.

LINDSEY NICHOLS, B.S. University of Connecticut 2002; M.A. University of Connecticut 2003; M.Ed. University of North Carolina at Chapel Hill 2006; Ph.D. Pennsylvania State University 2012; Associate Professor 2019.

W. REED SCULL, B.S. St. Louis University 1983; M.A. University of Nevada-Reno 1989; Ed.D. University of Arizona 1994; Associate Professor 2019.

Assistant Professors:

WILLIAM CAIN, B.A. University of Texas 1994; Ph.D. Michigan State University 2018; Assistant Professor 2018.

JONTHAN CARRIER, B.S. East Tennessee State University 1999; M.S.E. Portland State University 2002; Ph.D. University of the Cumberlands 2017; Assistant Professor of Higher Education Administration, 2020.

RICHARD CARTER, B.S. Western Carolina University 2010; M.S.E. 2012; Ph.D. University of Kansas 2016; Assistant Professor of Special Education 2017.

AMANDA DeDIEGO, B.S. University of North Georgia 2009; M.S. 2012; Ph.D. University of Tennessee 2016; Assistant Professor of Counselor Education 2016.

BARBARA HICKMAN, B.A. University of Minnesota 1985; B.S. University of Minnesota 1986; M.A. Saint Mary's College 1997; Ed.D. Northern Arizona University 2017; Assistant Professor 2019.

JIHYUN LEE, B.A. Daegu University 2006; M.Ed. Korea National University 2012; M.S. University of Wisconsin-Madison 2014; Ph.D. University of Texas-Austin 2018; Assistant Professor 2019.

ROBERT MADDOX, B.S. Missouri State University 2005; M.A. Southeast Missouri State University 2009; Ed.S. Southeast Missouri State University 2011; Ph.D. University of Wyoming 2015; Assistant Professor 2019.

LAY-NAH BLUE MORRIS-HOWE, B.S. University of Wyoming 2004; M.S. 2007; Ph.D. 2011; Assistant Professor of Counselor Education 2015.

MARK PERKINS, B.A. Ft. Lewis College 2001; M.A. University of Colorado-Denver 2009; Ph.D. Colorado State University 2014; Assistant Professor of Educational Research, 2020.

MIA WILLIAMS, B.S. Northern Arizona University 1995; M.Ed., 1999 Ph.D 2008 Arizona State University Assistant Professor 2020.

Associate Professional Lecturer:

TIFFANY HUNT, B.S. University of Wyoming 2001; M.S. University of Northern Colorado 2006, Ph.D. 2017; Assistant Professional Lecturer of Special Education 2014.

Professors Emeritus

Martin Agran, Mary Alice Bruce, John Cochenour, Ace Cossairt, Kay Cowie, Michael Day, Deborah McGriff, Alan Moore, Kay Persichitte, Suzanne Young.

School of Teacher Education

School Director: Alan Buss

Professors:

STEVEN M. BIALOSTOK, B.A. University of the Pacific 1975; M.S.W. California State University - Sacramento 1986; Ph.D. University of Arizona 1999; Professor of Elementary and Early Childhood Education 2015, 2000.

CYNTHIA BROCK, B.S. Oregon State University 1981; MEd Washington State University 1985; Ph.D. Michigan State University 1997; Wyoming Excellence in Education Literacy Chair 2015.

ANDREA C. BURROWS, B.S. University of Central Florida 1992; M.S. Florida State University 1994; Ed.D. University of Cincinnati 2011; Professor of Secondary Education 2017, 2011. Associate Dean of Undergraduate Programs 2020.

ALAN R. BUSS, B.A. Brigham Young University 1989; M.A. 1993; Ph.D. University of Wyoming 1998; Professor of Elementary and Early Childhood Education 2019, 1997.

SCOTT A. CHAMBERLIN, B.A. Purdue University 1989 and 1993; M.Ed. University of Utah 1998; Ph.D. Purdue University 2002; Professor of Elementary and Early Childhood Education 2015, 2003.

LEIGH HALL, B.S. University of South Florida 1996; M.Ed. Peabody College of Vanderbilt University 1997; Ph.D. Michigan State University 2005; Professor of Secondary Education 2017. Wyoming Excellence in Education Literacy Chair, 2017.

JOHN KAMUTU, B. A. University of Wyoming 1991; M. A. 1992; Ph.D. 1998; Professor of Educational Studies 2015, 1999.

RICHARD KITCHEN, B.A. University of Colorado-Denver 1984; M.A. University of Montana 1990; Ph.D. University of Wisconsin- Madison 1996; Professor of Secondary Education 2017. Wyoming Excellence in Education Mathematics Education Chair 2017.

PETER WILLIAM MORAN, B.A. University of Wyoming 1987; M.A. Kansas State University 1993; Ph.D. 2000; Professor of Elementary and Early Childhood Education 2017, 2001.

LYDIAH NGANGA, B.S. University of Wyoming 1998; M.S. 2000; Ph.D. 2005; Professor of Elementary and Early Childhood Education 2020, 2005.

LESLIE S. RUSH, B.S. Texas A&M-Commerce 1984; M.Ed. 1996; Ph.D. University of Georgia, 2002; Professor of Secondary Education 2014, 2002.

JENNA M. SHIM, B.A. California State University - Los Angeles 1994; M.M. Manhattan School of Music - New York 1996; M.S. State University of New York - Albany 2006; Ph.D. 2009; Professor of Educational Studies 2016, 2010.

TIMOTHY F. SLATER, B.S. Kansas State University 1989; B.S. Ed. 1989; M.S. Clemson University 1991; Ph.D. University of South Carolina 1993; Professor of Secondary Education 2008. Wyoming Excellence in Education Science Education Chair 2008.

ALLEN TRENT, B.A. Eastern Kentucky University 1986; M.S. University of Dayton 1992; Ph.D. The Ohio State University 2000; Professor of Elementary and Early Childhood Education 2012.

Associate Professors:

TAO HAN, B.A. Sungshin Women's University, Korea 1984; M.A. University of Arizona 1993; M.A. University of Nevada-Reno 2002; Ph.D. 2006; Associate Professor of Elementary and Early Childhood Education 2016, 2010.

ANA HOUSEAL, B.A. University of Iowa 1985; M.A. University of Northern Iowa 1998; Ph.D. University of Illinois 2010; Associate Professor of Elementary and Early Childhood Education 2017, 2011.

LINDA HUTCHISON, B.A. Humboldt State University 1978; M.A. Stanford University 1986; Ph.D. University of Washington 1992; Associate Professor of Secondary Education 2000, 1993.

TRICIA JOHNSON, B.S. Lehigh University 1991; M.Ed. 1993; Ed.S. George Washington University 1997; Ed.D. Columbia University 2004; Associate Professor of Elementary and Early Childhood Education 2012.

PATRICK MANYAK, B.A. Pepperdine University 1988; M.S. 1990; Ph.D. University of Southern California-Los Angeles 2001; Associate Professor of Elementary and Early Childhood Education 2007, 2001.

AMY ROBERTS, B.S. Indiana University 1986; M.A. Portland State University 1991; Ph.D. Indiana University 1996; Associate Professor of Elementary and Early Childhood Education 2004, 1998.

KATHERINE MUIR WELSH, B.A. University of California-Berkeley 1986; Single Subject Teaching Credential (Life Sciences) University of California-Santa Barbara 1990; Ph.D. University of California-Los Angeles 2002; Associate Professor of Elementary and Early Childhood Education 2008, 2002.

Assistant Professors:

ALI BICER, B.S. Celal Bayar University 2006; M.S. Texas A&M University 2012; Ph.D. 2016; Assistant Professor of Elementary and Early Childhood Education 2019.

TODD REYNOLDS, B.A. University of Northern Colorado 1998; M.A. 2004; Ed.S. 2008; Ph.D. University of Wyoming 2015; Assistant Professor of Secondary Education 2019.

ALISON MERCIER, B.S. North Carolina State University 2000; M.S. University of North Carolina 2020; Assistant Professor of Secondary Education 2020.

Senior Lecturers:

NIKKI BALDWIN, B.A. University of Wyoming 1994; M.A. 2005; Senior Lecturer of Elementary and Early Childhood Education 2020, 2009.

KIMBERLY GUSTAFSON, B.A. University of Wyoming 1998; M.A. 2003; Ed.D. 2010; Senior Lecturer of Elementary and Early Childhood Education 2019, 2007.

AMY SPIKER, B.A. University of Wyoming 1989; M.A. 2004; Senior Lecturer of Elementary and Early Childhood Education 2016, 2007.

Associate Lecturers:

JASON KATZMANN, B.S. Texas Women's University 1994; M.A. Colorado College 2000; Ph.D. University of Northern Colorado 2007; Assistant Professor of Educational Studies 2016, 2007.

ROD THOMPSON, B.A. University of Nebraska at Kearney 1991; M.A. University of Northern Iowa 1998; Associate Lecturer of Educational Studies 2019.

Assistant Lecturers:

LINDSEY FREEMAN, B.S. University of Wyoming 2011; M.A. 2018; Assistant Lecturer of Educational Studies 2019.

JENNIFER GERINGER, B.A. University of Texas - San Antonio 1991; M.S. University of Wyoming 1997; Ph.D. 2001; Assistant Lecturer of Elementary and Early Childhood Education 2015.

JANET LEAR, B.S. University of Wisconsin-Madison 1990; M.A. University of California, Berkeley 1998; Ph.D. University of Denver 2017; Assistant Lecturer of Educational Studies 2019.

ROCHELLE MCCOY, B.A. Western Governors University 2006; M.A. 2012; Assistant Lecturer of Elementary and Early Childhood Education 2019.

JOSEPH SCHROER, B.A. University of Cincinnati 2002; B.S. 2005; M.A. 2001; Ph.D. 2007; Assistant Lecturer of Educational Studies 2019.

Professors Emeritus:

Michelle Buchanan, Barbara A. Chatton, Margaret Cooney, Lydia Dambekalns, Judith Z. Ellsworth, Patricia McClurg, R. Timothy Rush

Accreditation

The College of Education, a member of the American Association of Colleges of Teacher Education, is currently accredited by the National Council for the Accreditation of Educator Preparation (CAEP) and is moving toward the Association for Advancing Quality in Educator Preparation (AAQEP) in 2023-2024. The Wyoming Professional Teaching Standards Board (PTSB) and the North Central Association of Colleges and Schools approve the college as an accredited teacher-preparing institution. The Counseling programs are fully accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).

Academic Advising

Students are assigned an academic adviser who will assist in planning a program combining University Studies requirements, core content requirements, and professional education courses. Students are expected to consult with their adviser regularly. The Teacher Preparation and Advising Office coordinates advising and provides students and faculty with assistance in areas related to academic advising.

Further information on each program is available in:

Teacher Preparation and Advising Office
McWhinnie Hall room 100
Dept. 3374, 1000 E. University Ave.
Laramie, WY 82071

(307) 766-2230 edquest@uwyo.edu

School of Teacher Education

113 McWhinnie Hall, (307) 766-3130

FAX: (307) 766-2018

Web site: www.uwyo.edu/st

School Director: Alan Buss

School of Teacher Education offers a wide variety of undergraduate teacher education degrees and minors, graduate degrees in curriculum and instruction, as well as several endorsement and certificate programs to prepare our students to be successful educators. Explore our diverse programs, career opportunities, and research possibilities with our dynamic faculty members.

Admission to the B.A. and B.S. Programs in the College of Education

New first-time students who meet the University of Wyoming's standards for admission may declare their major in Elementary Education, Secondary Education in a specific content area, or Education Undecided (EDUD), provided that they have a minimum ACT Composite score of 21 and an ACT Math score of 21 or a minimum new SAT combined score of 1060 with a minimum SAT Math score of 530. A lower ACT/SAT Math score can be replaced by a Math Placement Examination (MPE) score of 2 or higher. Education Undecided majors should decide on a specific content area no later than the first semester of their sophomore year.

All incoming students pursuing teacher certification and/or teacher endorsement programs must undergo an initial criminal background check prior to full admission to the College of Education. A second background check is included as part of the state application process for the Wyoming Substitute Teaching Permit, which is required for admission to Phase II of the B.A. and B.S. programs.

For those students who do not meet the above admissions requirements, it is suggested that they major in exploratory studies (EXPL) so that they will receive more appropriate advising and access to support services through Advising, Career and Exploratory Studies until they have attained a minimum 2.750 UW grade point average (with at least 15 UW credits), and successfully complete an approved background check.

Current UW students who wish to change their major to Education but do not yet have a UW grade point average must wait until they meet the requirement of a minimum 2.750 UW grade point average, with at least 15 UW credits posted to their transcript. It is recommended that they complete a Program Change form and contact the Teacher Preparation and Advising Office in McWhinnie Hall, room 100 to initiate the background check process. Students' progression through the Education curriculum could be delayed until all requirements are fulfilled and their major officially changed to Education.

Transfer students from out of state institutions, as well as from Wyoming community colleges wishing to declare a major in Education must have completed a minimum of 15 transferable credits, including the USP 2015 "Q" requirement (as determined by the UW Registrar), with a final grade higher than a C- to do so. Transfer students must have a minimum Transfer GPA of at least 2.750 and successfully complete an approved background check.

For transfer students not meeting these requirements, it is suggested that they major in exploratory studies (EXPL) so that they will receive more appropriate advising and access to support services through Advising, Career and Exploratory Studies until they meet requirement of a minimum 2.750 UW grade point average (with at least 15 UW credits), and successfully complete an approved background check.

Re-admitted students who return to UW after two or more semesters away, and wish to (re-)declare a major in Education, must have a minimum 2.750 UW GPA (with at least 15 UW credits) to do so and successfully complete an approved background check.

Degree Program Curricula

The following curricula summarize the programs offered by the College of Education. Students complete content courses in their major as well as professional education courses, some of which can also be counted toward their University Studies Program requirements. The University Studies Program requirements include:

- First-Year Seminar (FYS) Credits: 3
- Communication I (COM1) Credits: 3
- Communication II (COM2) Credits: 3
- Communication III (COM3) Credits: 3

- Quantitative Reasoning (Q) Credits: 3
- Physical and Natural World (PN) Credits: 6
- Human Culture (H) Credits: 6
- U.S. & Wyoming Constitutions (V) Credits: 3

The minimum total credit hours required to complete a degree in Education is 120. Of the minimum credit hours required to complete a program, 42 credit hours must be completed at the upper division level (3000-level or higher), with 30 of those credits being completed at UW. Additional College of Education requirements are:

1. 2.750 UW Total Institution grade point average
2. 2.500 grade point average in the content courses required for each specific major
3. A valid Wyoming substitute teaching certificate

Academic Advising

Students are assigned an academic adviser who will assist in planning a program combining University Studies requirements, core content requirements, and professional education courses. Students are expected to consult with their adviser regularly. The Teacher Preparation and Advising Office coordinates advising and provides students and faculty with assistance in areas related to academic advising.

Further information on each program is available in:

Teacher Preparation and Advising Office
 McWhinnie Hall room 100
 Dept. 3374, 1000 E. University Ave.
 Laramie, WY 82071
 (307) 766-2230

Acceptability of Coursework

Courses taken to satisfy professional education requirements and major content requirements must be taken for a conventional grade (A-F) unless offered for S/U grading only.

Professional education courses taken at another institution must come from an accredited Educator Preparation Program (e.g., NCATE, CAEP, AAQEP) to be accepted for a degree and/or teacher certification program. Courses remain subject to review for applicability to UW requirements by the Registrar's Office and by the School of Teacher Education. Syllabi of completed courses may be requested.

The College of Education does not accept transfer credits for professional education or content area courses with equivalents at UW for courses with final grades of a C- or less.

The College of Education encourages students to take teaching methodology and student teaching coursework or credits from the University of Wyoming whenever possible.

Student Responsibility

College of Education students are responsible for knowing and meeting graduation requirements. Students are expected to maintain a 2.750 UW Total Institution grade point average to enter Phases II and III and continue in the professional education sequence and to graduate. Prior to enrolling in professional education courses, students are expected to have met the specific program and course prerequisites as listed in this publication. Students are expected to make reasonable academic progress toward completion of a degree.

Undergraduate Programs

Bachelor of Science

Agricultural education

- Secondary Agricultural Education, B.S.

Bachelor of Applied Science

Career and Technical education

- Secondary Career & Technical Education, B.A.S.

Bachelor of Arts

Elementary education

- Elementary Education, B.A.

Elementary/Special education

- Elementary Education/Special Education, B.A.

Secondary education

- Secondary English Education with Concurrent Major in English, B.A.
- Secondary Mathematics Education with Concurrent Major in Mathematics, B.A.
- Secondary Modern Languages Education, B.A.
- Secondary Science Education, B.A.
- Secondary Social Studies Education, B.A.

Teaching Endorsements

A teaching endorsement is not a standalone teacher certification program. Endorsements are issued by the Wyoming Professional Teaching Standards Board (PTSB) to state-licensed Elementary (K-6) and Secondary (6-12) teachers qualified to teach in specific subject areas, in addition to their initial certification(s). By state statute, the University of Wyoming's College of Education is allowed to provide institutional recommendations for add-on endorsements in Biology, Chemistry, Earth Science, and Physics to those who have completed programs leading to licensure in secondary-level Science content areas.

Graduate Programs

Master's Programs

There are three master's programs in the College of Education and two of the three have additional specialization areas. They are designed to provide advanced study for educational professionals. Consult School of Teacher Education for program requirements and expectations in the Master of Arts in Curriculum and Instruction.

Doctoral Programs

Doctor of Education (Ed.D)

The College of Education Ed.D. program prepares students for scholarly inquiry and professional leadership in education. The program consists of (1) applied research, (2) courses and professional experiences in education and related fields designed to develop a comprehensive academic basis for leadership roles in education, and (3) applied professional experiences tailored to individual needs and career goals. Each student works closely with an adviser and a supervisory faculty committee to select courses, topics of research, and professional opportunities.

Preparation in the above areas combine to:

Convey deep scholarly knowledge of education and foster its application in practice;
Promote a broad understanding of various methods of inquiry in education and foster its application in practice settings;
Advocate practices that demonstrate a commitment to diversity in education;
Foster ethical and professional research and practice in education;
Promote excellence in applied professional practice.

The degree of Doctor of Education (Ed.D.) is offered to competent students who wish to pursue a program of study and to participate in appropriate activities in preparation for professional service and leadership in education. The program is designed to meet the needs of those for whom intensive research is not a practical prerequisite to professional goals. Doctoral students are expected to participate not only in organized coursework but also in other activities that will ensure breadth of outlook and technical competence.

Concentration in the Doctor of Education are:

Education, Ed.D., Concentration in Curriculum and Instruction

Education, Ed.D., Concentration in Mathematics Education

All Doctor of Education students will use research methods to explore practical leadership problems. Applied projects are problem-based and may be collaborative. Projects may involve evaluating curriculum, designing and implementing professional development or training, developing applications to be used in local settings (e.g., early childhood-12 education, corporate and government centers), as well as other projects designed to advance knowledge in a specific field or setting.

The following requirements apply to all projects:

- Research-based (literature review)
- Scholarly, academic writing using APA style
- Primary or secondary data
- Authored by individual or small groups of students
- Uploaded to **ProQuest** for dissertations of practice or other projects in a dissertation format, and uploaded to the **Mountain Scholar Digital Collections** for projects in a non-dissertation format

Suggested project formats and brief descriptions are:

Dissertation of Practice

- A dissertation of practice is original practice-based empirical research with data collection expected from primary sources.

Local Case Study

- A case study is a descriptive, exploratory, or explanatory analysis of a person, group, or event. Thomas (2011, p. 354) offered the following definition of case study: "Case studies are analysis of persons, events, decisions, periods, projects, policies, institutions, or others systems that are studied holistically by one of more methods."

Faculty Directed Individual or Team-based Inquiry

- This type of inquiry involves individual or a small group of students working together on a single project under the guidance of a faculty member. Data can be obtained from primary or secondary sources.

Documentary on an Educational Issue

- A documentary is an in-depth and extensive study with an analysis presented in video form accompanied by a written summary of the purpose and outcome.

Submitted Manuscript

- A full-length research manuscript must be submitted to a refereed mid- or top-tier national or international scholarly journal.

Program Evaluation

- A program evaluation report typically uses both qualitative and quantitative research methods to examine and collect data on a current program that is in place in a school or another organization.

Additional project formats may be proposed and approved by the student's committee as long as they meet the requirements listed above.

Final Project Processes

As in the traditional dissertation process, all students are expected to meet with their committees to gain project approval (at the pre-prospectus and/or prospectus stage). The Report of Final Examination will indicate whether or not the final project is acceptable to the committee. *The deadline for submitting projects to **Mountain Scholar Digital Collections** or dissertations of practice or other projects in a dissertation format to **ProQuest** is the same as the Report of Final Examination, the last day of classes for the semester during which a student intends to graduate.* All projects will be evaluated by committee members and also by the student.

Please note: After submitting the required steps for the Mountain Scholar Digital Collections you will receive a confirmation email. Please forward this email to your chair, Clayleen Rivord in the College of Education Dean's Office, and Robert Ratterree in the Office of the Registrar.

Doctor of Philosophy in Curriculum and Instruction (Ph.D.)

The College of Education Ph.D. program prepares students for careers of scholarly inquiry and teaching in higher education. The program consists of (1) continuous research or inquiry, (2) courses and professional experiences in education and related fields designed to develop a comprehensive academic basis for future work in research and teaching, and (3) teaching and other related experiences tailored to individual needs and career goals. Each student works closely with an adviser and a supervisory faculty committee to select courses, topics of research and inquiry, and teaching experiences.

All coursework in the Ph.D. in Curriculum and Instruction program addresses the following goals:

- To convey deep scholarly knowledge of education and related fields
- To promote a broad understanding of various methods of inquiry in education and develop competency in several of those methods
- To advocate practices that demonstrate a commitment to diversity in education
- To foster ethical and professional research and practice in education
- To promote excellence as a college teacher

Effective preparation for the Ph.D. stems from collaborative research and inquiry into topics of mutual interest by students and faculty scholars/researchers. A major portion of the program consists of the individual student and selected faculty members(s) jointly engaged in research and inquiry. Successful Ph.D. applicants tend to have high aptitude for research and inquiry and express interest in general topics which the faculty of the college are actively inquiring and researching.

Concentrations in the Ph.D. in Curriculum and Instruction are:

Curriculum Studies

Literacy Education

Mathematics Education

Science Education

Program Specific Graduate Assistantships

Applicants interested in a Graduate Assistantship must submit a graduate assistantship application at the time of admission application process or communicate with the advisor and school director thereinafternon.

The two schools of the College of Education provide support for master's and doctoral degree programs.. Faculty and staff work to deliver these programs by providing campus-based courses, courses taught on-site at different locations in Wyoming, courses taught online, and courses taught in hybrid formats.

School of Counseling, Leadership, Advocacy, and Design

**332 Education Building, (307) 766-2366
and**

316 Education Building, (307) 766-5649

Web site: www.uwyo.edu/clad

School Director: Peter Moran

The School of Graduate Studies in Education includes the following program areas: Counseling, Educational Leadership, Higher Education Administration, Learning, Design and Technology, Research, and Special Education.

Program Areas

Counseling

Counselor education curricula experiences concentrate on the integration of helping skills, theory and practice. The programs utilize a personalized, developmentally oriented focus and prepare professional counselors for entry into school and mental health settings.

The undergraduate counseling courses are designed to achieve the following objectives:

- enhance self-awareness
- facilitate effective relationship skills
- increase leadership knowledge and skills
- assist learners in maximizing their potential

Graduate Study

Counselor education offers a two-year (61- 65 semester hours) master's degree program for practice in schools, colleges, universities, and community agencies, as well as private practice. The Council for Accreditation of Counseling and Related Educational Programs (CACREP), the national accrediting body recognized by the Council for Higher Education Accreditation, has conferred accreditation to the following M.S. specializations in counseling: school counseling and mental health counseling. The Ph.D. program in Counselor Education and Supervision is also CACREP accredited. Some courses are offered for undergraduates interested in school counseling, group work, leadership, and student affairs work. Undergraduates interested in preparing for entry into graduate work in counseling are invited to consult with program faculty prior to graduation. Program information is available on the Web site.

Degrees Offered

M.S. in Counseling, Option: Mental Health Counseling
M.S. in Counseling, Option: School Counseling
Counselor Education and Supervision, Ph.D.

Program Specific Admission Requirements

For master's applicants:

- Summary of academic background
- Personal statement
- Three letters of recommendation
- Current professional resume
- Transcripts
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years)

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For doctoral applicants:

- Transcripts
- GRE scores within the last five years; minimum scores are 151 Verbal and 153 Quantitative Reasoning
- Three letters of recommendation
- Personal self-statement
- Current academic resume
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years)

In order to be considered for admission, applicants must meet the following minimum requirements:

- Master's degree in Counseling
- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale.

Program Specific Graduate Assistantships

Assistantships are usually available for doctoral students. Master's students sometimes qualify for assistantships. Please contact the program at (307) 766-2366 for assistantship opportunities, and see school web site.

Program Specific Degree Requirements

Professional Master's Program

Minimum requirements:

- same for all options
- 61 hours of graduate credit to include 40 hours of core courses and 21 hours of graduate coursework specific to chosen option
- Culminating internship activity guided by faculty advisor
- Students complete the CAPP program in lieu of a program of study

Doctor of Philosophy in Counselor Education and Supervision

Doctoral students are required to have completed a minimum of a 48-hour Master's degree from a program of study equivalent to a CACREP accredited Masters program in Counselor Education. These requirements are based upon the 2015 CACREP Standards.

Educational Leadership

The curriculum in educational leadership is designed to prepare superintendents, principals, supervisors for public schools and leaders for organizations to perform duties of a specialized nature and to function effectively in a leadership capacity. The program provides sufficient breadth to give candidates for advanced degrees ample opportunity to develop essential competencies.

Degrees and Certificates Offered

Students who major in education with an option in educational leadership may choose one of the following certificate or degree programs: Principal Certificate program for eligibility of a K-12 Principal Certificate endorsement, School District Superintendent Certificate, Master of Arts in Education, Doctor of Education and Doctor of Philosophy.

Program Specific Admission Requirements

For certificate applicants:

- Transcripts
- Copy of current teaching certificate
- Principal program application
- Superintendent approval form
- Letter of intent
- Three letters of recommendation
- Current resume
- GRE scores within the last five years (both official and unofficial); minimum scores are 153 Verbal, 144 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least

- two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.
- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
 - Two years of K-12 teaching experience
 - Master's degree in an education-related field

For master's applicants:

- Letter of intent
- Current resume
- Copy of current teaching certificate
- Principal program application
- Superintendent approval form
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 153 Verbal, 144 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.
- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
- Two years of K-12 teaching experience

For EdD applicants:

- Application letter
- Current CV or academic resume
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
- Two years of K-12 educational administrative experience

For PhD applicants:

- Application letter
- Current CV or academic resume
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
- Two years of K-12 educational administrative experience

Educational Research

The educational research faculty offer ten courses on a regular basis in educational research. These courses are open to graduate students throughout the college and the university. In addition, we offer two minors in educational research, one is qualitative research methods and one in quantitative research methods. Students currently enrolled in any UW master's or doctoral program are eligible for these minors. Both minors require students to complete 16 credit hours, a trial research project, and a co-teaching experience in educational research.

Learner Outcomes

The goals of the educational research courses in the College of Education include developing the necessary skills, concepts, and understanding of research methodology to evaluate, use, and conduct research in a student's specific discipline. This goal requires the ability to do the following:

1. In a research study, critique the following the research problem and hypothesis; general design to insure that correct conclusions are possible from the statistical analysis; statistical analysis procedures to establish their valid use in the study; reliability and validity of instruments used to collect data; and conclusions and interpretations to insure appropriateness of each.
2. Develop a problem appropriate for research. Examine a cross section of the current literature on the topic, placing the research problem within the context of the field.
3. Demonstrate knowledge of the reference sources available in a research library; know how and when to use available resources.
4. Compare and contrast research designs and methods and be able to identify examples, advantages, and disadvantages of each.
5. Be able to use statistics to describe a sample and make inferences.
6. Understand, design, and analyze results of various types of quantitative, qualitative, and mixed method research studies.
7. Understand the principles of measurement as they apply to specific studies.

Doctoral Students in the Counselor Education and Supervision will demonstrate the following learner outcomes.

1. **Academic and Professional Goals:** Students will demonstrate a clear vision of their professional and academic goals and academic preparation by developing and completing an approved program of study that meets the standards set forth by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).
2. **Professional Licensure:** Students will obtain professional licensure as a Licensed Professional Counselor (LPC) in the state of Wyoming and/or develop a plan to obtain licensure for the state in which they intend to relocate upon graduation.
3. **Democratic Perspectives:** Students will demonstrate development as a culturally competent, creative, skilled & ethical counselor, supervisor and educator including the areas of advocacy, leadership, social justice, and promotion of caring communities.
4. **Research and Scholarship:** Students will develop a professional identity as an academic researcher by demonstrating a clear and active research agenda that includes a plan of action for professional presentations and manuscripts.
5. **Professional Development:** Students will develop a clear and diligent plan to becoming a skilled, ethically competent counselor educator.

Master's Degree in Counseling

At the completion of the Master's degree in Counseling students will demonstrate the following learner outcomes:

1. Professional Competence & Academic Preparation for Licensed Professional Counselor (LPC): Students will demonstrate academic preparation by developing and completing an approved program of study that meets the standards set forth by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).
2. Democratic Perspectives: Students will demonstrate development as a culturally competent, creative, skilled & ethical counselor.
3. Professional Identity: Students will develop a professional identity as a professional counselor including the areas of advocacy, leadership, social justice, and promoting caring communities.
4. Academic & Professional Goals: Students will demonstrate a clear vision of their professional and academic goals.

Ph.D. in Counselor Education & Supervision

Doctoral students in Counselor Education & Supervision will demonstrate the following learner outcomes.

1. Academic & Professional Goals: Students will demonstrate a clear vision of their professional and academic goals and academic preparation by developing and completing an approved program of study that meets the standards set forth by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).
2. Professional Licensure: Students will obtain professional licensure as a Licensed Professional Counselor (LPC) in the state of Wyoming and/or develop a plan to obtain licensure for the state in which they intend to relocate upon graduation.
3. Democratic Perspectives: Students will demonstrate development as a culturally competent, creative, skilled & ethical counselor, supervisor and educator including the areas of advocacy, leadership, social justice, and promoting caring communities.
4. Research & Scholarship: Students will develop a professional identity as an academic researcher by demonstrating a clear and active research agenda that includes a plan of action for professional presentations and manuscripts.
5. Professional Development: Students will develop a clear and diligent plan to becoming a skilled, ethically competent counselor educator.

Learning, Design, and Technology

The curriculum in learning, design, and technology is designed to assist professionals in effectively developing, implementing, and evaluating systems, tools, strategies, and environments that enhance learning. Graduates from the program secure employment in PK-12 classrooms; school media and technology centers, and school district administrative offices; public, corporate, and government centers and training agencies; college and university faculty and administrative positions; design and development labs; product support teams; and consulting firms.

Degrees and Certificates Offered

Students who major in education with an option in learning, design, and technology may choose one of the following certificate or degree programs: Master of Science in Education (M.S.), Doctor of Education (Ed.D.) or Doctor of Philosophy (Ph.D.), Online instruction Certificate program (does not lead to a master's degree). The program Web site (<http://www.uwyo.edu/clad/>) provides additional information.

Program Specific Admission Requirements

For certificate applicants:

- Application letter
- Transcripts

- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years)

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For master's applicants:

- Transcripts
- Three letters of recommendation
- Personal statement
- Current academic resume
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years)

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For EdD applicants:

- Transcripts
- Three letters of recommendation
- Personal statement
- Current academic resume
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For PhD applicants:

- Transcripts
- Three letters of recommendation
- Personal statement
- Current academic resume
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, all applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale.

Special Education

The special education programs are designed to prepare teachers to work with students with varied learning and behavior needs. Students may choose from one of two programs: a master of arts in education with an option in special education or a special education endorsement program leading to eligibility for K-12 special education generalist endorsement through the Wyoming Professional Teaching Standards Board. Additionally a Special Education Director Endorsement Program is available as well. Students who complete the coursework will receive a certificate in Special Education.

Program Specific Admission Requirements

For certificate applicants:

- Special Education application form
- Transcripts
- Three letters of recommendation
- Professional Writing Sample
- Current resume
- Copy of current Wyoming teaching certificate
- Signed Memo of Understanding
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, all applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For master's applicants:

- Special Education application form
- Transcripts
- Three letters of recommendation
- Professional Writing Sample
- Current resume
- Copy of current teaching certificate
- Signed Memo of Understanding
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, all applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

Program Specific Degree Requirements

Students may choose to complete the program on a part-time or full-time basis. All Special Education courses are offered either online or through video-conferencing sites within Wyoming only. See descriptions under Special Education (EDEX).

Program Specific Admission Requirements

For certificate applicants:

- Letter of interest
- Current academic resume
- Three letters of recommendation
- Transcripts
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.
- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For master's applicants:

- Personal statement
- Current academic resume
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For EdD applicants:

- Personal statement
- Current academic resume
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 153 Verbal, 144 Quantitative Reasoning, and 4.0 Analytical Writing
- International applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For Ph.D. applicants:

- Personal statement
- Current academic resume
- Three letters of recommendation
- Transcripts

- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, all applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

Program Specific Graduate Assistantships

Applicants interested in a Graduate Assistantship must submit a graduate assistantship application to the College of Education no later than February 1 for fall term admission (see above).

Learner Outcomes

1. Academic Knowledge: Students will demonstrate a deep understanding of knowledge related to the nature, function and scope of adult and continuing education; historical, philosophical and sociological foundations; adult learning and development; program processes including planning, delivery, and assessment/evaluation.
2. Practical Competence: Students will demonstrate the ability to translate academic knowledge into expert practice related to their professional roles and specialized areas of interest.
3. Reflective Inquiry: Students will demonstrate a reflective stance toward their professional practice and competence with diverse, critical and global perspectives and key tools of inquiry related to this field of study.
4. Democratic Commitment: Students will demonstrate an understanding of the relationship between adult and continuing education and the complex process of democracy and a commitment to pursue this process with a focus on equal learning opportunities.
5. Professional Engagement: Students will demonstrate intellectual engagement with adult and continuing education practices through creative and scholarly pursuits, participation in professional associations, and related activities.

Educational Leadership

The curriculum in educational leadership is designed to prepare superintendents, principals, supervisors for public schools and leaders for organizations to perform duties of a specialized nature and to function effectively in a leadership capacity. The program provides sufficient breadth to give candidates for advanced degrees ample opportunity to develop essential competencies.

Degrees and Certificates Offered

Students who major in education with an option in educational leadership may choose one of the following certificate or degree programs: Principal Certificate program for eligibility of a K-12 Principal Certificate endorsement, School District Superintendent Certificate, Master of Arts in Education, Doctor of Education and Doctor of Philosophy.

Program Specific Admission Requirements

For certificate applicants:

- Transcripts
- Copy of current teaching certificate
- Principal program application
- Superintendent approval form
- Letter of intent
- Three letters of recommendation
- Current resume
- GRE scores within the last five years (both official and unofficial); minimum scores are 153 Verbal, 144 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.
- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
- Two years of K-12 teaching experience
- Master's degree in an education-related field

For master's applicants:

- Letter of intent
- Current resume
- Copy of current teaching certificate
- Principal program application
- Superintendent approval form
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 153 Verbal, 144 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.
- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
- Two years of K-12 teaching experience

For EdD applicants:

- Application letter
- Current CV or academic resume
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
- Two years of K-12 educational administrative experience

For PhD applicants:

- Application letter
- Current CV or academic resume
- Three letters of recommendation
- Transcripts
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale
- Two years of K-12 educational administrative experience

Learner Outcomes

2018 NELP District Standards

1. NELP Standard 1: Mission, Vision, and Improvement: Collaboratively lead, design, and implement a district mission, vision, and process for continuous improvement that reflects a core set of values and priorities that include data use, technology, values, equity, diversity, digital citizenship, and community.
2. NELP District Standard 2: Ethics and Professional Norms: Advocate for ethical decisions and cultivate professional norms and culture
3. NELP District Standard 3: Equity, Inclusiveness, and Cultural Responsiveness: Develop and maintain a supportive, equitable, culturally responsive, and inclusive district culture.
4. NELP District Standard 4: Learning and Instruction: Evaluate, design, cultivate, and implement coherent systems of curriculum, instruction, supports, assessment, and instructional leadership.
5. NELP District Standard 5: Community and External Leadership: Understand and engage families, communities, and other constituents in the work of schools and the district and to advocate for district, student, and community needs.
6. NELP District Standard 6: Operations and Management: Develop, monitor, evaluate, and manage district systems for operations, resources, technology, and human capital management.
7. NELP District Standard 7: Policy Governance and Advocacy: Cultivate relationships, lead collaborative decision making and governance, and represent and advocate for district needs in broader policy conversations.
8. NELP District Standard 8: Internship: Successfully complete an internship under the supervision of knowledgeable, expert practitioners that engages candidates in multiple and diverse district settings and provides candidates with coherent, authentic, and sustained opportunities to synthesize and apply the knowledge and skills identified in NELP Standards 1-7 in ways that approximate the full range of responsibilities required of district-level leaders and enable them to promote the current and future success and well-being of each student and adult in their district.

2018 NELP Building Standards

1. NELP Building-Level Standard 1: Mission, Vision, and Improvement: Collaboratively lead, design, and implement a school mission, vision, and process for continuous improvement that reflects a core set of values and priorities that include data, technology, equity, diversity, digital citizenship, and community.
2. NELP Building-Level Standard 2: Ethics and Professional Norms: Understand and demonstrate the capacity to advocate for ethical decisions and cultivate and enact professional norms.
3. NELP Building-Level Standard 3: Equity, Inclusiveness, and Cultural Responsiveness: Develop and maintain a supportive, equitable, culturally responsive, and inclusive school culture.

4. NELP Building-Level Standard 4: Learning and Instruction: Evaluate, develop, and implement coherent systems of curriculum, instruction, data systems, supports, and assessment.
5. NELP Building-Level Standard 5: Community and External Leadership: Engage families, community, and school personnel in order to strengthen student learning, support school improvement, and advocate for the needs of their school and community.
6. NELP Building-Level Standard 6: Operations and Management: Improve management, communication, technology, school-level governance, and operation systems; to develop and improve data-informed and equitable school resource plans; and to apply laws, policies, and regulations.
7. NELP Building-Level Standard 7: Building Professional Capacity: Build the school's professional capacity, engage staff in the development of a collaborative professional culture, and improve systems of staff supervision, evaluation, support, and professional learning.
8. NELP Building-Level Standard 8: Internship: Successfully complete an internship under the supervision of knowledgeable, expert practitioners that engages candidates in multiple and diverse school settings and provides candidates with coherent, authentic, and sustained opportunities to synthesize and apply the knowledge and skills identified in NELP standards 1-7 in ways that approximate the full range of responsibilities required of building-level leaders and enable them to promote the current and future success and well-being of each student and adult in their school.

Educational Research

The educational research faculty offer ten courses on a regular basis in educational research. These courses are open to graduate students throughout the college and the university. In addition, we offer two minors in educational research, one is qualitative research methods and one in quantitative research methods. Students currently enrolled in any UW master's or doctoral program are eligible for these minors. Both minors require students to complete 16 credit hours, a research project, and a co-teaching experience in educational research.

Learner Outcomes

The goals of the educational research courses in the College of Education include developing the necessary skills, concepts, and understanding of research methodology to evaluate, use, and conduct research in a student's specific discipline. This goal requires the ability to do the following:

1. In a research study, critique the following the research problem and hypothesis; general design to insure that correct conclusions are possible from the statistical analysis; statistical analysis procedures to establish their valid use in the study; reliability and validity of instruments used to collect data; and conclusions and interpretations to insure appropriateness of each.
2. Develop a problem appropriate for research. Examine a cross section of the current literature on the topic, placing the research problem within the context of the field.
3. Demonstrate knowledge of the reference sources available in a research library; know how and when to use available resources.
4. Compare and contrast research designs and methods and be able to identify examples, advantages, and disadvantages of each.
5. Be able to use statistics to describe a sample and make inferences.
6. Understand, design, and analyze results of various types of quantitative, qualitative, and mixed method research studies.
7. Understand the principles of measurement as they apply to specific studies.

Learning, Design, and Technology

The curriculum in learning, design, and technology is designed to assist professionals in effectively developing, implementing, and evaluating systems, tools, strategies, and environments that enhance learning. Graduates from the program secure employment in PK-12 classrooms; school media and technology centers, and school district administrative offices; public, corporate, and government centers and training agencies; college and university faculty and administrative positions; design and development labs; product support teams; and consulting firms.

Degrees and Certificates Offered

Students who major in education with an option in learning, design, and technology may choose one of the following certificate or degree programs: Master of Science in Education (M.S.), Doctor of Education (Ed.D.) or Doctor of Philosophy (Ph.D.), Online instruction Certificate program (does not lead to a master's degree). The program Web site (<http://www.uwyo.edu/clad/>) provides additional information.

Program Specific Admission Requirements

For certificate applicants:

- Application letter
- Transcripts
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For master's applicants:

- Transcripts
- Three letters of recommendation
- Personal statement
- Current academic resume
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For EdD applicants:

- Transcripts
- Three letters of recommendation
- Personal statement
- Current academic resume
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least

two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency. In order to be considered for admission, applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For PhD applicants:

- Transcripts
- Three letters of recommendation
- Personal statement
- Current academic resume
- GRE scores within the last five years (both official and unofficial); minimum scores are 151 Verbal, 153 Quantitative Reasoning, and 4.0 Analytical Writing
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, all applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale.

Learner Outcomes

1. Academic Knowledge: Students will demonstrate a deep understanding of knowledge related to the nature, function and scope of instructional technology; historical, philosophical and sociological foundations; research; and program processes including planning, development, delivery, and assessment/evaluation.
2. Design: Students will demonstrate how to determine organization and learner needs, specify conditions for learning, and conduct task analyses, instructional sequencing, delivery, and project and resource management. Students will also demonstrate how visual elements, information literacy, and delivery media affect message design in traditional and online environments.
3. Development: Students will demonstrate how to convert design plans into physical and computer-based resources aligned to professional learning goals, standards, and objectives. They will also demonstrate how to deliver these resources via physical and electronic media.
4. Evaluation: Students will demonstrate skills required to conduct both formative and summative assessments of instructional episodes and resources. These include problem analysis, expert review, usability testing, and instrument development and validation.
5. Practical Competence: Students will demonstrate the ability to translate academic knowledge into expert practice related to their professional roles and specialized areas of interest.
6. Professional Engagement: Students will demonstrate intellectual engagement and a reflective stance with instructional technology practices through creative and scholarly pursuits, advisor research, participation and presentations in professional associations, and related activities.

Special Education

The special education programs are designed to prepare teachers to work with students with varied learning and behavior needs. Students may choose from one of two programs: a master of arts in education with an option in special education or a special education endorsement program leading to eligibility for K-12 special education generalist endorsement through the Wyoming Professional Teaching Standards Board. Additionally a Special Education Director Endorsement Program is available as well. Students who complete the coursework will receive a certificate in Special Education.

Program Specific Admission Requirements

For certificate applicants:

- Special Education application form
- Transcripts
- Three letters of recommendation
- Professional Writing Sample
- Current resume
- Copy of current Wyoming teaching certificate
- Signed Memo of Understanding
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, all applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

For master's applicants:

- Special Education application form
- Transcripts
- Three letters of recommendation
- Professional Writing Sample
- Current resume
- Copy of current teaching certificate
- Signed Memo of Understanding
- International, non-native English speaking applicants: TOEFL scores of at least 80 for the online exam (with at least 20 on each subset) or 6.5 on the IELTS (minimum of 6 in each subset; scores must be within at least two years. Until further notice, due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency.

In order to be considered for admission, all applicants must meet the following minimum requirements:

- Bachelor's degree from a regionally accredited institution with a minimum GPA of 3.000 on 4.000 scale

Special Education Director Endorsement Program

Learner Outcomes

Upon completion of the Master of Arts or the K-12 Certificate program in Special Education, the candidates will demonstrate their knowledge and skills in:

1. **Learner Development/Individual Learning Differences.** Special education professionals understand how disabilities may interact with development and learning and use this knowledge to provide meaningful and challenging learning experiences for students with disabilities.
2. **Learning Environments.** Special education professionals create safe, inclusive, and culturally responsive learning environments so that students with disabilities become active and effective learners and develop emotional wellbeing, positive social interactions, and self-determination.

3. **Curricular Content Knowledge.** Special education professionals use knowledge of general and specialized curricula to individualize learning for students with disabilities.
4. **Assessment.** Special education professionals use multiple methods of assessment and data sources in making educational decisions.
5. **Instructional Planning and Strategies.** Special education professionals select, adapt, and use a repertoire of evidence-based instructional strategies to advance learning of students with disabilities.
6. **Professional Learning and Ethical Practice.** Special education professionals use foundational knowledge of the field and their professional ethical principles and practice standards to inform special education practice, to engage in lifelong learning, and to advance the profession.
7. **Collaboration.** Special education professionals collaborate with families, other educators, related service providers, students with disabilities, and personnel from community agencies in culturally responsive ways to address the needs of students with disabilities across a range of learning experiences.

College of Engineering and Physical Sciences

2085 Engineering Building

Cameron Wright, Acting Dean

Phone: (307)766-4253 FAX: (307)766-4444

Web site: ceas.uwyo.edu

Engineering is a profession that truly makes a difference. Engineers constantly discover how to improve lives by creating new solutions to real world problems and needs. From small villages to large cities, engineers are involved in innovative improvements to all aspects of life from health care, to energy production, to protecting and rehabilitating the environment, to developing the newest technological device. The broad background of communication, mathematical, scientific, and problem solving skills provided at the University of Wyoming will prepare engineering graduates to pursue careers in engineering, construction, environmental policy, even medicine or law. The possibilities are endless! The creativity and innovative thinking developed in engineering enables students to lead rewarding lives, work with inspiring people, and give back to their communities. Computer science is a profession that is closely affiliated with engineering. At the University of Wyoming, degrees in computer science are awarded through the College of Engineering and Applied Science. The technology trends in this industry are also advancing at a tremendous rate. This requires that computer science education be at the forefront of new computing technologies, software languages, and networking.

Mission

The University of Wyoming's College of Engineering and Applied Science will provide excellent education, research, and service in chosen fields of engineering and applied science. The College emphasizes connectivity with society, life-long learning, and the essential problem-solving and collaborative skills needed to address the frontier challenges facing Wyoming, the nation and the world.

Design Experiences

In direct support of the goals of the individual departments within the College of Engineering and Applied Science, the design process is consistently developed and integrated throughout the curriculum from the freshman year through the senior year. Within the engineering science program, design elements such as basic analysis skills, communication skills, experimental skills, computational skills, problem solving skills, and design methodology are taught. At the

departmental level, these skills are developed further and the concepts of design methodology are reinforced. The design process culminates in a comprehensive design experience within the student's major.

Accreditation

The following undergraduate programs are accredited by the Engineering Accreditation Commission of ABET: architectural engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, energy systems engineering, mechanical engineering, and petroleum engineering.

Various options within different engineering programs are accredited as part of the primary major. That is, the electrical engineering/ bioengineering option is accredited as an electrical engineering degree, and the chemical engineering/petroleum option is accredited as a chemical engineering degree.

The Bachelor of Science in Computer Science is accredited by the Computer Accreditation Commission of ABET.

Programs of Study

Undergraduate Degrees

- Bachelor of Science in Architectural Engineering
- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Computer Science (Computers and Business Option)
- Bachelor of Science in Computer Science (Big Data Option)
- Bachelor of Science in Construction Management
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Electrical Engineering (Francis M. Long bioengineering option)
- Bachelor of Science in Energy Systems Engineering
- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Petroleum Engineering

Graduate Degrees

Master of Science

- Architectural engineering
- Atmospheric science
- Chemical engineering
- Civil engineering
- Civil engineering/water resources
- Computer science
- Computer science professional
- Electrical engineering
- Environmental engineering
- Mechanical engineering
- Petroleum engineering

Doctor of Philosophy

Atmospheric science
Chemical engineering
Civil engineering
Computer science
Electrical engineering
Mechanical engineering
Petroleum engineering

Candidates for the various master's degrees in engineering are required to do a full year's work in residence either under Plan A or Plan B.

Students should understand that a strong background in mathematics is necessary to actively pursue an engineering curriculum. Credit toward an engineering degree is not allowed for algebra and trigonometry.

Coursework in all four-year curricula stresses the mastery of subjects fundamental to all fields of engineering. The balance of the program is divided between cultural context and courses applying to the particular field selected. The aim is to provide the student with such groundwork that the general principles acquired may be used successfully in any one of the several specialized fields he or she may follow after graduation.

Depending on the major, a minimum of 120 to 132 semester hours of credit is required for the bachelor's degree from the College of Engineering and Applied Science. All course work must be selected with prior approval. Detailed outlines of curricula are presented later under headings of the various departments of the college. Since most engineering programs are similar during the first year, students may change an engineering major during this time with little or no loss in credit.

Degree candidates must meet the academic requirements of the university and must have a grade point average of 2.000 (C) or above in all engineering courses attempted at this university.

Students may not take a course for S/U credit to satisfy any requirement for a degree from the College of Engineering and Applied Science, unless the course is offered for S/U credit only.

The College of Engineering and Applied Science adheres to prerequisite coursework being completed before moving forward to advanced coursework. If a student is found to be enrolled in a course without meeting the prerequisites, the student will be administratively dropped from the course.

All undergraduate engineering programs within the College of Engineering and Applied Science use the Fundamentals of Engineering Exam as one of their methods of outcomes assessment. As a graduation requirement, students must complete the exam, with a good faith effort, within one year prior to their expected graduation.

Preparation for the profession of engineering requires diligent work in the various curricula. The required credit hours can be completed in a four-year program, but because of the rigorous nature of some of the courses involved, some students may require additional time to complete degree requirements.

All engineering curricula are subject to minor program changes. The published curricula are general guides. Prospective students should consult the individual departments for current information.

International Engineering Minor

Students in the College of Engineering and Applied Science may earn a Minor in International Engineering. The Minor requires:

- a) a study abroad experience;
- b) 9 credits of lower-division coursework; and
- c) 9 credits of upper-division coursework.

More detailed requirements are available at: <http://www.uwyo.edu/ceas/academics/intleng.html>

Graduate Study

The College of Engineering and Applied Science offers coursework and research opportunities leading to the following master's degrees: master of science in atmospheric science, chemical engineering, civil engineering, computer science, electrical engineering, environmental engineering, mechanical engineering, and petroleum engineering. Candidates for the various master's degrees in engineering are required to do a full year's study in residence either under Plan A or Plan B.

Only graduates with satisfactory GPAs in programs accredited by ABET are granted full admission to graduate study. In addition, graduates with satisfactory GPAs in undergraduate disciplines of meteorology, physics, mathematics, or related fields can be granted full admission to graduate studies in atmospheric science. Other engineering graduates can be admitted on a provisional basis.

The College of Engineering and Applied Science offers coursework and research opportunities leading to the following doctoral degrees: doctorate in atmospheric science, chemical engineering, civil engineering, computer science, electrical engineering, mechanical engineering, and petroleum engineering. Interdisciplinary programs of study and research leading to one of the above disciplinary degrees can be developed.

Engineering Science

Program Director: David Mukai, Ph.D.
2076 Engineering Building,
(307) 766-6181
FAX: (307) 766-4444

Engineering Science offerings present the fundamental engineering concepts upon which most engineering analysis and design work is based. Faculty are drawn from all of the academic departments in the college. These core courses represent the majority of engineering offerings at the freshman and sophomore level.

Courses in engineering science have their roots in mathematics and physical science, extending knowledge toward creative application. Thus, students must take their courses in calculus, chemistry, physics, and engineering science in a timely manner. Details are given in the published curriculum for each program. **A grade of C or better must be earned in all courses that are prerequisite to any required engineering science course.**

Department of Atmospheric Science

6034 Engineering Building, (307) 766-3245
FAX: (307)766-2635
Web site: www.atmos.uwyo.edu
Department Head: Jeffrey French

Professors:

BART GEERTS, Licenciaat Physical Geography Katholieke University, Belgium 1984; Engineer in Irrigation Sciences 1986; Ph.D. University of Washington 1992; Professor of Atmospheric Science 2011, 1999.

Associate Professor:

JEFFREY R. FRENCH, B.S. South Dakota School of Mines 1992; M.S. 1994; Ph.D. University of Wyoming 1998; Associate Professor of Atmospheric Science 2021, 2015.

ZACHARY J. LEBO, B.S. Pennsylvania State University 2007; M.S. 2009; Ph.D. California Institute of Technology 2012; Associate Professor of Atmospheric Science 2021, 2015.

SHANE MURPHY, B.S. University of Colorado 2000; Ph.D. California Institute of Technology 2009; Associate Professor of Atmospheric Science 2019, 2011.

Assistant Professors:

DANA CAULTON, B.S. Indiana University 2010; Ph.D. Purdue University 2014; Assistant Professor of Atmospheric Science 2018.

DANIEL T. MCCOY, B.S., New Mexico Institute of Mining and Technology, 2010; PhD., Atmospheric Science, University of Washington, 2016. Assistant Professor of Atmospheric Science 2020.

Adjunct Professors:

Xiaohong Liu
Zhien Wang

Professors Emeritus:

Terry L. Deshler, Robert D. Kelly, John D. Marwitz, Derek C. Montague, Thomas R. Parish, Alfred R. Rodi, Jefferson R. Snider, Gabor Vali

Atmospheric Science is a rapidly evolving discipline aimed at better understanding the earth's atmosphere and sits at the nexus between meteorology, physics, chemistry, biology, engineering, mathematics and computer science. The entire development of atmospheric science demonstrates how progress can result from the application of knowledge developed in the basic sciences to a complex environmental system. Concurrently, atmospheric scientists develop many observational and analytical techniques unique to the study of the atmosphere. Over the past decades, atmospheric science developed vigorously, stimulated by the availability of the latest satellite, ground-based and aircraft observations, as well as the availability of large computers for numerical simulations of atmospheric processes. At the same time, the importance of the atmosphere as a crucial resource in the welfare and survival of humankind is being recognized, as knowledge about how the atmosphere behaves is obtained.

The Department of Atmospheric Science offers graduate programs leading to the M.S. and Ph.D. degrees.

In these graduate programs, great emphasis is placed on the active research involvement of students both during the academic year and during the summer months. The low student to faculty ratio in the department ensures an atmosphere of cooperation among students, faculty and staff. Student theses and dissertations form integral parts of the department's research productivity and usually lead to articles published in the refereed literature.

Research interests in the department center around cloud and precipitation physics, cloud and mesoscale atmospheric dynamics, boundary layer processes, tropospheric aerosols and atmospheric chemistry, climate change, instrumentation and air quality. These interests are reflected in the department's academic program, which has the breadth and depth necessary to give students a background for entering into many different types of employment upon graduation.

A number of unique research tools are available in the department. Prominent among these is the King Air research aircraft which carries extensive instrumentation and computer-directed data acquisition systems. A mobile lab for sampling near surface atmospheric gases and aerosols can be deployed across the United States. Excellent laboratory facilities are available in the department's spacious quarters. These laboratories focus on cloud physics, remote sensing, aerosol, and atmospheric chemistry. Well-equipped electronic and mechanical construction and design facilities are conducive for work in instrument development. A wide range of computer facilities are available, including access to the NCAR/Wyoming Supercomputer Center(NWSC). The Department of Atmospheric Science is the lead user of the Wyoming allocation of the NWSC.

A prerequisite for admission to the graduate program is a bachelor's degree in meteorology, engineering, physics, chemistry, mathematics or a similar relevant discipline. Graduate assistantships are available by application to the department and are awarded on the basis of past record and promise for achievement.

For material containing further details on curriculum and research programs, write to the graduate admissions coordinator or visit the web site at www.uwyo.edu/atsc/.

Graduate Study

The Department of Atmospheric Science offers degree programs leading to the master of science and doctor of philosophy degrees. The department has strong research programs in the following areas: cloud physics and dynamics; tropospheric aerosols and clouds; greenhouse gases; air pollution and wildfires; boundary layer processes; remote sensing; and airborne instrumentation. The department's observational facilities are: 1) the King Air research aircraft (UWKA); 2) the Air Quality Mobile Lab and the Wyoming Air Quality Monitoring Lab; 3) the Wyoming Cloud Radar (WCR) and Wyoming Cloud Lidar (WCL) for the study of cloud structure and composition; and 4) the Keck Aerosol Laboratory. The UWKA, WCR, and WCL are designated Lower Atmospheric Observing Facilities by the National Science Foundation (NSF). Please refer to the departmental homepage at www.atmos.uwyo.edu for programmatic updates, or contact the department directly.

Program Specific Admission Requirements

Admission based on the university minimum requirements. Admissions are competitive.

Program Specific Graduate Assistantships

Assistantships are offered for both the M.S. and Ph.D. tracks.

Program Specific Degree Requirements

Master's Program

Approval of research plan by the graduate committee Colloquium and oral defense of M.S. thesis Approval of M.S. thesis by the graduate committee Requires a minimum of 26 hours of acceptable graduate coursework and four hours of thesis research and a thesis (final written project). 21 in-residence coursework hours

Doctoral Program

Approval of research plan by the graduate committee At least one colloquium presentation per year Preliminary exam Oral defense of Ph.D. dissertation Approval of Ph.D. dissertation by the graduate committee Ph.D. requires a minimum of 72 graduate hours, with at least 42 hours in formal coursework. This includes appropriate coursework from a master's degree. Additional credits toward the 72 credit hour requirement may include dissertation research hours, internship hours, or additional coursework. 24 in-residence coursework hours

Required Courses

These courses are required for the master's program.

ATSC 5010: Physical Meteorology. 4.

ATSC 5011: Physical Meteorology II. 4.

ATSC 5014: Dynamic Meteorology. 4.

ATSC 5016: Synoptic Meteorology. 4.

ATSC 5018: Ethics & Research Methods. 1.

UW Elective(s) to be determined by committee. 9 minimum

Department of Chemical Engineering

4055 Engineering Building, (307) 766-2500

Web site: www.uwyo.edu/chemical

Department Head: Patrick Johnson

Professors:

VLADIMIR ALVARADO, B.Sc. Universidad Central de Venezuela 1987; M.S. Institut Francais du Pétrole 2002; Ph.D. University of Minnesota 1996; Professor of Chemical Engineering 2017, 2006.

DAVID M. BAGLEY, B.S. Colorado School of Mines 1984; M.S. Cornell University 1989; Ph.D. 1993; Professor of Chemical Engineering 2011, 2005.

DAVID A. BELL, B.S. University of Washington 1976; M.S. Rice University 1979; Ph.D. Colorado State University 1992; Professor of Chemical Engineering 2019, 1993.

JOSEPH HOLLES, B.S. Iowa State University 1990; M.E. University of Virginia 1998; Ph.D. 2000; Associate Professor of Chemical Engineering 2010.

JOHN OAKEY, B.S. The Pennsylvania State University 1997; M.S. Colorado School of Mines 1999; Ph.D. 2003; Professor of Chemical Engineering 2019, 2010.

MICHAEL V. PISHKO, B.S. University of Missouri-Columbia 1986; M.S. 1987; Ph.D. University of Texas at Austin 1992; Professor of Chemical Engineering 2015.

PATRICK JOHNSON, B.S. Lehigh University 1992; M.S. University of Virginia 1994; Ph.D. Columbia University 2004; Associate Professor of Chemical Engineering 2012,2006.

Associate Professors:

SAMAN ARYANA, B.S. University of Texas at Arlington 2003; M.S. 2006; Ph.D. Stanford University 2012; Assistant Professor of Chemical Engineering 2013.

KATIE DONGMEI LI-OAKEY, B.S. Shandong University of Technology 1994; M.S. Tianjin University 1997; M.S. University of Colorado at Boulder 1999; Ph.D. 2003; Associate Professor of Chemical Engineering 2018, 2011.

Associate Professor of Practice:

JOHN TATARKO JR., B. ChE, cum laude: 2008 Cleveland State University. MS ChE: 2010 Cleveland State University. MS EE: 2013 University of Louisville. PhD ChE: 2015 University of Louisville.

Assistant Professors:

KAREN WAWROUSEK, B.S. The College of St. Rose 2001; Ph.D. California Institute of Technology 2009; Assistant Professor of Chemical Engineering 2014.

Adjunct Professors:

John Ackerman
Morris Argyle
Youqing Shen
John Schabron

Professors Emeriti:

Chang Yul Cha
H. Gordon Harris
Henry W. Haynes

Chemical Engineering is one of the most versatile of the engineering programs. It prepares students for employment in many diverse fields, such as production of pharmaceuticals, polymers and plastics, semiconductors, heavy industrial chemicals, synthetic fuels, petrochemicals and petroleum refining. Chemical engineers also work in biological engineering, environmental engineering, enhanced oil recovery, corrosion control, metallurgy and microelectronics. Undergraduate chemical engineering training has been found to be an excellent background for graduate work not only in engineering, but also in a number of other fields, including medicine, law, business, and the natural sciences.

The chemical engineering curriculum is based on a sound background in chemistry, mathematics, physics, and biology. The essentials of engineering are added to this foundation, including fluid dynamics and thermodynamics. In order to develop the individual's social consciousness and to broaden the student's educational background, an integrated program of study in the humanities and social sciences is included in the curriculum. Chemical engineering courses in multicomponent thermodynamics, transport phenomena, kinetics, process control and process design are concentrated in the junior and senior years. This program provides training for engineers to enter production, research, product and process development, process design, technical sales and engineering management positions. Training in chemical engineering equips the graduate to solve many of the problems facing society today: human health, energy shortages, synthetic fuels production, water and air pollution, toxic chemical control, and food production. Furthermore, our

program prepares students interested in a career in medicine or the life sciences and is suitable for pre-medical and pre-dental students.

The department offers an 18-credit-hour block of approved technical electives. Students select an emphasis in Biological Engineering, Environmental Engineering, Materials Science and Engineering, Chemical Process Industry, Petroleum Engineering, Graduate School Preparation, and Pre-Medicine. Students can also pursue a concurrent major in Chemistry, minors in Physics, Chemistry, Math, Computer Science, Molecular Biology and Business. See department for details. Students are required to take a minimum of 3 credits of Chemical Engineering Technical electives. The Chemical Engineering Program requires that the number of credits of upper division courses be satisfied (i.e., 10 credits of Technical electives must be 3000+). The Chemical Engineering program requires 48 hours of 3000 and 4000-level coursework. This is fulfilled by required courses and approved technical electives.

Chemical Engineering degree candidates must meet the academic requirements of the college and, in addition, must have a GPA of 2.000 in Chemical Engineering courses attempted at UW that are applied toward graduation for the B.S. degree from the department.

Students must achieve a C- or better in all chemical engineering courses serving as a prerequisite for another chemical engineering course.

Chemical Engineering Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Chemical Engineering should:

- Successfully practice the profession of Chemical Engineering;
- Demonstrate successful career growth

Chemical Engineering Program Outcomes

During the course of study in Chemical Engineering, the student should demonstrate:

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;
- an ability to communicate effectively with a range of audiences;
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts;
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions;
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Graduate Study

The Department of Chemical Engineering offers graduate programs leading to the M.S. and Ph.D. degrees in chemical engineering. The M.S. degree is offered under Plan A and Plan B. In addition, an environmental engineering program, run jointly by the Department of Chemical Engineering, the Department of Petroleum Engineering, and the Department

of Civil and Architectural Engineering, offers graduate programs leading to an M.S. in environmental engineering under either Plan A or Plan B.

Program Specific Admission Requirements

Admission Process and Requirements

Standard Admission

Admission is open to students with at least a bachelor's degree who meet the minimum requirements:

1. A GPA of 3.000 (A = 4.000), or equivalent;
2. A GRE score (there is no minimum GRE score requirement)
3. For international applicants who did not attend an English-speaking program in an English-speaking country for all years of their highest degree:

A TOEFL score of 600 (paper-based), 250 (computer-based), or 80 (Internet based) or an IELTS score of 6.5.

Unofficial transcripts of all prior college-level coursework, test scores and recommendations from three references must be uploaded as parts of the application.

If admission is granted, then official transcripts, GRE and TOEFL scores are required.

Applications submitted by February 1 will be given priority consideration for the fall semester.

The application will not be processed until all the necessary documents have been uploaded.

Department of Civil and Architectural Engineering and Construction Management

3074 Engineering Building, (307) 766-2390

FAX: (307) 766-2221

Web site: www.uwyo.edu/civil/

Department Head: Anthony S. Denzer

Professors:

MICHAEL G. BARKER, B.S. Purdue University 1983; M.S. 1987; Ph.D. University of Minnesota 1990; Professor of Civil Engineering 2003.

JONATHAN A. BRANT, B.S. Virginia Military Institute 1998; M.S. University of Nevada 2000; Ph.D. 2003; Professor of Civil Engineering 2020, 2008.

ANTHONY S. DENZER, B.A. University of California, Berkeley 1991; M.Arch. University of Kansas 1998; Ph.D. University of California, Los Angeles 2005; Professor of Architectural Engineering, 2021, 2005.

KHALED KSAIBATI, B.S. Wayne State University 1984; M.S. Purdue University 1986; Ph.D. Purdue University 1990; Professor of Civil Engineering 2001; Director of the Wyoming Technology Transfer Center 2003, 1990.

MICHAEL A. URYNOWICZ, B.S. Michigan State University 1990; M.S. University of Wisconsin 1995; M.S. Colorado School of Mines 1998; Ph.D. 2000; Professor of Civil Engineering 2014, 2002.

JIANTING "JULIAN" ZHU, B.S. Zhejiang University 1983; M.S. Peking University 1985; Ph.D. Dalhousie University 1996; Professor of Civil Engineering 2019, 2013.

Associate Professors:

MOHAMED AHMED, B.S. Al-Azhar University 2001; M.S. University of Central Florida 2009; Ph.D. 2012; Associate Professor of Civil Engineering, 2019, 2013.

FRANCOIS JACOBS, B.S. California Baptist University 1995; M.B.A. University of Denver 2005; Ph.D. Colorado State University 2010; Associate Professor of Construction Management, 2019.

DAVID J. MUKAI, B.S. University of Hawaii 1983; M.S. 1985; Ph.D. University of Washington 1991; Associate Professor of Civil Engineering 2005, 2001.

KAM NG, B.S. Iowa State University 1996; M.S. 1997; Ph.D. 2011; Associate Professor of Civil Engineering 2019, 2012.

NORIAKI OHARA, B.A. Chuo University 1997; M.A. 1999; Ph.D. University of California, Davis 2003; Associate Professor of Civil Engineering 2019, 2012.

JENNIFER E. TANNER, B.A. Eastern College 1994; B.S. Oklahoma State University 1995; M.S. University of Costa Rica 1998; Ph.D. University of Texas 2003; Associate Professor of Civil Engineering 2009, 2003.

LIPING WANG, B.S. Xi'an University of Architecture and Technology 2010; M.S. 2003; Ph.D. National University of Singapore 2007; Associate Professor of Architectural Engineering, 2020, 2013.

HAIBO ZHAI, B.S. Xi'an University of Technology 1999; M.S. Tongji University 2002; Ph.D. North Carolina State University, 2008; Associate Professor of Civil Engineering, 2020.

Assistant Professors:

AHMED ABDELATY AHMED, B.S. Cairo University 2001; M.S. 2014; Ph.D. Iowa State University, 2017; Assistant Professor of Construction Management, 2020.

WEBB, RYAN W., B.S. University of New Mexico, Albuquerque, NM 2010; M.S. University of New Mexico, Albuquerque, NM 2012; Ph.D. Colorado State University, Fort Collins, CO 2016; Assistant Professor of Construction Management, 2021.

CHENGYI "CHARLIE" ZHANG, B.S. Harbin University of Commerce 2007; M.S. China University of Mining and Technology, Beijing 2009; Ph.D. Illinois Institute of Technology 2013; Assistant Professor of Construction Management, 2020.

MILAN ZLATKOVIC, B.S. University of Belgrade 2005; M.S. University of Utah 2009; Ph.D. 2015; Assistant Professor of Civil Engineering, 2016.

Assistant Instructional Professors:

AYSEGUL DEMIR, B.S. Dokuz Eylul University 2013; M.S. Istanbul Technical University 2016; Ph.D. The University of Texas at Austin 2022.

SHAWN C. GRIFFITHS, B.S. Utah State University 2009; M.S. University of Arkansas 2011; Ph.D. University of Texas, Austin 2015; Assistant Professor of Civil Engineering 2015.

Academic Professionals:

KIMBERLY FRITH, B.S. Clemson University, 2007; M.S. Stanford University 2009; Assistant Lecturer, 2020.

JAIN, DHAWAL, B.S. K.R.V.I.A Mumbai India 2014; M.S. Virginia Tech 2018.

JON A. GARDZELEWSKI, B.S. University of Wyoming 2002; M.Arch. University of Oregon 2005; Associate Lecturer, 2016, 2010.

SHELLEY MACY, B.S. University of Wyoming 2002; M.S. University of Wyoming, 2013; Assistant Lecturer, 2021.

Adjunct Faculty:

Aaron Cvar, Song Jin, Mark Kilgore, Robert Loane, Marci Miller, Alan Moore, Evan O'Toole, Chris Schabron, Dennis Moulard, Nathan Bergh.

Professors Emeriti:

Patricia J.S. Colberg, Charles W. Dolan, Thomas V. Edgar, K. James Fornstrom, Victor R. Hasfurther, Michael Humenick, Anton Munari, Larry O. Pochop, Jay Puckett, Richard J. Schmidt, James L. Smith, John P. Turner.

Civil Engineering

The mission of the department of Civil and Architectural Engineering and Construction Management at the University of Wyoming is:

- To educate and prepare Civil & Architectural Engineering and Construction Management students to lead as designers, builders, project managers and entrepreneurs as it relates to the sustainable built and natural environments.
- To develop technical solutions through research, innovation, and improved infrastructure to diversify and grow the economies that serve Wyoming and the world.

The Civil Engineering curriculum begins with a basic education in the physical, engineering, mathematical and computer sciences. This foundation supports further development of engineering topics that prepare the engineer to address critical societal needs. To meet these needs, the Civil Engineer designs and builds bridges, buildings, dams and hydraulic structures, pipelines and canals, power plants, transportation facilities, sanitary and environmental engineering facilities, surveying and mapping systems, space and ocean platforms, as well as numerous other engineering systems. The civil engineer must also be aware of the social, humanistic, and political aspects of their projects. Therefore, course work in the humanities and social sciences is required to better understand the social aspects of public works. During the last two years of their program, students may pursue several areas of Civil Engineering or, depending upon their interests, more specialized courses in one or more of the specific technical areas listed below. All students must have a comprehensive design experience.

Structural engineering: Analysis and design of structural systems including buildings, bridges, towers and other structures. Structural engineering also includes the study of solid mechanics and advanced structural materials.

Environmental engineering: Analysis, design and development of engineering systems to provide potable water supplies, treat municipal, industrial and hazardous wastes and protect human health and the environment.

Water resource engineering: Planning, analysis and design of hydraulic and hydrologic systems with respect to watersheds, municipalities, irrigation and drainage, and flood control. Conservation and management of groundwater and surface water are emphasized.

Transportation engineering: Planning, analysis and design of highways, traffic engineering and control, traffic safety, and pavement maintenance, design and rehabilitation.

Geotechnical engineering: Design and analysis of foundations, dams, embankments, slope stability and construction practices in soil and rock.

The Civil Engineering curriculum prepares the graduate to engage in professional practice, and upon completion of post-graduate requirements, to obtain registration as a Professional Engineer. It also provides the graduate with an excellent preparation for graduate studies in engineering, business or law.

Civil Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in courses required for the major. Students must complete a minimum of 42 upper division (junior/senior) or graduate-level semester credit hours. Students may have a maximum of 6 credits in courses with a grade of D in upper division CE courses that apply towards their degree program.

Computer Requirement

Many courses in Civil Engineering require students to have a laptop or tablet computer to bring to class, and to be able to download various software program (normally free). See www.uwyo.edu/civil/undergrad/laptop.html for more information.

CE Objectives

Three to six years after graduation, graduates of the University of Wyoming Civil Engineering Program will:

CE-OB1. Be able to successfully practice the profession of Civil Engineering.

CE-OB2. Be prepared and motivated to accept challenging assignments and responsibilities.

CE-OB3. Demonstrate successful professional growth through leadership development and career progression.

CE Outcomes

The Civil Engineering department regularly evaluates the following student skills.

Specifically, every University of Wyoming Civil Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Transfer Coursework: The Civil Engineering program accepts transfer course equivalents listed in the Wyoming Transfer Catalog. Other transfer courses will be considered by petition to the Department. The Department has a Policy on Transfer Courses for Continuing Students, which says continuing students should not plan to substitute "core" courses with transfer credits from other institutions, and that transfer credits for continuing students are evaluated on a case-by case basis. For upper-division coursework, no more than two upper division courses may be transferred and applied to the CE degree. CE 4010 and CE 4900 cannot be transferred to UW.

Advanced Civil and Architectural Engineering Standing

All undergraduate students in Civil and Architectural Engineering must fulfill the Gateway Requirement prior to enrolling in any upper-division (3000-5000 level) courses taught in the College of Engineering and Applied Science.

To meet the Civil and Architectural Engineering Gateway Requirement, the student must earn a minimum of 57 Quality Points from any combination of the following seven classes or their equivalent. It is not necessary to complete all seven courses to fulfill the Gateway Requirement.

Gateway Courses

- CHEM1020 - General Chemistry I
- PHYS1210 - Engineering Physics I
OR
- PHYS1220 - Engineering Physics II

- MATH2200 - Calculus I
- MATH2205 - Calculus II
- ES2110 - Statics
- ES2120 - Dynamics
- ES 2410 Mechanics of Material I

See the advising pages on the Civil and Architectural Engineering website for more information.

Graduate Study

Graduate Programs

An advanced degree in civil and architectural engineering is professionally and economically attractive. Advanced degrees are important for professional civil engineers in many specialized areas of civil engineering. Many consulting firms and industrial design groups require advanced knowledge gained from graduate studies. Engineers in such firms often work at the forefront of their profession. UW alumni are involved in design and construction of major projects worldwide.

An advanced degree is also required for careers in university teaching and research. A university career is highly recommended for those motivated students who are interested in becoming leaders in education and in the development of new concepts, processes and inventions.

The Department of Civil and Architectural Engineering offers programs leading to the degrees of master of science and doctor of philosophy. Areas of study in the M.S. and Ph.D. programs include: environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources engineering. The department also

offers a master of science in architectural engineering and a master of science in environmental engineering in cooperation with the Department of Chemical and Petroleum Engineering. Additional information is available from the department or from the Web page.

Program Specific Admission Requirements

Admission is open to all students holding a bachelor's degree with at least a 3.000 GPA from an accredited engineering curriculum and a GRE combined minimum score of 298.

Ph.D. applicants are reviewed with regard to stated interests, objectives and the ability of the department to provide a quality experience for the applicant.

International students must achieve a TOEFL score of 550 on the paper-based, a minimum of 76 on the internet-based or a minimum of 6.0 on the IELTS.

Architectural Engineering

Architectural Engineering is a rapidly expanding profession that deals with the myriad aspects of buildings and their design, construction and operation. Architectural Engineers are typically specialists, responsible for the design and integration of such building elements as the structural, plumbing, fire protection, heating and air conditioning, or lighting and electrical systems. The curriculum in architectural engineering is designed to acquaint students with the various aspects of building design and construction and exposes them to a variety of courses dealing with different building materials and systems. The curriculum also includes course work in the humanities and social sciences, both to enrich the student's academic experience and assist in dealing with and contributing to society. The program leads to a Bachelor of Science in Architectural Engineering, preparing graduates to engage in practice as Professional Engineers upon completion of post-graduate registration requirements. Graduate work with emphasis in Architectural Engineering leading to a Master of Science and Doctor of Philosophy degree is offered through the Civil and Mechanical Engineering Programs. Additionally, advanced study can also be pursued in allied areas such as architecture, business or other engineering fields.

Students choose an area of emphasis in either structural or mechanical systems and select courses from approved electives, usually beginning their elective sequence in the second semester of their junior year. Consult with the Civil and Architectural Engineering Department for current elective lists.

Architectural Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in courses required for the major. Students must complete a minimum of 42 upper division (junior/senior) or graduate-level semester credit hours.

Students may have a maximum of 6 credits in courses with a grade of D in upper division ARE courses that apply towards their degree program.

Computer Requirement

Many courses in Architectural Engineering require students to have a laptop or tablet computer to bring to class, and to be able to download various software programs (normally free). See www.uwyo.edu/civil/undergrad/laptop.html for more information.

Architectural Engineering Objectives

Three to six years after graduation, graduates of the University of Wyoming Civil Engineering Program will:

ARE-OB1 Be able to successfully practice the profession of Architectural Engineering.

ARE-OB2 Be prepared and motivated to accept challenging assignments and responsibilities.

ARE-OB3 Demonstrate successful professional growth through leadership development and career progression.

ARE Outcomes

The Architectural Engineering department regularly evaluates the following student skills. Specifically, every University of Wyoming Architectural Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Transfer Coursework: The Architectural Engineering program accepts transfer course equivalents listed in the Wyoming Transfer Catalog. Other transfer courses will be considered by petition to the Department. The Department has a Policy on Transfer Courses for Continuing Students, which says continuing students should not plan to substitute "core" courses with transfer credits from other institutions, and that transfer credits for continuing students are evaluated on a case-by case basis. For upper-division coursework, no more than two upper division courses may be transferred and applied to the ARE degree. ARE 4720 and ARE 4740 cannot be transferred to UW.

Advanced Civil and Architectural Engineering Standing

All undergraduate students in Civil and Architectural Engineering must fulfill the Gateway Requirement prior to enrolling in any upper-division (3000-5000 level) courses taught in the College of Engineering and Applied Science.

To meet the Civil and Architectural Engineering Gateway Requirement, the student must earn a minimum of 57 Quality Points from any combination of the following seven classes or their equivalent. It is not necessary to complete all seven courses to fulfill the Gateway Requirement.

Gateway Courses

- CHEM1020 - General Chemistry I
- PHYS1210 - Engineering Physics I
- **OR**
- PHYS1220 - Engineering Physics II

- MATH2200 - Calculus I
- MATH2205 - Calculus II
- ES2110 - Statics
- ES2120 - Dynamics
- ES 2410 Mechanics of Material I

See the advising pages on the Civil and Architectural Engineering website for more information

Graduate Study

Graduate Programs

An advanced degree in architectural engineering is professionally and economically attractive. Advanced degrees are important for professional civil engineers in many specialized areas of civil engineering. Many consulting firms and industrial design groups require advanced knowledge gained from graduate studies. Engineers in such firms often work at the forefront of their profession. UW alumni are involved in design and construction of major projects worldwide.

An advanced degree is also required for careers in university teaching and research. A university career is highly recommended for those motivated students who are interested in becoming leaders in education and in the development of new concepts, processes and inventions.

The Department of Civil and Architectural Engineering offers programs leading to the degrees of master of science and Areas of study in the M.S. programs include: building mechanical systems engineering, environmental engineering, geotechnical engineering, structural engineering, and building energy modeling. Additional information is available from the department or from the Web page.

Students choose an area of emphasis in either, building, structural or mechanical systems and select courses from approved electives, usually beginning their elective sequence in the second semester of their junior year. Consult with the Civil and Architectural Engineering Department for current elective lists. Students are required to have a lap top computer.

Architectural engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in civil and architectural engineering courses attempted at this university.

Construction Management

Construction Management is a rapidly-growing discipline, that is focused on the planning and oversight required to deliver construction projects on-time and on-budget. Students learn skills such as project management, decision making, budgeting, scheduling, and site logistics including safety planning, surveying, and building information modeling.

The Construction Management curriculum is designed to prepare students for success in a wide variety of career paths available in the construction sector. The curriculum includes course work in construction, business, humanities and social sciences to enrich the student's academic experience and to assist them in making a positive contribution to society. The program leads to a four-year Bachelor of Science in Construction Management degree.

Construction Management degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 in courses required for the major.

A grade of C or better is required in all required courses with a CM prefix.

Construction Management Learning Objectives

Upon graduation students shall be able to:

1. Create written communications appropriate to the construction discipline.

2. Create oral presentations appropriate to the construction discipline.
3. Create a construction project safety plan.
4. Create construction project cost estimates.
5. Create construction project schedules.
6. Analyze professional decisions based on ethical principles.
7. Analyze construction documents for planning and management of construction processes.
8. Analyze methods, materials, and equipment used to construct projects.
9. Apply electronic-based technology to manage the construction process.
10. Apply basic surveying techniques for construction layout and control.
11. Understand construction management skills as a member of a multi-disciplinary team.
12. Understand different methods for project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
13. Understand construction risk management.
14. Understand construction accounting and cost control.
15. Understand construction quality assurance and control.
16. Understand construction project control processes.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
18. Understand the basic principles of sustainable construction.
19. Understand the basic principles of structural behavior.
20. Understand the basic principles of mechanical, electrical and piping system.

Environmental Engineering

**3074/4055 Engineering Building,
766-5255/766-2500**

E-mail: cae.info@uwyo.edu

Web site: www.uwyo.edu/chemical/graduate/prospective/environmental/index.html

A master of science in environmental engineering is available in the College of Engineering through a joint effort of the Department of Civil and Architectural Engineering and the Department of Chemical Engineering. This interdisciplinary degree offers students an engineering perspective for solutions to environmental problems. Emphasis is on minimization, monitoring, control, and processing of waste products as well as treatment and disposal associated with point and non-point pollution sources. Integration of engineering with science, regulatory, and policy aspects of environmental engineering is an important component of this unique program. Further information is available from the environmental engineering graduate studies program office and/or departments involved.

Program Specific Admission Requirements

Admission is open to students with at least a bachelor's degree who meet the minimum requirements:

1. A GPA of 3.000 (A=4.000), or equivalent;
2. A GRE score of 291 (combined verbal and quantitative sections);
3. For international applicants who did not attend an English-speaking program in an English-speaking country for all years of their highest degree: A TOEFL score of 76 (Internet based) or an IELTS score of 6.0.

Complete official transcripts of all prior college-level coursework and recommendations from three references must be submitted as parts of the application.

The deadline to submit application credentials is February 1 (to be considered for fall semester), and October 1 (to be considered for spring semester).

The application will not be processed until all the necessary documents have been submitted.

Department of Electrical Engineering and Computer Science

5068 Engineering Building, (307) 766-2279

FAX: (307) 766-2248

Web site: www.uwyo.edu/electrical and www.uwyo.edu/cosc

Professors:

STEVEN F. BARRETT, B.S. University of Nebraska 1979; M.E. University of Idaho 1986; Ph.D. University of Texas 1993; Professor of Electrical Engineering 2011, 1999.

RUBEN GAMBOA, B.S. Angelo State University 1984; M.C.S. Texas A&M University 1986; Ph.D. The University of Texas 1999; Professor of Computer Science 2015, 2002.

JOHN M. HITCHCOCK, B.S. Iowa State University 1999; M.S. 2001; Ph.D. 2003; Professor of Computer Science 2015, 2003.

JOHN E. McINROY, B.S. University of Wyoming 1986; M.S. Rensselaer Polytechnic Institute 1988; Ph.D. 1991; Professor of Electrical Engineering 2002, 1991.

SURESH S. MUKNAHALLIPATNA, B.E. University of Bangalore, India 1988; M.E. 1991; Ph.D. University of Wyoming 1995; Professor of Electrical Engineering 2010, 1997.

JOHN W. PIERRE, B.S. Montana State University 1986; M.S. University of Minnesota 1989; Ph.D. 1991; Professor of Electrical Engineering 2002, 1991.

CAMERON H.G. WRIGHT, B.S. Louisiana Tech University 1983; M.S. Purdue University 1988; Ph.D. University of Texas 1996; Professor of Electrical Engineering 2016, 2003.

Associate Professors:

AMY BANIC, B.S. Duquesne University 2003; M.S. University of North Carolina 2005; Ph.D. 2008; Associate Professor of Computer Science 2012, 2010.

MIKE BOROWCZAK, B.S. University of Cincinnati 2007; Ph.D. 2013; Associate Professor of Computer Science 2022.

DONGLIANG DUAN, B.E. Huazhong University of Science and Technology 2006; M.S. University of Florida 2009; Ph.D. Colorado State University 2012; Associate Professor of Electrical Engineering 2019, 2012.

EVA S. FERRE-PIKAL, B.S. University of Puerto Rico 1988; M.S. University of Michigan 1989; Ph.D. University of Colorado 1996; Associate Professor of Electrical Engineering 2004, 1998.

JOHN F. O'BRIEN, B.S. California State Polytechnic University, Pomona 1991; M.S. University of Wyoming 1997; Ph.D. Rensselaer Polytechnic Institute 2001; Associate Professor of Electrical Engineering 2009, 2003.

JON M. PIKAL, B.S. Purdue University 1988; M.S. University of Colorado 1993; Ph.D. Colorado State University 1999; Associate Professor of Electrical Engineering 2005, 1999.

Assistant Professors:

CHAO JIANG, B.E. Chongqing University 2009; Ph.D. Stevens Institute of Technology 2019; Assistant Professor of Electrical and Computer Engineering 2019.

LARS KOTTHOFF, Diplom (M.Sc.) University of Leipzig 2007; Ph.D. University of St. Andrews 2012; Assistant Professor of Computer Science 2017.

NGA NGUYEN, B.S. Hanoi University of Science and Technology 2005; M.S. 2007; Ph.D. Michigan State University 2017; Assistant Professor of Electrical and Computer Engineering 2018.

DIKSHA SHUKLA, B.S. Kanpur University 2008; M.C.A. Jawaharlal Nehru University 2011; M.S. Louisiana Tech University 2014; Ph.D. Syracuse University 2019; Assistant Professor of Computer Science 2019.

Senior Lecturer:

JAMES S. WARD, B.S. University of Wyoming 1993; M.S. 1997; Senior Lecturer of Computer Science 2011, 2000.

Associate Lecturer:

KIM BUCKNER, B.S. Chapman University 1993; M.S. University of Tennessee, Knoxville 1998; Ph.D. 2003; Associate Lecturer of Computer Science 2014, 2008.

Adjunct Faculty:

Robin Hill, Elena Oggero, Guido Pagnacco

Professors Emeriti:

Thomas A. Bailey, Jr., Mark Balas, Henry R. Bauer III, James L. Caldwell, Christos T. Constantinides, John R. Cowles, Jerry J. Cupal, Clifford D. Ferris, Jerry Hamann, Raymond G. Jacquot, Robert F. Kubichek, Stanislaw Legowski, John Rowland, John W. Steadman, A.H.M. Sadrul Ula, David Whitman

Lecturer Emeritus:

Jeri R. Hanly

Computer Science

A Bachelor of Science degree (B.S.) in Computer Science prepares students for careers in virtually any industry or to continue on with graduate study in Computer Science and many other fields. Computer science students learn to approach problems from a computational (algorithmic) point of view, and this approach to problem solving often leads to better and more general solutions. Software systems, information technology, and large scale data applications are core technologies in every area and the applications continue to grow with software and information systems becoming more and more embedded in the fabric of everyday life. These systems are essential tools in science and engineering,

for business and finance, government, communications, medicine, and entertainment. Software systems make the world go round and smart devices, such as phones, tablets, glasses, wearable devices, medical implants are ubiquitous. As a result, computer science has grown from a specialized field to an independent, broadly based area that studies all aspects of the use and understanding of software systems, information, and computational processes. Students studying B.S. in Computer Science at the University of Wyoming have the option to focus their studies by taking a concentration in Business, Big Data, or the Cybersecurity certificate. The Cybersecurity certificate captures core technical cyber security foundations and principles, from databases and networks to advanced threat detection and mitigation. All of the Computer Science concentrations lead to a Bachelor of Science in Computer Science and all programs are ABET accredited.

Program Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Program Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Graduate Study - Computer Science

The Department offers graduate work leading to the Master of Science degree in computer science and the Doctor of Philosophy in computer science. The Department also offers a graduate minor in computer science.

Program Specific Admission Requirement

Applicants for a graduate degree in computer science are expected to have completed undergraduate courses in Algorithms and Data Structures (COSC 3020 equivalent), Theory of Computing (COSC 4100 or COSC 4200 equivalent), Operating Systems (COSC 4740 equivalent), and Programming languages or Compilers (COSC 4780 or COSC 4785 equivalent). Applicants to the doctoral program must have completed a bachelor's or master's degree in computer science or a closely related discipline at an accredited university or college.

The Graduate Record Examination (GRE) is required of all applicants. GRE scores are required with minimums of 40th percentile for the verbal score and 65th percentile for the quantitative score. Our strongest students tend to have scores substantially above these minimums, with quantitative scores often around the 90th percentile or higher.

Students whose native language is not English must also complete the Test of English as a Foreign Language (TOEFL) with a score of at least 550 on the paper based TOEFL; 213 on the computerized test including a 58 or better in section 1-Reading; 80 for the Internet based TOEFL (iBT) including a score of 23 or better in section 1-Reading or the International English Language Testing System (IELTS) test with a 6.5 score or better. Students may also use the Duolingo exam, with a minimum of 105 overall and 125 in the Literacy section.

You must submit to the online application system contact information for three references that can evaluate your potential for graduate study in computer science. If you wish to pursue a Ph.D., the letters should address your ability to pursue quality original research. Letters should also evaluate your oral and written communication skills.

If you meet the minimum criteria and would like to formally apply for admission you will also need to submit the following information during the completion of your application via the application portal:

Copies of transcripts from all colleges and universities (minimum GPA or equivalent 3.000 on a scale of 4.000) for all degrees attained. International applicants must submit copies of individual semester transcripts, consolidated transcripts will not be accepted.

Copy of GRE scores a minimum percentile of 40% on verbal and 65% on quantitative portions of the exam. The majority of admitted students tend to have scores substantially above these minimums.

Contact information for three recommendation letters (applicants should follow-up with recommenders to ensure this requirement is fulfilled; applications will not be processed further until all recommendations have been received).

International students will also need to submit a copy of TOEFL scores, IELTS scores, or Duolingo scores.

High performing undergraduates in computer science can elect for Quick Start admission to the graduate program, allowing the sharing of up to six credit hours of 5000-level coursework toward the completion of both the B.S. and the graduate degree programs.

Electrical Engineering

The program of study outlined in the curriculum has been planned to provide the depth of understanding necessary to meet challenges of changing technology while being flexible enough to allow students to pursue in-depth study in at least one area of electrical engineering. In order to attain this, students are required to gain an understanding of mathematics and the basic engineering sciences. The fundamental electrical engineering education consists of courses in circuits, networks, electromagnetics, electronics, digital systems, communications, controls and energy conversion. Selection of elective courses, in consultation with the academic adviser, enables students to specialize in the above mentioned areas, as well as in robotics, microcircuits, microprocessors and high frequency electronics.

Laboratory work associated with electrical engineering courses is an important part of the curricula. This work helps students gain experience in applying the theoretical knowledge they acquire to practical engineering problems. Engineering design is an important component of the curriculum that concludes with a significant design experience in the senior year. Additional programs are described below.

F.M. Long Bioengineering Option. Named in honor of UW Professor Francis M. Long, this area offers excellent opportunities for those interested in applying the techniques of the electronic engineer to problems of environmental science, biology and medicine. Employment opportunities exist in state and federal agencies, industry and medical institutions. Career placement includes such areas as environmental monitoring, design and development of biological and medical instrumentation and clinical engineering. With minor modifications, the curriculum shown may be used as preparation for entrance to medical or dental school.

Computer Engineering

Computer Engineering is a blend of Computer Science and Electrical Engineering. In fact, a Computer Engineering student can change majors to Computer Science within the first three semesters without losing any credits. More careful planning is required to switch from Computer Science to Computer Engineering. Computer Engineering students receive training that allows them to design complex computer systems and embed them in custom applications such as robots, spacecraft, automobiles, etc. A typical system may interface with a sensor to measure the world, then decide how to best use the information to achieve goals and eventually turn on actuators which perform the needed task. They also develop computer vision systems, high performance computers and software, and the internet of things. They take many of the same required courses as Electrical Engineers, but fill in their electives with computer specific courses. Graduates have the ability to design electric circuits, understand network hardware, design computer systems, and write the software inside those systems. Compared to Electrical Engineers, Computer Engineers have less breadth of knowledge in Electrical Engineering but more depth in software and computer hardware. Compared to Computer Scientists, Computer Engineers know much more about hardware and signal/system theory. Computer Engineers sometimes also major in either Electrical Engineering or Computer Science to get two degrees.

Grade Policy

Electrical and computer engineering majors must achieve a grade of C (2.000) or better on courses that are prerequisites for courses within the student's course of study. Students must also achieve a grade of C (2.000) or better in all required mathematics courses.

Concurrent Major and Minor

The department offers a concurrent major and minor in both the electrical engineering and computer engineering programs. Consult the department office for a current detailed list of requirements.

Program Educational Objectives for Electrical and Computer Engineering

Graduates of the University of Wyoming Electrical and Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

University of Wyoming, Electrical and Computer Engineering Program, Student Outcomes

All Electrical (Computer) Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Graduate Program - Electrical Engineering

The department offers programs of study leading to the Master of Science and Doctor of Philosophy degrees in electrical engineering. Study programs are individually planned to students' interests in both course work and research. The areas of major concentration at the graduate level are:

- Bio-Engineering
- Controls
- Electrical Energy Systems
- Electronic Systems and Devices
- Robotics
- Signal Processing and Computer Networks

The department also offers a combined B.S./M.S. program for exceptional students wishing to obtain both degrees in a shorter period of time.

Program Specific Admission Requirements

Statement of purpose

Official transcripts from all post-secondary institutions attended

GRE verbal percentile minimum of 45 percent. GRE quantitative percentile minimum of 65 percent.

TOEFL total of 79 iBT or IELTS total 6.5.

Program Specific Graduate Assistantships

Additionally, all international students who are state-funded teaching assistantships or any international student with teaching responsibilities are required to complete an Oral Proficiency Interview (OPI). Students will need to follow the recommendations to improve their English skills. Students on state-funding who fail to follow the recommendations or do not meet the minimum proficiency by the end of their first semester will not be able to receive any state-funding until they have demonstrated proficiency.

Department of Mathematics and Statistics

Mathematics

223 Ross Hall, (307) 766-4221

FAX: (307) 766-6838

Web site: www.uwyo.edu/mathstats/

Department Head: Jason Williford

Professors:

CRAIG C. DOUGLAS, B.A. University of Chicago 1977; M.S. Yale University 1978; M.Phil. 1981; Ph.D. 1982; SER Professor of Mathematics 2008.

VICTOR GINTING, B.S. Institut Teknologi Bandung Indonesia 1995; M.S. Texas A&M University 1998; Ph.D. 2004; Professor of Mathematics 2017, 2007.

STEFAN HEINZ, B.S. Humboldt University 1985; M.S. 1986; Ph.D. Heinrich-Hertz Institute 1990; Professor of Mathematics 2013, 2004.

LONG LEE, B.S. National Taiwan University, Taipei 1988; M.A. University of Maryland 1998; Ph.D. University of Washington 2002; Professor of Mathematics 2018, 2005.

RONGSONG LIU, B.A. Henan Normal University 1999; M.A. Fudan University 2002; Ph.D. York University 2006; Associate Professor of Mathematics and Program in Ecology 2015, 2009.

G. ERIC MOORHOUSE, B.S. University of Toronto 1980; M.S. 1984; Ph.D. 1987; Professor of Mathematics 2011, 1989.

ZHUANG NIU, B.S. Wuhan University 1998; M.S. 2001; Ph.D. University of Toronto 2005; Associate Professor of Mathematics 2021, 2012.

BRYAN L. SHADER, B.S. University of Wyoming 1984; M.S. University of WisconsinMadison 1987; Ph.D. 1990; Professor of Mathematics 2000, 1990.

JASON WILLIFORD, B.A. University of Pennsylvania 1998; Ph.D. University of Delaware 2004; Associate Professor Mathematics 2014, 2009.

Associate Professors:

MICHELLE T. CHAMBERLIN, B.S. Colorado State University 1997; M.S. 1999; Ph.D. Purdue University 2002; Associate Professor of Mathematics 2012, 2007.

FREDERICO da CUNHA FURTADO, B.S. Federal University of Minas Gerais 1979; M.S. Federal University of Rio de Janeiro 1984; Ph.D. Courant Institute 1989; Associate Professor of Mathematics 2002, 1997.

TYRRELL McALLISTER, B.S. University of California, Davis 2001; Ph.D. 2006; Associate Professor of Mathematics 2015, 2009.

DAN STANESCU, B.Eng. Polytechnic Institute, Romania 1986; M.Eng. McGill University, 1994; Ph.D. Concordia University 1999; Associate Professor of Mathematics 2008, 2003.

MAN-CHUNG YEUNG, B.S. Jinan University, China 1986; M.Ph. University of Hong Kong 1990; Ph.D. University of California-Los Angeles 1997; Associate Professor of Mathematics 2005, 2001.

Assistant Professor:

PING ZHONG, B.S. Huanzhong University 2005; M.S. Peking University 2008; Ph.D. Indiana University 2014; Assistant Professor of Mathematics 2018.

Senior Lecturers:

DAVID ANTON, B.S. North Dakota State University 2001; M.S. University of Wyoming 2007; Senior Lecturer in Mathematics 2017, 2005.

WILLIAM WEBER, B.S. Colorado State University 1979; B.S. University of Wyoming 1988; M.S. 1992; Senior Lecturer in Mathematics 2012, 2001.

Associate Lecturer:

NATHAN CLEMENTS, B.S. Brigham Young University-Idaho 2007; M.S. Idaho State University 2009; D.A. 2012; Associate Lecturer in Mathematics 2019, 2012.

Assistant Lecturer:

CHRISTINA G. KNOX, B.S. California State Polytechnic University, Pomona 2012; M.S. 2014; Ph.D. University of California, Riverside, 2019; Assistant Lecturer of Mathematics 2019.

JORGE FLORES, B.S. Chadron State College 2015; M.S. University of Wyoming 2018; Assistant Lecturer of Mathematics 2020.

Adjunct Professors:

Saman Aryana, Hakima Bessaih, Li Deng Douglas, George Elliot, Benedetta Ferrario, Maria Garrido-Atienda, John Hitchcock, Robert Kansky, David Meyer, Bjorn Schmalfuss, Gerald Schuster, Dongwoo Sheen, Marie-Agnés Tellier

Professors Emeriti:

Charles Angevine, Leonard Asimow, Robert Buschman, Benito M. Chen-Carpentier, George C. Gastl, John H. George, Sylvia A. Hobart, Syed Husain, Peter Polyakov, A. Duane Porter, Ben G. Roth, John Rowland, Chanyoung Lee Shader, Raymond Smithson, John Spitler, Myron B. Allen III, Farhad Jarari.

"For the things of this world cannot be made known without a knowledge of mathematics."--Roger Bacon

Virtually every student at UW will take one or more math courses to fulfill graduation requirements. The intent is to illustrate the esthetics inherent in mathematics, and to provide students with the quantitative skills needed for today's careers.

Mathematics majors receive a broad and deep view of the mathematical sciences. They develop their mathematical thinking and communications skills in algebra, analysis, and applied math. They learn a variety of technological tools necessary for jobs in education, business, government, and industry. In addition to our math classes, the department

offers a variety of opportunities to enrich the undergraduate experience. Students can participate in weekly seminars, summer research projects, Putnam Team competitions, and the math club.

Mathematics Placement

All UW math courses have prerequisites which are detailed in the course listings below. These are to assure that each student has the best possible opportunity for success in the course. In accordance with this, *all students registering for a math course will have their records checked in order to determine whether the prerequisite is satisfied.*

A computerized prerequisite check is run prior to the start of every semester. *Students who preregistered for a math course but have not satisfied the prerequisites at the time of the check will be automatically dropped from the course.*

Prerequisites for courses numbered 2200 or lower (except MATH 1105 and MATH 2120), and MATH2350 - Business Calculus, may be satisfied in one of four ways:

1. Obtain a grade of C or better in a prerequisite course. Note that noncredit courses from out-of-state colleges are not accepted as prerequisites.
2. Pass the Mathematics Placement Exam (MPE) at the stated level within one year of the start of the course.
3. Obtain a sufficiently high score on one of the following standardized exams within three years of the start of the course: ACT math score or SAT quantitative score.
4. Obtain a sufficiently high score on one of the following standardized exams: AP Calculus, CLEP, or IB.

More information on mathematics placement may be obtained from 766-4221, or at www.uwo.edu/mathstats/math-placement.

Duplication of Courses (MATH 1400, MATH 1405, MATH 1450)

To avoid loss of credit because of duplication of course content, please note the following: (a) students with credit for both MATH 1400 and MATH 1405 will not receive new credit by taking MATH 1450; (b) students with credit for one of MATH 1400 or MATH 1405 will receive only 2 additional credits by taking MATH 1450; (c) students with credit for MATH 1450 will receive only 1 additional credit by taking both MATH 1400 and MATH 1405. Note that the GPA calculation for these situations is unusual, and students should ask the Registrar's Office for details.

Note that MATH 1450 counts as one attempt at each of MATH 1400 and MATH 1405 for the purposes of repeating classes.

Graduate Study

The Mathematics Program offers programs leading to the degrees of master of arts, master of science, master of arts in teaching, master of science in teaching, and the doctor of philosophy.

The requirements for these degrees reflect our belief that mathematicians should have a broad foundation in the core areas of algebra, analysis, and applied mathematics as well as the experience of a more intensive investigation of a specialized area. We provide this within a flexible structure that recognizes the individual interests and varied backgrounds of our students.

Program Specific Admission Requirements

To be competitive for admission, applicants must have strong backgrounds in mathematics. Generally, this means a bachelor's degree in mathematics or a closely related discipline. All applicants should have substantial coursework

beyond the calculus sequence; courses in differential equations, linear algebra, and, in particular, courses in abstract algebra and analysis are highly recommended. A solid performance on the GRE Subject Test in Mathematics can demonstrate the applicant's mastery of these subjects. The GRE Subject Test in Mathematics is therefore recommended but is not required.

The GRE General Test is required, with a minimum Quantitative Reasoning score of 157 and Verbal score of 143. International applicants need a composite TOEFL score of 76 or an IELTS score of 6.5.

ETS only reports TOEFL scores taken within two years of the date of request.

Graduate Assistantships

The mathematics program employs approximately 22 graduate assistants each year. Assistantships include a full tuition and fee waiver, a monthly living stipend, and health insurance. Ph.D. students normally receive a higher stipend than master's students.

Teaching assistants teach or assist with the teaching of an undergraduate course each semester.

Students may also compete for research assistantships, provided that their interests align with an externally funded research project.

Summer support is not guaranteed but is usually available through teaching and research opportunities.

Renewal of funding and continuation in the mathematics graduate program is dependent upon the student's adequate progress towards graduation and satisfactory completion of assistantship duties.

Statistics

223 Ross Hall, (307) 766-4221

FAX: (307) 766-6838

Web site: www.uwyo.edu/mathstats

Program Director: Ken Gerow

Professors:

KENNETH G. GEROW, B.S. University of Guelph, Canada 1981; M.Sc. 1984; Ph.D. Cornell University 1992; Professor of Statistics 2007, 1993.

TIMOTHY J. ROBINSON, B.S. James Madison University 1989; M.S. Virginia Polytechnic Institute and State University 1994; Ph.D. 1997; Professor of Statistics 2012

SHAUN S. WULFF, B.S. Montana State University 1991; M.S. 1994; Ph.D. Oregon State University 1999; Professor of Statistics 2019, 1999.

Assistant Professors:

ANNALISA PICCORELLI, B.A. Miami University of Ohio 2003; M.S. Case Western Reserve University 2007; Ph.D. 2010. Assistant Professor of Statistics 2015.

Assistant Lecturer:

MICHELE BIRD, B.A. University of Nevada, Las Vegas 1996; M.A. 2000; Assistant Lecturer of Statistics 2019.

JARED STUDYVIN, B.S. University of Wyoming 2009; Ph.D. University of Wyoming 2015; Assistant Lecturer 2021.

Adjunct Professors:

Robert Petit

Emeriti Faculty:

Stephen L. Bieber, Burke Grandjean, Richard Anderson-Sprecher.

The curriculum in statistics includes a firm foundation in mathematics and computer science, in addition to course work in statistical theory and methodology. Statistics majors are also required to obtain a minor in an area of application. The nature of statistical work is to design and analyze research projects through the application of the principles of mathematics, computer science, and statistics.

The student who wishes to make valid inferences from empirical data will find the field of statistics fascinating and rewarding. The study of statistics as a separate professional field is comparatively recent. The wide demand for graduates with special training in research and development techniques has fostered development of statistical curricula in colleges and universities. A pioneer in this field, the University of Wyoming is one of the few schools in the nation where a coordinated undergraduate training program in statistics is available.

We expect that students graduating with a statistics degree will be able to: 1) recognize the importance of variation and uncertainty in the world, 2) understand how statistics improves decisions when faced with uncertainty, 3) become proficient with a broad range of statistical tools, 4) develop critical thinking skills that enable application of statistics in new and unusual settings, and 5) communicate effectively. With these skills, graduates will be able to work effectively as statistical professionals and, if desired, successfully pursue further training at the master's and doctorate levels.

Graduates with statistical training are employed in a broad spectrum of areas which include the business world, the sciences (social, biological, physical and health), as well as engineering and education. For this reason, an area of application is required of each student.

The statistics program also offers graduate programs leading to a minor in statistics, and to a Master of Science (Plan A, Plan B), and Doctor of Philosophy in statistics.

Graduate Study

The Statistics Program offers graduate programs leading to a minor in statistics, and to a master of science in applied statistics (Plan B Option 1). The minor is designed to enhance the M.S. or Ph.D. program of any student enrolled in one of the graduate programs at the University of Wyoming. All of these programs emphasize the understanding and application of a broad variety of statistical methods on real projects. Students will be provided with numerous opportunities to perform analyses and communicate findings. The M.S. program in statistics is grounded in statistical theory.

Program Specific Admission Requirements

The prerequisite for admission to graduate study is an undergraduate degree from an accredited institution, including work in mathematics through calculus III, Linear Algebra and at least one second-level class in statistical methods. Prospective students are encouraged to have had Math Analysis and upper level introduction to probability and

mathematical statistics. A score of at least 150 on the verbal reasoning section and a score of at least 141 on the quantitative reasoning section is required for the Master's Degree and the TOEFL exam is required for international students. The minimum score for the TOEFL is 540 (76 Internet-based Test) or for IELTS minimum score is 6.5. Students who do not have prerequisites in mathematics and statistics may make up this deficiency at the beginning of their graduate program; however, such work does not count toward graduation requirements.

Department of Mechanical Engineering

2052 Engineering Building, (307) 766-2122

Web site: www.uwyo.edu/mechanical

E-mail: me.info@uwyo.edu

Department Head: Erica Belmont

Professors:

DENNIS N. COON, B.S. Alfred University New York; M.S. 1984; Ph.D. Pennsylvania State University 1986; Professor of Mechanical Engineering 1999, 1988.

DIMITRI J. MAVRIPLIS, B.S. McGill University 1982; M.Eng. 1982; Ph.D. Princeton University 1987; Professor of Mechanical Engineering 2003.

JONATHAN W. NAUGHTON, B.S. Cornell University 1986; Ph.D. Pennsylvania State University 1993; Professor of Mechanical Engineering 2012, 1997.

Associate Professors:

DILPUNEET S. AIDHY, B.E. Punjab Engineering College 2004; Ph.D. University of Florida 2009; Associate Professor of Mechanical Engineering 2021, 2015.

ERICA L. BELMONT, B.S. Tufts University 2004; M.S. 2008; Ph.D. University of Texas at Austin 2014; Associate Professor of Mechanical Engineering 2020, 2014.

RAY S. FERTIG III, B.S. University of Wyoming 2001; M.S. 2003; Ph.D. Cornell University 2010; Associate Professor of Mechanical Engineering 2017, 2011.

MICHAEL STOELLINGER, M.S. Technical University Munich 2005; Ph.D. University of Wyoming 2010; Associate Professor of Mechanical Engineering 2018, 2012.

Assistant Professors:

MAYSAM MOUSAVIRAAD, B.S. Sharif University of Technology 2002; M.S. 2004; Ph.D. University of Iowa 2010; Assistant Professor of Mechanical Engineering 2017.

XIANG ZHANG, B.S. Northeastern University (China) 2009; M.S. Beihang University (China) 2012; Ph.D. Vanderbilt University 2017; Assistant Professor of Mechanical Engineering 2019.

Instructional Professors:

RAMSANKAR VEERAKUMAR, B.S in Mechanical Engineering , University of Kerala, India, 2005. M.S. in Mechanical Engineering , Birla Institute of Technology and Science (BITS Pilani), India, 2014. Ph.D. in Aerospace Engineering, Iowa State University 2021. Instructional Assistant Professor, 2021.

Lecturers:

KARI STRUBE, BS in Electrical Engineering (bioengineering option), University of Wyoming 2007. MS in Electrical Engineering, University of Wyoming, 2009. Assistant Lecturer, 2021

Professors Emeriti:

Donald F. Adams, Paul A. Dellenback, Bruce R. Dewey, Andrew Hansen, William R. Lindberg, Kynric M. Pell, Ovid A. Plumb, David E. Walrath, Robert A. Wheasler

Mechanical Engineering B.S.

Mechanical Engineering is the broadest area of study in engineering. In contrast to other engineering disciplines, mechanical engineers are employed in significant percentages in almost all industrial and governmental organizations that employ engineers.

The spectrum of activities in which mechanical engineers are engaged continues to expand. The curriculum has in turn become flexible to allow for the education of mechanical engineering students in many diverse and allied areas, or for graduate school preparation.

The educational objectives of the of Mechanical Engineering B.S. program are to prepare students to:

- Successfully practice the profession of engineering.
- Demonstrate career growth (e.g. increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees).
- Apply Mechanical Engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts.
- Successfully serve in a range of leadership and collaborative roles in the profession in the community.
- Exhibit high professional standards and commitment to ethical action.

The undergraduate program includes a foundation in mathematics, science, and engineering sciences. The three key elements of the mechanical engineering undergraduate program include core engineering principles, laboratory experience, and development of communication skills.

The mechanical engineering curriculum affords the student the flexibility to pursue specific professional goals within the discipline. Such an opportunity needs to be carefully considered by each student, so that elective courses are chosen with these goals in mind. During the junior and senior years, the student selects 15 credit hours of technical electives.

Mechanical and Energy Systems Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in Mechanical and/or Energy Systems engineering courses completed at this university. A grade of C or better must be earned in all engineering science (ES) and required mathematics courses.

Mechanical Engineering, B.S.

Energy Systems Engineering B.S.

Energy Systems Engineering (ESE) is an ABET-accredited undergraduate degree offering in the Department of Mechanical Engineering. The ESE program was designed to train engineers to address one of this country's foremost challenges: to achieve energy independence and meet the growing demand for energy, while at the same time addressing critical environmental concerns. The program is intended to help meet these challenges by preparing students to be:

- technology leaders in energy conversion and environmental protection systems
- capable managers in the energy industry
- versatile overseers of energy development by the governmental sector
- technically-trained and environmentally-sensitive liaisons between the energy industry and the public.

ESE students will be trained in alternative and environmentally-friendly energy conversion systems, as well as more traditional technologies that will continue to play an important role for the foreseeable future.

Although the discipline of mechanical engineering has historically been responsible for the design of energy conversion cycles and equipment, issues outside the conventional realms of engineering are increasingly important to address as new and improved energy conversion systems are implemented. The engineer trained in Energy Systems will be better equipped than traditional mechanical engineers to deal with the environmental, legal, political, economic, and permitting aspects of new energy projects.

The educational objectives of the of Energy Systems Engineering B.S. program are to prepare students to:

- Successfully practice the profession of engineering.
- Demonstrate career growth (e.g. increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees).
- Apply Energy Systems Engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts.
- Successfully serve in a range of leadership and collaborative roles in the profession in the community.
- Exhibit high professional standards and commitment to ethical action.

The ESE degree has many coursework requirements in common with the Mechanical Engineering degree, particularly in the thermal, fluids, and energy conversion sciences. However, the ESE program emphasizes energy conversion aspects of Mechanical Engineering and requires coursework from UW's School of Environment and Natural Resources (ENR), course work in environmental law, and electives picked from a list of classes that focus attention on energy and the environment. The ENR courses expose students to issues related to permitting such as preparation of environmental impact studies, and related regulations such as the Endangered Species Act. In addition, technical electives allow students to choose more detailed study in personal areas of interest including, for example, courses in environmental engineering, wind engineering, solar engineering, and petroleum engineering.

Mechanical and Energy Systems Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in Mechanical and/or Energy Systems engineering courses completed at this university. A grade of C or better must be earned in all engineering science (ES) and required mathematics courses.

Energy Systems Engineering, B.S.

Concurrent ME/ESE Degrees

In the event that a student desires concurrent majors in ME and ESE, University policy requires that ALL requirements for each program are met. The student must select which will be the primary major.

Graduate Study

The Department of Mechanical Engineering offers graduate study leading to the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Mechanical Engineering. Faculty in Mechanical Engineering conduct research in the areas of aerodynamics, biomaterials, composite materials, computational material science, computational fluid dynamics, combustion, continuum mechanics, heat transfer, materials reliability, mechanical behavior of materials, nanomechanics of surfaces and interfaces, and wind energy.

Department Specific Graduate Admission Requirements

Applicants should possess a Bachelor of Science (B.S.) degree or equivalent in Mechanical Engineering with a minimum GPA of 3.000 on a 4.000 grade scale or equivalent. Students that do not hold B.S.M.E. degrees may qualify as M.S. candidates by completing, without credit, certain prerequisite courses as specified by the Department. These prerequisites would depend upon the candidate's background and upon the area in which he/ she plans to specialize.

A minimum composite score of 294 (MS) or 307 (PhD) on the Verbal and Quantitative sections of the GRE is required for admission to the Mechanical Engineering Department. For international students, a minimum TOEFL score of 90 on the Internet-based test (iBT) (or a minimum IELTS score ≥ 6.5 or a DuoLingo ≥ 110) is required. If an international applicant wishes to be considered for Graduate Teaching Assistantship funding, the following minimum English Proficiency must be met: OPI \geq Advanced Mid, TOEFL Speaking ≥ 23 , IELTS Speaking ≥ 6.5 , DuoLingo Conversation & Production (average) ≥ 110 . If an international applicant wishes to be considered for Graduate Teaching Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/study-iep-esl/grad-ta-support/index.html>) if you have questions regarding the English proficiency requirements. Admittance to the graduate program is competitive, and the average applicant that is accepted with assistantship support will likely have well above the minimum qualifications.

In order to apply, please submit the following via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>): resume, copy of academic transcript, copy of GRE scores, copies of TOEFL (or IELTS or DuoLingo) scores for international non-native English speaking applicants, three letters of reference, and a Statement of Purpose indicating the applicant's technical area of interest, abilities, and objectives in completing a graduate degree in mechanical engineering. If you are applying for the BS/MS program, please choose "QuickStart - Mechanical Engineering BS/MS" as the program (no GRE score and Statement of Purpose are needed for the BS/MS application). Applicants to the joint MBA/MS-ME program should chose the MS degree program for the application. To be considered for Assistantships, applications must be submitted before March 15 for the Fall semester or October 15 for the Spring semester.

For Quickstart B.S./M.S. admissions requirement, see degree link below.

Department of Petroleum Engineering

4015 Engineering Building, (307) 766-4258

Web site: www.uwyo.edu/petroleum

Department Head: Dennis Coon, Ph.D., Interim

Professors:

HERTANTO ADIDHARMA, B.Sc. Institute of Technology, Surabaya 1987; Ph.D. Louisiana State University 1999; Professor of Chemical Engineering 2019.

MAOHONG FAN, B.S. Wuhan University of Science and Engineering 1984; M.S. Beijing University of Science and Tech. 1992; Ph.D. Chinese Academy of Sciences 1997; Ph.D. Iowa State University 2000; Ph.D. Osaka University 2003; Professor of Chemical Engineering 2014.

KHALED A.M. GASEM, B.Sc. University of California at Berkley 1976; M.Sc. Colorado School of Mines 1979; Ph.D. Oklahoma State University 1986; Professor of Chemical Engineering 2014.

LAMIA GOUAL, B.Sc. Ecole Nationale Polytechnique 1993; M.Sc. Imperial College, London 1998; Ph.D. 2003; Professor of Petroleum Engineering 2021.

MOHAMMAD PIRI, B.Sc. Azad University, Arak 1995; M.Sc. Azad University, Tehran 1998; M.Sc. Imperial College, London 2000; Ph.D. 2004; Professor of Petroleum Engineering 2018.

Associate Professors:

PEJMAN TAHMASEBI, B.S. Sahand University of Technology 2007; M.Sc. Amirkabir University 2009; Ph.D. University of Southern California/Amirkabir University 2012; Associate Professor of Petroleum Engineering 2021.

MORTEZA DEJAM, B.Sc. Petroleum University of Technology 2007; M.Sc. Sharif University of Technology 2009; Ph.D. University of Calgary 2016; Associate Professor of Petroleum Engineering 2022.

SOHEIL SARAJI, B.S. Petroleum University of Technology 2004; M.Sc. Sharif University of Technology 2007; Ph.D. University of Wyoming 2013; Associate Professor of Petroleum Engineering 2022.

Academic Professionals:

TAWFIK ELSHEHABI, B.Sc. Suez Canal University 2003; M.Sc. 2007; Ph.D. West Virginia University 2017; Senior Lecturer of Petroleum Engineering 2019.

Instructional Professors:

REZA TAHERI, B.Sc. Amirkabir University 1997; M.S. University of Twente, Netherlands 2001; Ph.D. Curtin University 2008; Assistant Instructional Professor of Petroleum Engineering 2020.

Professors of Practice:

DOUGLAS CUTHBERTSON, B.S. University of Wyoming 1985; Professor of Practice in Petroleum Engineering 2016.

BRIAN TOELLE, B.S. Texas A&M University 1978; M.S. Austin State University 1981; Ph.D. West Virginia University 2013; Professor of Practice in Petroleum Engineering 2015.

Professors Emeriti:

Jack Evers
H. Gordon Harris
Norman R. Morrow

Mrityunjai P. Sharma
Brian Towler

Petroleum Engineering trains students for Wyoming's largest industries, the production of crude oil and gas. With the recognition of the state's and nation's vast reserves of natural gas, the curriculum emphasizes the production and processing of this important resource. Because of American predominance in petroleum technology, career opportunities are available throughout most of the world.

The curriculum in petroleum engineering is based upon sound preparation in fundamental sciences, mathematics, physics, chemistry, and geology. The essentials of engineering are added to this foundation: computer programming, statics, dynamics, materials science, hydraulics, and thermodynamics. To aid in developing individuals' social potential and broaden their educational background, an integrated program in humanities and social sciences is included in the curriculum. Petroleum engineering courses, which are primarily concerned with application of previously acquired knowledge to problems of the oil and gas industry, are concentrated in the junior and senior years.

Petroleum Engineering degree candidates must meet the academic requirements of the college and must have a GPA of 2.000 or greater in Petroleum Engineering (PETE) courses attempted at UW that are applied toward graduation for the B.S. degree from the department. For approved electives, students must have prior approval of their advisor and department head. Elective courses must be chosen from a list provided by the department. Students must complete a minimum of 48 upper division (junior/senior) or graduate-level credit hours for this program.

Program Vision

As a highly respected community of scholars and practitioners, we are committed to providing outstanding petroleum engineering education, conducting internationally recognized research in key focus areas, and improving the well-being of the people of Wyoming and the world through education, technical innovation and economic development.

Program Mission

Provide outstanding, contemporary, ABET-accredited education in petroleum engineering to highly qualified undergraduates who will serve as an economic resource for Wyoming and the world.

Provide excellent, research-based graduate educations at the master's and doctoral levels in petroleum engineering to top students who will drive technical and economic innovation for Wyoming and the world.

Conduct internationally recognized research in key focus areas that leads to new technologies while also enhancing economic development for Wyoming and the world.

Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Petroleum Engineering should:

- (PETE-OB1) Successfully practice the profession/field of petroleum engineering or related discipline.
- (PETE-OB2) Demonstrate successful career accomplishment and civic engagement.

Program Outcomes

During the course of study in Petroleum Engineering, the student should develop:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Undergraduate "Major Only" Courses

Upper division PETE core courses are restricted to petroleum engineering majors only.

Technical Electives Policy

The technical electives in the petroleum engineering curriculum can be used to complete a curriculum emphasis option or a minor. The number of credits of upper division courses must be satisfied, therefore, 13 elective credits must be 3000-level courses or higher.

Note: Technical Electives must be selected with your advisor's documented approval.

Transfer Credit Limit

To graduate with a degree in Petroleum Engineering from UW, students must successfully complete at least 20 credit hours of required PETE courses at UW.

1. Once a student has transferred to UW's Department of Petroleum Engineering from another institution, they may transfer no more than 9 additional credits from other institutions.
2. Non-transfer students may transfer up to 18 credits from other institutions.

Repeating a Course

Students who fail a PETE class three times can no longer enroll in that class.

Academic Suspension

Students who have been academically suspended from UW twice are no longer eligible to enroll in PETE courses.

Curriculum Emphases

The Department of Petroleum Engineering has established curriculum emphases that could shape your interest further or acquire useful transferable skills. A curriculum emphasis is not a minor or concentration and will not be stated on your diploma. If you choose to follow a curriculum emphasis option, you should discuss it with your academic advisor so they can assist you in planning your courses.

Petroleum Engineering offers the following curriculum emphasis options:

- Unconventional Reservoirs
- Chemical Engineering
- Mechanical Engineering
- Graduate School Preparation

BS/MS Quick Start Program

The BS/MS Quick Start program in Petroleum Engineering (PETE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their Bachelor of Science (B.S.) degree in Petroleum Engineering. These students may apply for admission to the Quick Start program during the first or second semester of their junior year or *before* starting their senior year.

This program allows for early planning of the graduate portion of a student's education and provides more flexibility in the number of required courses and the order in which they are taken. The more efficient and better planned use of time should result in reduction of the time required for obtaining the Master of Science in Petroleum Engineering degree. Students who enter the Quick Start program must accept primary responsibility for actively planning their Programs of Study to assure timely completion of their course work and research programs.

The Quick Start program contains two essential elements:

1. Qualified students may receive provisional admission to the Petroleum Engineering graduate program by submitting a quick start application through the online graduate application system. This provisional admission will permit students to make their long-term educational plans earlier in their studies and before graduating the B.S. program, thus providing enhanced opportunities for course selection and involvement in research.
2. Students in the program may apply up to 6 credit hours of graduate-level courses toward both the B.S. and M.S. degree programs. By successfully completing up to 6 credit hours of graduate classes during their senior year, these students will have demonstrated their ability to do graduate-level course work as undergraduates, easing their transition to the Petroleum Engineering graduate program.

For additional information, visit our website for admissions information

<http://www.uwyo.edu/petroleum/undergraduate/current-students/quickstart.html> or contact our graduate admissions coordinator at pete-info@uwyo.edu.

Graduate Study

The Department of Petroleum Engineering offers graduate programs leading to the M.S. and Ph.D. degrees in petroleum engineering. The M.S. degree is offered with Plan A and Plan B options.

In addition, the Department offers an M.B.A./M.S. in Petroleum Engineering Dual Degree Program, in conjunction with the College of Business M.B.A. Program. Students pursuing this option must apply to and be offered admission from both programs.

Admission Process and Requirements

Graduate admission is open to students with at least a B.S. degree in petroleum engineering or closely related field and who meet the minimum requirements as shown below. Please note that test scores must be dated within the previous two years to be considered valid.

- A GPA of 3.000, or equivalent;
- A GRE score;

- A TOEFL score of 600 (paper-based), 250 (computer-based), or 80 (Internet based) **or** an IELTS score of 6.5 in each category for international applicants. We are also accepting the DuoLingo exam with a minimum score of 110 required.

Applications must include the following documents uploaded with the online application:

1. Complete official transcripts of all prior college-level coursework,
2. Current resume or curriculum vitae,
3. Recommendations from at least three academic or professional references,
4. A statement of purpose, and
5. Unofficial test score certificates for both GRE and English proficiency exams.

Applications will not be reviewed or accepted until all required documents have been submitted.

The deadlines to submit applications are February 1 each year (to be considered for Fall semester), and September 15 each year (to be considered for Spring semester).

For additional information, visit our website for admissions information <http://www.uwyo.edu/petroleum/graduate/prospective/index.html> or contact our graduate admissions coordinator at pete-info@uwyo.edu.

Graduate Courses of Study

Incoming graduate students, not preselected by a faculty member, must meet with Petroleum faculty members to obtain information regarding research areas and current availability. The student must formally request a Petroleum faculty member of their choosing to oversee their degree study program.

Masters Program

1. All Petroleum M.S. students with a B.S. in Petroleum Engineering from an accredited program must take the following courses:

Required Courses	Hrs.
PETE 5355.....	3
PETE 5890.....	2

At least three Core Courses from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3

Plan A Thesis Additional Course

Requirements:

4000-level or above approved electives.....	12
PETE 5960.....	4

Total Credits 30

Plan B Non-Thesis Additional Course

Requirements:

4000-level or above approved electives.....	14
PETE 5970.....	2

Total Credits 30

2. All Petroleum M.S. students with a B.S. in Chemical or Mechanical Engineering from an accredited program must take the following courses:

Required Courses	Hrs.
PETE 5055	3
PETE 5340	3
PETE 5355	3
PETE 5715	3
PETE 5890	2

At least four Core Courses from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3

Plan A Thesis Additional Course

Requirements:

4000-level or above approved electives.....	7
GEOL 5190.....	3
PETE 5960.....	4

Total Credits 40

Plan B Non-Thesis Additional Course

Requirements:

4000-level or above approved electives.....	7
GEOL 5190.....	3
PETE 5970.....	4

Total Credits 40

Dual Degree Program - M.B.A./M.S. degree in Petroleum Engineering

3. All Dual Degree M.S. students with a B.S. in Petroleum Engineering from an accredited program must take the following required courses:

Required Courses	Hrs.
PETE 5355.....	3
PETE 5890.....	2

At least three Core Courses from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3

Plan A Thesis Additional Course

Requirements:

4000-level or above approved electives.....	3
M.B.A. approved electives:	

MBAM 5XXX, MBAM 5301, MBAM 5305.....9
 PETE 5960.....4

Total Credits 30

Plan B Non-Thesis Additional Course

Requirements:

4000-level or above approved electives.....5
 M.B.A. approved electives:
 MBAM 5XXX, MBAM 5301, MBAM 5305.....9
 PETE 5970.....2

Total Credits 30

4. All Dual Degree students with a B.S. in Chemical or Mechanical Engineering from an accredited program must take the following required courses:

Required Courses	Hrs.
PETE 5055	3
PETE 5340	3
PETE 5355	3
PETE 5715	3
PETE 5890	2

At least four Core Courses from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3

Plan A Thesis Additional Course

Requirements:

4000-level or above approved electives.....3
 M.B.A. approved electives:
 MBAM 5XXX, MBAM 5301, MBAM 5305.....9
 PETE 5960.....4

Total Credits 42

Plan B Non-Thesis Additional Course

Requirements:

4000-level or above approved electives.....5
 M.B.A. approved electives:
 MBAM 5XXX, MBAM 5301, MBAM 5305.....9
 PETE 5970.....2

Total Credits 42

Note: For a student with a B.S. in another discipline, upon acceptance into the M.S. program, the Graduate Program Committee will develop a plan of study with the consent of the advisor.

Doctoral Program

1. All Petroleum Ph.D. students with a B.S. in Petroleum Engineering must take the following required courses:

Required Courses	Hrs.
PETE 5090.....	3
PETE 5355.....	3
PETE 5890.....	6

At least four Core Courses* from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5255.....	3
PETE 5310.....	3
PETE 5350.....	3

Electives**

4000-level or above approved electives.....18

Research

PETE 5980..... 30

Total Credits 72

2. All Petroleum Ph.D. students with an B.S. in Other Majors must take the following required courses:

Required Courses	Hrs.
PETE 5090.....	3
PETE 5355.....	3
PETE 5890.....	6

At least five Core Courses* from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5255.....	3
PETE 5310.....	3
PETE 5350.....	3

Electives**

4000-level or above approved electives.....15

Research

PETE 5980..... 30

Total Credits 72

**Transferable from MS degree if applicable.*

***Up to 14 credits of electives transferable from MS degree if applicable.*

Graduate Seminar Requirements

All petroleum engineering graduate students must enroll in PETE 5890, Petroleum Engineering Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Graduate students enrolled in continuous registration are exempt from having to enroll in PETE 5890 in their final semester.

Graduate Teaching Requirement

All Petroleum Engineering graduate students must complete at least one semester as a teaching assistant within the Petroleum Engineering curriculum. Students receiving a state-funded graduate assistantship will be required to serve as a teaching assistant every semester of their award. Students funded by any source other than state funds will work with their supervisor or faculty mentor to determine an appropriate time to complete this requirement.

Program of Study Requirement

All Petroleum Engineering graduate students must complete their Program of Study worksheet at the beginning of their second academic year of study or 3rd semester of enrollment, and PhD students must submit it prior to their preliminary examination.

Ph.D. Preliminary Examination

Candidacy in the doctorate occurs upon certification of successful completion of the preliminary examination. The preliminary examination will be held at least 15 weeks prior to the final examination. The preliminary examination may not be given before: (a) the research tool requirements, if any, have been met and certification approved; (b) at least 30 hours of coursework have been completed; and (c) the doctoral program of study has been approved.

The goal of the preliminary exam is for the student to present the research proposition that is being investigated and will lead to the final dissertation, and demonstrate progress to-date. The preliminary exam consists of three components:

- a written document provided to each member of the student's graduate committee at least three weeks prior to the oral presentation;
- a public oral presentation; and
- a private examination by the student's graduate committee immediately following the oral presentation.

The written document may be in any format but must concisely provide a survey of the relevant literature, a summary of the student's progress to-date, and a clear, detailed plan for the successful completion of the proposed work. The preliminary exam oral presentation should be consistent with the written document. It should provide an appropriate literature background, demonstrate proficiency with proposed experimental/computational techniques, identify details of the experiments to be performed, and provide a timeline to final defense.

The student's committee will pass or fail the student on the strength of the preliminary examination, with an option to conditionally pass the student while requiring an interim committee meeting prior to the final Ph.D. examination. The Report on Preliminary Examination for Admission to Candidacy form sent to the Office of the Registrar reports the results of the examination.

M.S. and Ph.D. Final Examination (Thesis or Dissertation Defense)

All M.S. and Ph.D. students must orally defend their final report, thesis, or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public defense in oral presentation format. At least three weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis or dissertation and provide the department an announcement of their defense for public advertisement. The results of the defense are reported by the committee on the Report of Final Examination form. Often, graduate committee members request changes in the final thesis or dissertation, and they may postpone signing this form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Registrar's web site. This copy will be rejected if the format standards specified by the Thesis or Dissertation Format Guide are not met. This guide allows for a publication-ready format. An electronic copy must also be submitted to the department for the departmental library. Most students will want copies for their own use. Students should consult with their chair to determine if they also want a copy of the final paper or other research documentation.

School of Computing

College of Health Sciences

235 Health Sciences Center

David Jones, Dean

Phone: (307)766-6556 FAX: (307)766-6608

Web site: www.uwyo.edu/hs

The College of Health Sciences is the place for students interested in improving and maintaining the physical, mental, and social health of others. We offer challenging degree programs in the "helping professions" and serve as the gateway to schools of medicine, dentistry, physical and occupational therapy, physician's assistant study, optometry, and more.

Health sciences students receive not only a superior education from knowledgeable and caring faculty but also precise and personal guidance from conscientious advising personnel. Students benefit, too, from practicums and internships that help them refine and test the skills acquired in lectures and labs as well as opportunities to participate in dynamic, interdisciplinary research projects.

The college is also the home of the Wyoming Institute for Disabilities (WIND); two Family Medicine Residency Centers; and the WWAMI Medical Education Program.

We serve as the state certifying office for the Wyoming, Washington, Alaska, Montana, and Idaho (WWAMI) medical education contract program with the University of Washington School of Medicine; WYDENT, the dental education contract program with the University of Nebraska and Creighton University; and two programs for the Western Interstate Commission of Higher Education (WICHE): the Professional Student Exchange Program (PSEP) and the Western Regional Graduate Program (WRGP). Refer to the sections on WWAMI, WYDENT, and WICHE in this catalog for program descriptions or go to www.uwyo.edu/certwy.

Any student seeking admission to programs in the College of Health Sciences will be required to obtain a background check as specified by college policy. Please contact your school or division for specific information.

The College of Health Sciences retains the right to deny or revoke admission to any of its programs for academic, disciplinary, ethical, or professional standards reasons.

Programs of Study

Undergraduate Degrees

Bachelor of Science

Kinesiology and Health Promotion

Medical Laboratory Science

Physical Education Teacher Education K-12
Speech, Language and Hearing Sciences

Bachelor of Science in Dental Hygiene
Bachelor of Science in Nursing
Bachelor of Social Work

Graduate Degrees

Master of Science

Health Services Administration
Nursing
Kinesiology and Health
Speech-Language Pathology

Master of Social Work

Professional Degrees

Doctor of Nursing Practice
Doctor of Pharmacy

Minor in the College of Health Sciences

Disability Studies

Disability studies is a diverse interdisciplinary field that investigates broad questions about the nature, meanings, and consequences of disability from interrelated social, historical, cultural, and political perspectives. Students will gain a broad understanding of disability issues for working with people with disabilities rather than specific disciplinary skills and techniques. The minor complements any major and consists of 18 credit hours. See www.uwyo.edu/hs/divisions-and-programs/minor-indisability-studies.html.

Undergraduate and Pre-Health Advising Office

Health Sciences Center, 110

The Undergraduate and Pre-Health Advising Office (UPHAO) in the College of Health Sciences (www.uwyo.edu/preprof/) provides pre-professional health advising to all UW students regardless of their academic majors, who are interested in pursuing future study in athletic training, chiropractic, dentistry, medicine, optometry, occupational therapy, physical therapy, physician assistant, or other health care careers such as public health. A bachelor's degree is usually required for admission to a professional school. The University of Wyoming does not offer degrees in pre-professional areas. Students may pursue any UW degree program in which they have an interest and at the same time complete the admission requirements for the professional schools they wish to attend. The UPHAO advises students for their professional program prerequisites as well as other aspects of becoming solid candidates. Each student will also have an advisor in his/her major.

Through this office, pre-health students can access current information about admission requirements, entrance examinations, application process, professional school curriculums, interviewing skills, and test preparation. Specific schools may have additional requirements; students are urged to check with the schools they wish to attend.

Information and Wyoming state residency applications for the WICHE PSEP program, the WWAMI medical education program, and the WYDENT dental education program, may be found online at <http://www.uwyo.edu/certwy>.

Please view individual division and program pages list for full course and curriculum listings

Division of Communication Disorders

265 Health Sciences, (307) 766-6427

FAX: (307) 766-6829

Web site: www.uwyo.edu/comdis

Director: Mark Guiberson

Professors:

MARK GUIBERSON, B.A. University of Colorado 1997; M.A. 1999; Ph.D. Colorado State University 2006; Professor of Speech-Language Pathology 2019, 2011.

Assistant Professors:

KATELYN J. KOTLAREK, B.S. University of Wisconsin-Madison 2012; M.S. Florida State University 2014; Ph.D. East Carolina University 2019; Assistant Professor 2019.

BREANNA KRUEGER, B.A. University of Wyoming 2007; M.A. University of Kansas 2011; M.A. 2013; Ph.D. 2017; Assistant Professor 2017.

Lecturers:

SHELLEY BARTON, B.A. University of Wyoming 2005; M.S. 2008; Instructor 2018.

ESTHER HARTSKY, B.A. Adams State University 2000; A.A.S. Pikes Peak Community College 2004; Assistant Lecturer 2017.

KARLEE SMITH, B.S. University of Wyoming 2014; M.S. University of Wyoming 2013; Lecturer 2020.

Clinical Professors:

TERESA J. GARCIA, B.S. University of Wyoming 1989; M.S. 1991; Clinical Professor 2020, 2016, 1995.

Assistant Clinical Professors:

CORRI SANDOVAL, B.S. University of Wyoming 2000; M.S. 2010; Assistant Clinical Professor 2020.

HEIDI CLARK, B.S. University of Virginia 1998; M.A. Kent State University 2000; Assistant Clinical Professor 2020.

Adjunct Clinical Instructor:

Melissa Denker, M.S., CCC-SLP

Professors Emeriti:

Janis A. Jelinek, Douglas W. Laws, Michael A. Primus, Mary Hardin-Jones, David L. Jones

About the Division of Communication Disorders

The Division of Communication Disorders offers three academic programs: a certificate in American Sign Language Studies, a Bachelor's of Science (B.S.) degree in Speech, Language and Hearing Science, and a Master of Science (MS) degree in Speech-Language Pathology. Information on these programs can be found on the links on the bottom of this page. In addition, the College of Education's Curriculum and Instruction, Ph.D., Concentration in Literacy Education, is a doctorate degree in which affiliated Division of Communication Disorders faculty can offer doctorate coursework, advising, and other involvement. See the College of Education website for details. The Division is also home to the University of Wyoming Speech & Hearing Clinic. Information about the Division's Vision, Mission, and Strategic Plan can be found on the Division website, as well as important information about the Division's Diversity, Equity, and Inclusion statement (<http://www.uwyo.edu/comdis/>).

Speech and Hearing Clinic

The UW Speech and Hearing Clinic is a training center for students from the Division of Communication Disorders, including B.S. students in the Speech, Language, and Hearing Sciences program and M.S. students in the Speech-Language Pathology program. Student clinical experiences occur under the direct supervision of state licensed and ASHA-certified speech-language pathologists (CCC-SLP). The clinic also provides audiology services from a ASHA-certified and state licensed audiologists (CCC-A). In addition to on-campus services, the clinic provides telepractice speech-language pathology services. Clinical services are available to students, faculty as well as the larger community. More information can be found on the UW Speech and Hearing Clinic website <http://www.uwyo.edu/comdis/uw-speech-and-hearing-clinic/index.html>.

Division of Kinesiology and Health

Corbett Building, (307) 766-5284

FAX: (307) 766-4098

Web site: www.uwyo.edu/kandh

Director: Derek Smith

Professors:

TAMI BENHAM DEAL, B.S. Indiana University 1981; M.S. 1988; P.E.D. 1989; Professor of Kinesiology and Health 2012.

CHRISTINE M. PORTER, B.S. University of Maryland 1993; M.A. University of London 2002; Ph.D. Cornell University 2010; Professor of Kinesiology and Health 2021, 2016, 2010.

TRISTAN WALLHEAD, B.S. Loughborough University 1994; M.S. Leeds Metropolitan University 2000; Ph.D. Ohio State University 2004; Professor of Kinesiology and Health 2017, 2010, 2004.

QIN ZHU, B.S. Shanghai University of Sports 1999; M.Ed. 2002; Ph.D. Indiana University 2008; Professor of Kinesiology and Health 2020, 2014, 2008.

Associate Professors:

BOYI DAI, B.Ed. Beijing Sport University 2007; M.S. Iowa State University 2009; Ph.D. University of North Carolina at Chapel Hill 2012; Associate Professor of Kinesiology and Health 2017, 2012.

EVAN C. JOHNSON, B.A. The George Washington University 2004; M.A. University of Connecticut 2008; Ph.D. 2014; Associate Professor of Kinesiology and Health 2020, 2015.

R. TUCKER READDY, B.A. University of California, Berkeley 2000; M.A. San Diego State University 2004; Ph.D. Oregon State University 2009; Associate Professor of Kinesiology and Health 2016, 2010.

DEREK SMITH, B.S. Colorado State University 1997; M.S. Wake Forest University 1999; Ph.D. University of Colorado 2003; Associate Professor of Kinesiology and Health 2009, 2003.

Assistant Professors:

DANIELLE BRUNS, B.S. Linfield College-McMinnville 2008; M.S. Colorado State University 2010; Ph.D. 2013; Assistant Professor of Kinesiology and Health 2018.

BEN KERN, B.A. Western Colorado University 1999; M.A. Adams State University 2002; Ph.D. University of Illinois Urbana-Campaign 2017; Assistant Professor Kinesiology and Health 2020.

EMILY E. SCHMITT, B.S. Elon University 2007; M.S. University of North Carolina at Charlotte 2009; Ph.D. Texas A&M University 2015; Assistant Professor of Kinesiology and Health 2018.

KELLY SIMONTON, B.S. University of Wyoming 2014; M.S. Louisiana State University 2016; Ph.D. Louisiana State University 2018; Assistant Professor of Kinesiology and Health 2021.

Academic Professional:

MARCI SMITH, B.S. Colorado State University 1995; M.S. Wake Forest University 1998; Senior Lecturer in Kinesiology and Health 2015, 2003.

Adjunct Faculty:

Laurence Deal, Shane Tweeter

Professors Emeriti:

Paul Dunham, Ward Gates, Charles W. Huff, Donna Marburger, D. Paul Thomas, Mark Byra, Jayne Jenkins

The Division of Kinesiology and Health offers the Kinesiology and Health Promotion (K&HP) major and the Physical Education Teacher Education (PHET) major. These two majors prepare students in kinesiology and health promotion for a variety of clinical and nonclinical settings including teaching physical and health education in schools K-12. Students enrolled in these programs must meet academic standards as determined by the Division of Kinesiology and Health, College of Health Sciences, and the University of Wyoming.

The K&HP major prepares students well for admission to physical therapy school and occupational therapy school, as well as other health professions (e.g., physician, physician assistant, dentist, chiropractor, optometrist, etc.). Approximately 60% of students majoring in K&HP apply to one of these health professional schools once they have completed their B.S. degree in Kinesiology and Health. Other students majoring in training, fitness, recreation, and leisure, and health promotion with state agencies enter a very diverse job market.

The PHET program prepares students to teach physical and health education (PHET) in K-12 schools. The PHET major is a nationally recognized program for meeting the NASPE/NCATE Initial Physical Education Teacher Education Accreditation Standards. This program offers individuals opportunity to combine certifications/endorsements in health education K-12, adapted physical education K-12, and coaching.

A graduate program leading to a Master of Science degree in Kinesiology and Health is offered by the Division.

Professional Program

Students who meet University of Wyoming entry requirements are admitted to the university in one of the two undergraduate majors that leads to the Bachelor of Science degree. The Division's undergraduate majors are open at the freshman level to all graduates of accredited high schools. Advanced placement for students with previous college credit is based on evaluation of transcripts of previous academic work.

Students in the Kinesiology & Health Promotion (K&HP) program are ready to move forward in the junior year of the program when they complete the pre-requisite requirements to enroll in KIN 3021 and KIN 3022, Physiology of Exercise lecture and laboratory. To be eligible for the K&HP Professional Program (junior/senior years), students must have completed all program course prerequisites and have a minimum cumulative grade point average of 2.750, preferred GPA of 3.000. Advancement in the K&HP Professional Program is complete once prerequisite criteria is met.

The entry course for admission to the Physical Education Teacher Education (PHET) program is KIN3012 - Teaching Laboratory I. To be eligible, for the PHET professional program, students must have completed all program course prerequisites and have a minimum cumulative grade point average of 2.750, preferred GPA of 3.000. Admission to the last two years of the PHET major is a competitive process. Application to the PHET majors is conducted only for fall. The application deadline is early April.

Undergraduate Majors

Kinesiology and Health Promotion, B.S.

Physical Education Teacher Education K-12, B.S.

Additional School Endorsements K-12

Adapted Physical Education K-12 Endorsement

School Health Education K-12 Endorsement (For Physical Education Teacher Education Majors)

Affiliated Options

The Division of Kinesiology and Health offers two options for the general undergraduate population. They require course work beyond degree requirements.

Athletic Coaching Endorsement / Permit

School Health Education K-12 Endorsement (For non-Physical Education Teacher Education Majors)

Graduate Study

Program Specific Admission Requirements

Admissions into the M.S. degree program is open to people who have obtained an undergraduate degree with a major program of study in exercise and sport science, health, kinesiology, physical education, or other area in human movement sciences. Students who do not have a bachelor's degree in kinesiology, physical education or health are required to complete four undergraduate courses in kinesiology and/or health in addition to the courses required for the graduate program of study. Individuals interested in applying are encouraged to contact the Graduate Program Coordinator, Dr. Tucker Readdy (tucker.readdy@uwyo.edu) for more information.

In order to apply, please submit the following via the University of Wyoming's online application system (www.uwyo.edu/admissions/apply.html): K&H supplemental application, copies of GRE scores, transcripts, a sample of professional writing, and three letters of recommendation. Applications must be submitted no later than February 1 to be considered for Fall admission; Spring admissions are also considered on a case by case basis.

GRE scores are required for admission but can be waived in specific situations. A minimum of a 3.000 undergraduate cumulative GPA is also necessary for admission. International students who are not native English speakers must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (www.uwyo.edu/ele/) if you have questions regarding English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies in the front section of the UW Catalog for more information.

Program Specific Graduate Assistantships

Graduate assistantships are available on a competitive basis. Teaching opportunities exist within the laboratory portions of the human anatomy and exercise physiology courses, the teaching laboratory portions of the pedagogy practical courses, and HLED1006 - Personal Health. A graduate assistantship also involves some research opportunities with assigned graduate faculty advisors.

A stipend for a full time graduate assistant is \$12,333.00 per academic year. Tuition and fees are covered according to the percentage of assistantship allocated to the student.

Program Specific Degree Requirements Master's Programs

Kinesiology and Health, Exercise and Sport Science Emphasis, M.S. *Plan A (thesis)*

Kinesiology and Health, Health Emphasis, M.S. *Plan A (thesis)*

Kinesiology and Health, Physical Education Teacher Education Emphasis, M.S. *Plan A (thesis)*

Kinesiology and Health, M.S. *Plan B (paper and experiential learning option)*

Kinesiology and Health Distance Education, M.S. *Plan B (paper)*

Division of Medical Education

Family Medicine Residency Programs

Designated Institutional Officer: Beth Robitaille
(307) 234-6161

Casper: Brian Veauthier, Director
(307) 234-6161

Cheyenne: Evan Norby, Director
(307) 777-7911

Professors:

JAIME HORNECKER, B.S. Texas Tech University 1999; PharmD University of Wyoming 2003; Clinical Professor of Pharmacy Practice, School of Pharmacy, Family Medicine, Casper.

MICHAEL MILLER, B.A. Wheaton College 1992; D.O. Kirksville College of Osteopathic Medicine 2000, Clinical Professor of Family Medicine, Cheyenne.

BETH ROBITAILLE, B.A. University of Notre Dame 1991; M.D. Creighton University School of Medicine 1995; Clinical Professor of Family Medicine, Casper.

BRIAN M. VEAUTHIER, B.S. University of Notre Dame 1996; M.D. Georgetown University School of Medicine 2001; Clinical Professor of Family Medicine, Casper.

Associate Professors:

ZACH DEISS, B.A. University of Wyoming 1979; M.D. Creighton University School of Medicine 1987; Clinical Associate Professor of Family Medicine, Casper.

RONALD L. MALM, B.S. University of Wyoming 1988; D.O. The University of Health Sciences, College of Osteopathic Medicine 1992; Clinical Associate Professor of Family Medicine, Cheyenne.

LEENA MYRAN, B.S. University of Wyoming 2012; PharmD. University of Wyoming School of Pharmacy 2012; Clinical Associate Professor of Pharmacy Practice, Family Medicine, Casper.

SHARON KARNES, B.S. University of Washington School of Medicine 1997; M.D. University of Washington School of Medicine 2001; Clinical Associate Professor of Family Medicine, Casper.

CAROLINE KIRSCH, B.S. University of Wyoming 1993, 2002; M.S. University of Wyoming 1996; D.O. New York College of Osteopathic Medicine 2007; Clinical Associate Professor of Family Medicine, Casper.

DOUGLAS S. PARKS, B.S. Baker University 1978; M.D. University of Kansas 1984; Associate Professor of Family Medicine, Cheyenne.

CYNTHIA WORKS, B.A. Creighton University 1981; M.D. University of Arizona College of Medicine 1985; Clinical Associate Professor of Family Medicine, Casper

Assistant Professors:

RACHELLE BOND, B.S. University of Arizona 2005; D.O. A.T. Still University School of Osteopathic Medicine 2012; Clinical Assistant Professor of Family Medicine, Cheyenne.

GENOMARY KRIGBAUM-PE'REZ, B.A. Carroll College 2003; M.A. Arizona School of Professional Psychology 2007; PsyD. Arizona School of Professional Psychology 2009; Clinical Assistant Professor of Family Medicine, Casper.

BLAINE LEVY, B.S. Midwestern University 2008; D.O. Arizona College of Osteopathic Medicine of Midwestern University 2012; Clinical Assistant Professor of Family Medicine, Casper.

EVAN NORBY, B.S. Brigham Young University 2007; D.O. Arizona College of Osteopathic Medicine 2012; Clinical Assistant Professor of Family Medicine, Cheyenne.

TABITHA THRASHER, B.S. University of Central Missouri 2001; D.O. Rocky Vista College of Osteopathic Medicine 2012; Clinical Assistant Professor of Family Medicine, Cheyenne.

Lecturers

LAURA CAPASSO, B.A. University of Wyoming 2012; M.S. University of Wyoming 2014; Ph.D. University of Northern Colorado, 2019; Assistant Lecturer, Family Medicine, Cheyenne.

PAMELA OILER, B.S.W. University of Wyoming 1999; M.S.W. Colorado State University 2005; Associate Lecturer, Family Medicine, Cheyenne.

To address the need for broadly trained primary care physicians in Wyoming, the Wyoming Legislature established two residency programs in the specialty of family medicine. These two accredited, university-administered, community-hospital based family medicine residency programs are located in Casper and Cheyenne. They enroll up to 42 residents (14 in each of three years). The two family medicine centers maintain a 1:4 faculty to resident ratio. The program at Casper began in 1976 and is affiliated with Wyoming Medical Center. The program utilized the services and facilities provided by the Educational Health Center of Wyoming. The Rural Training Track Program is a partnership with the Casper core program and Hot Springs County Memorial Hospital that provides a unique, hands-on experience for rural practice by training in the rural community of Thermopolis, Wyoming. It enrolls up to 3 residents (1 in each of three years). Casper's Geriatric fellowship is Wyoming's only post-graduate medical education training program. The fellowship provides training specialized in geriatrics to produce Board-certified geriatricians to care for the state's aging population. The Cheyenne program became active in 1980 and is affiliated with Cheyenne Regional Medical Center. The program utilizes the services and facilities provided by the Educational Health Center of Wyoming and has a close working relationship with the Veterans Administration Hospital. Both centers include spacious examining rooms; treatment and casting rooms; x-ray facilities; offices for faculty, residents and staff; complete laboratories; multiphasic research areas; conference rooms; business offices and roomy waiting rooms with play areas in the clinical component. In the educational component, both include large auditoriums; learning resource centers and administrative offices. Particular emphasis in both centers is placed on preparing physicians for rural practice and other facets of medical practice that are unique to Wyoming.

WWAMI Medical Education Program

Laramie: Brant Schumaker, Director
(307) 766-2497
John Willford, Assistant Director

(307) 766-4249

Web site: www.uwyo.edu/wwami

Associate Professors

BRANT SCHUMAKER, B.S. University of California, Davis 2001; D.V.M. University of California, Davis 2005; Master of Preventative Veterinary Medicine University of California, Davis 2006; Ph.D. University of California, Davis 2010; Associate Professor, Division of Kinesiology & Health, WWAMI.

CAMERON WALKER, B.S. Iowa State University of Science and Technology 1996; M.A. Iowa State University of Science and Technology 2000; Ph.D. University of Oregon 2006; Clinical Associate Professor, WWAMI.

JOHN WILLFORD, B.S. University of Wyoming 2005; Ph.D. University of Wyoming 2008; Clinical Associate Professor, WWAMI.

Assistant Professors

ANA CLARA BOBADILLA, B.S. Pierre and Madam Curie University 2006; M.S. Pierre and Madam Curie University 2008; Ph.D. Pierre and Madam Curie University 2014; Assistant Professor, School of Pharmacy, WWAMI.

DANIELLE BRUNS, B.S. Linfield College 2008; M.S. Colorado State University 2010; Ph.D. Colorado State University 2013; Assistant Professor Kinesiology & Health, WWAMI.

JULIE CARLSON, B.S. University of Wyoming 1985; M.D. Creighton University 1989; Clinical Assistant Professor, WWAMI.

ESTHER GILMAN-KEHRER, B.S. University of Wyoming 1986; M.S. University of Wyoming 1998; Post-Master's F.N.P. University of Colorado 2000; Post-Master's Nurse Midwifery 2002; D.N.P. University of Colorado 2012; Clinical Assistant Professor, Fay W. Whitney School of Nursing, WWAMI.

DANA GOVAERTS, B.S. University of Nebraska 1988; M.D. University of Nebraska Medical Center 1992; Clinical Assistant Professor, WWAMI.

TRACEY HAAS, B.S. Southwest Texas State University 1996; D.O. University of North Texas Health Sciences Center 2001; M.P.H. University of Texas Health Sciences Center 2012; Clinical Assistant Professor, WWAMI.

EMILY SCHMITT, B.S. Elon University 2007; M.S. University of North Carolina-Charlotte 2009; Ph.D. Texas A&M University 2015; Assistant Professor Kinesiology & Health, WWAMI.

The University of Wyoming medical contract program enhances medical education opportunities for Wyoming residents. In March 1996, the University of Wyoming became a partner in the WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Program. The WWAMI program is Wyoming's medical school and the program delivers the first two years of the University of Washington School of Medicine (UWSOM) medical school curriculum on the University of Wyoming campus. The remaining two years of the curriculum are spent in clinical rotations throughout the five-state WWAMI region. Twenty Wyoming residents are accepted into the WWAMI program each year and receive their M.D. degree from the UWSOM. For further information, contact the Wyoming WWAMI Office, College of Health Sciences, Laramie, Wyoming 82071, (307) 766-2496.

Wyoming WWAMI Medical Education Program

FIRST YEAR: Summer Hrs.

HM 6710.....9

FIRST YEAR: Fall Hrs.

HM 6603.....2

HM 6720.....7

HM 6730.....7

Total Hrs. 16

FIRST YEAR: Spring Hrs.

HM 6602.....2

HM 6603.....2

HM 6740.....5

HM 6750.....5

HM 6755.....1

HM 6760.....6

HM 6770.....5

Total Hrs. 26

SECOND YEAR: Fall Hrs.

HM 6602.....2

HM 6603.....2

HM 6775.....3

HM 6800.....7

HM 6900.....5

Total Hrs. 19

Fay W. Whitney School of Nursing

351A Health Sciences Center,
(307) 766-4312
FAX: (307) 766-4294
Web site: www.uwyo.edu/Nursing
Dean: Sherrill J. Smith
Assistant Deans: Paula Kihn, Janet Wilhaus

Professors:

ANN MARIE HART, B.S.N. Medical College of Virginia 1991; M.S. University of Wyoming 1996; Ph.D. University of Colorado Health Sciences Center Denver 2003; Professor of Nursing 2015.

SHERRILL J. SMITH, B.S.N. University of Wisconsin-Eau Claire 1985; M.S. Wright State University 1997; Ph.D. University of Northern Colorado 2008; Professor of Nursing 2019; Dean of Nursing 2019.

Associate Professors:

REBECCA CARRON, B.S.N. Texas Christian University 1976; B.A. University of Wyoming 1997; M.S. 2006; Ph.D. University of Colorado 2014; Associate Professor of Nursing 2020.

JENIFER THOMAS, B.S. Colorado State University 1994; M.S. Avila University 2000; M.S. Colorado State University 2007; Ph.D. 2008; Associate Professor of Nursing 2016.

JANET WILLHAUS, B.S.N. University of Kansas 1985; M.S. Fort Hays State University 2008; Ph.D. Washington State University 2013; Associate Professor of Nursing 2020.

Clinical Associate Professors:

ESTHER GILMAN-KEHRER, B.S.N. University of Wyoming 1986; M.S. 1998; D.N.P. University of Colorado 2012; Clinical Associate Professor 2021.

NANCY MCGEE, B.S.N. University of Wyoming 2005; M.S. 2007; D.N.P. University of Northern Colorado 2014; Clinical Associate Professor 2020.

J'LAINÉ PROCTOR, B.S.N. University of Wyoming 2000; M.S. 2003; Certificate-PMHNP 2007; D.N.P. University of Northern Colorado 2014; Clinical Associate Professor 2020.

Clinical Assistant Professors:

NANCY "NIKI" EISENMANN, B.S.N. University of Nebraska Medical Center 2002; M.S. Nebraska Wesleyan University 2008; Ph.D. University of Missouri-Kansas City 2020; Clinical Assistant Professor 2020.

SHERRA ST. CLAIR, B.A. Humanities and Fine Arts University of Wyoming 1996; M.F.A. University of Michigan 1998; A.D.N. Laramie Community College 2014; B.S.N. University of Wyoming 2016; M.S. 2007; D.N.P. University of Wyoming 2019; Clinical Assistant Professor 2021.

Senior Lecturers:

Associate Lecturers:

K. David Bodily, Paula Kihn, Candace Stidolph

Assistant Lecturers:

Megan Beach, Linden Gray, Ashley Lair, Shannon Schneider, Christina Warren

Adjunct and Part-time Faculty:

Amy Aldrich, Nicole Alexander, Nikki Armstrong, Jennifer Barbee-Crim, Timothy Barnes, Paula Belknap, Colleen Butler, Britni Camino, Carol Campbell, Erin Clikeman, Robin Cole, Mary Cox, Robyn Curtis-Rice, Wesley Davis, Alison Doherty, Michelle Dowling, Sharon Farra, Jennifer Favilla, James Fleenor, Shelby Frost, Deborah Gaspar, Brian Gee, Mary Kay Goetter, Julian Good, Grace Gosar, Pete Gosar, Sheriedan Grannan, Nancy Halsey, Lori Hart, Jennifer Helmer, Jesse Henry, Holly Hink, Michelle Hipsak, Jennifer Hluwood, Barbara James, Dawn Jensen, Amy Johnson, Jayne Josephsen, Sunny Kaste, Melanie Kawulok, Katie Keller, Carol Kobulnicky, Cheryl Koski, Cory Lamblin, Kara Laughlin, Anthony Leonard, Sue Lowe, Katherine Miller, Jesse Morse-Brady, May Nara, Marcia Newell, Kristy Nielson, Brian O'Neill, Jennifer Oiler, Alicia Palazzolo, Sarah Penn, Whitney Peterson, Collin Prince, Chelse Raymer, Rasha Riad, Vickie Richards, Amy Robohm, Marlene Shaw, Elizabeth DePrince Smith, Shawn Snyder, Nichole Taylor, Veronica Taylor, Cassie Terfehr, Joslyn Thompson, Kate Thompson, Teresa Thompson, Weldonna Toth, Jennifer Tryder, Candace Tull, Jessica Warren, Cynthia Weber, Leah White, Linda Williams, Wendy Wood Neeson, Wendy Wright

Emeriti:

Pamela D. Larsen, Mary E. Burman, Beverly McDermott, Holly Miller, Mary Anne Purtzer, Kimberly Raksa-Miller, Susan H. Steiner, Beverly Taheri-Kennedy, Fay W. Whitney, Norma Wilkerson

The Fay W. Whitney School of Nursing (FWWSON) has well established B.S.N, M.S., and D.N.P. programs based upon national nursing education standards.

Mission

The FWWSON educates, conducts research and provides service and practice to improve, protect and promote health.

Accreditation and Membership

The baccalaureate and graduate programs are accredited by the Commission on Collegiate Nursing Education (CCNE).

The baccalaureate program (Basic BSN, BRAND) is approved by the Wyoming State Board of Nursing (WSBN). Graduates of the Basic BSN and BRAND options are qualified to apply to take national licensing examination: NCLEX. Graduates of the DNP Program are eligible to take the national certification exams as a nurse practitioner.

Technical Standards for Admission

All nursing students must be able to perform the essential functions of a nurse, including observation/sensory motor; communication; psychomotor; intellectual-conceptual, integrative and quantitative; and behavioral and social attributes. Please refer to the "Technical Standards for Admission", including information on reasonable accommodations, on the school's website: <http://www.uwyo.edu/nursing/programs/technical-standards-for-admission.html>.

Background Checks Requirement

Students enrolled in clinical training programs within the College of Health Sciences are placed in educational and clinical settings where highly vulnerable clients such as minor children, individuals with disabilities, and/or the elderly, are routinely served. These clinical/ practice training sites (including schools, hospitals, pharmacies, and other university sites) routinely require criminal background checks for all students who engage in clinical activities. Therefore, background checks shall be required on all applicants to programs in the College of Health Sciences prior to admission into their prospective program.

Students applying for admission into the nursing major component of the BSN Program, the MS Program, and the DNP Program will be notified by the FWWSON at the time of any admission offer the process for completing the required background check. Previous background checks (e.g. CNA Certification, LPN or RN Licensure) are not acceptable to fulfill this expectation. The results of the background check may determine final admittance to the program.

Students may also be required to update the criminal background check. Each clinical training site will be informed that students have passed a background check prior to placement at that site; some sites may require a more current background check. Clinical agencies may bar a student access to their facility for clinical experiences based on the results of the background check. If faculty and staff are not able to place the student in an alternative setting, the student will not be able to complete the program. In addition, students seeking readmission into the program are required to complete a new background check. Students are responsible for the costs associated with the admission background check and any other background checks that may be required.

Drug Screening Requirement

Drug screening may be required by some clinical training sites. Students will be notified by the FWWSON should this be an expectation of them. Students may incur charges for this screening and will be notified of such at that time. Drug and/or alcohol testing for any student can be requested by the FWWSON.

The Fay W. Whitney School of Nursing provides a curriculum based on the solid foundation of a general studies program. University students are individuals who come with learning preferences, different experiences, varied goals, and therefore, have unique learning needs. The primary responsibility of faculty is to empower students to become self-directed learners. Active learning is a teaching/learning partnership.

Health Insurance Requirement

Health insurance coverage is a requirement of the Fay W. Whitney School of Nursing for participation in any clinical rotation. It is the responsibility of the student to obtain and maintain coverage for **ALL** clinical rotations. Students will be notified by the FWWSON should this be an expectation for them as well as timing for completion of the FWWSON Student Verification of Health Insurance Form.

Undergraduate Study

Bachelor of Science in Nursing (BSN) Program

The Fay W. Whitney School of Nursing provides a curriculum based on the solid foundation of a general studies program. University students are individuals who come with learning preferences, different experiences, varied goals, and therefore, have unique learning needs. The primary responsibility of faculty is to empower students to become self-directed learners. Active learning is a teaching/learning partnership.

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Bachelor of Science in Nursing (BSN) Program Options

The Fay W. Whitney School of Nursing offers a baccalaureate program with three options to obtain the BSN degree:

1. Basic BSN - a four-year, on-campus BSN option for the student who wishes to become a registered nurse at the baccalaureate level.
2. BRAND (Bachelors Reach for Accelerated Nursing Degree) - an accelerated BSN outreach option for the student who has already achieved a previous non-nursing baccalaureate degree and who wishes to become a registered nurse at the baccalaureate level.
3. BSN Completion - two online BSN options (ReNEW and RN-BSN):
 - ReNEW (Revolutionizing Nursing Education in Wyoming) - an online BSN option for the student or graduate of a Wyoming community college ReNEW nursing program who wishes to become a baccalaureate-prepared nurse.

- RN-BSN - an online BSN option for the graduate of a non-ReNEW associate degree or diploma nursing program who wishes to become a baccalaureate-prepared nurse.

Please refer to the appropriate BSN program option section that follows below.

Graduate Study

The Fay W. Whitney School of Nursing offers two graduate programs leading to: 1) a Master of Science (M.S.) degree and 2) a Doctor of Nursing Practice (D.N.P.) degree.

Master of Science (MS) Program

The MS program of study is for nurses who desire to become nurse educators or nurse leaders in any academic or health-related setting. The program mission is to prepare transformational learners and leaders to advance nursing education and practice, thus, addressing the complexities in the 21st century healthcare system. Core curricular concepts woven through the curriculum include transformation, communication, interconnected global perspective, outcomes orientation, and rural population health.

Expected Student Learning Outcomes

MS graduates are prepared to ensure better care, better health, and lower costs through their knowledge, skills, and abilities to:

- Demonstrate competence and caring in the advanced professional nurse role to serve Wyoming, the region, and the world in urban, rural, and frontier health care settings as a provider, leader, and/or educator in the health care system.
- Transform rural health through leadership, service, and clinical scholarship that reflects an interconnected and comprehensive global health perspective.
- Demonstrate an advanced understanding of nursing and other sciences and humanities and integrates this knowledge to manage and improve health care across settings
- Synthesize broad organizational, financial, economic, client-centered, and culturally appropriate concepts from nursing and other sciences to address population health.
- Engage in scholarly inquiry and evidence-based practice to lead change for quality outcomes and implement safe health care to diverse populations in a variety of settings.

Core Concepts:

- **Transformation:**
Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.
- **Rurality/Frontier:**
Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.
- **Service:**
Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.

- **Comprehensive Global Healthcare System Perspective:**
An interconnected and comprehensive global health care system perspective incorporating the following attributes: advocacy, altruism, creativity, ethical conduct, effective communication skills, leadership, problem-solving skills, professionalism, and scholarship.
- **Clinical Scholarship:**
Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Master of Science (MS) Program Concentrations

The Fay W. Whitney School of Nursing offers a masters program with two concentrations to obtain the MS degree:

1. Nurse Educator - a two and a half-year, online MS concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) who desire to become nurse educators.
2. Nurse Leader - a two and a half-year, online MS concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) who desire to become nurse leaders.

Please refer to the MS program section that follows below.

Doctor of Nursing Practice (DNP) Program

The Doctor of Nursing Practice (DNP) degree is the new standard for advanced practice nursing education. The DNP program is open to registered nurses with a minimum of a baccalaureate degree in nursing from a program nationally accredited by an approved nursing education accrediting body.

Expected Student Learning Outcomes

DNP graduates will:

1. engage in evidence-based practice to optimize health outcomes;
2. engage in leadership activities to promote excellence in rural health care.

Doctor of Nursing Practice (DNP) Program Concentrations

The Fay W. Whitney School of Nursing offers a doctoral program with two concentrations to obtain the DNP degree:

1. Family Nurse Practitioner (FMY) - a three-year, DNP concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) that prepares students for careers in rural primary care.
2. Psychiatric Mental Health Nurse Practitioner (PSH) - a three-year, DNP concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) that prepares students for careers in rural psychiatric mental health care.

Please refer to the appropriate DNP program concentration section that follows below.

School of Pharmacy

292 Health Sciences, (307) 766-6120

FAX: (307) 766-2953

Web site: www.uwyo.edu/Pharmacy

Dean: Kem Krueger

Associate Dean of Students: Tonja Woods

Professor:

SREEJAYAN NAIR, B.S. College of Pharmaceutical Sciences, Manipal, India 1989; M.S. 1991; Ph.D. 1996; Professor of Pharmacology 2014, 2002.

Associate Professors:

JARED S. BUSHMAN, B.A. University of Utah 2003; M.S. University of Rochester 2006; Ph.D. 2008; Assistant Professor of Pharmaceutical Science 2020.

E. KURT DOLENCE, B.S. University of Wyoming 1983; Ph.D. University of Kentucky 1987; Associate Professor of Medicinal Chemistry 2005, 1999.

GUANGLONG HE, B.S. Anhui Normal University 1986; M.S. Chinese Academy of Sciences 1994; Ph.D. 1997; Associate Professor of Medicinal Chemistry 2019, 2013.

KEM P. KRUEGER, Pharm.D. University of Missouri-Kansas City; Ph.D. University of Arizona 1998; Associate Professor of Social and Administrative Pharmacy 2011, 2005.

TRACY D. MAHVAN, B.S. University of Colorado 1995; Pharm.D. 1998; Associate Professor of Pharmacy Practice 2006, 2000.

RESHMI L. SINGH, B.S. Bombay University 1999; M.S. University of Toledo 2001; Ph.D. University of Minnesota 2005; Associate Professor of Social and Administrative Pharmacy 2019, 2013.

Assistant Professors:

MICHELLE BLAKELY, B.A. University of South Alabama 2005; M.Ed. Auburn University 2008; Ph.D. 2011; Assistant Professor of Social and Administrative Pharmacy 2018.

ANNA CLARA BOBADILLA, B.S. Pierre & Marie Curie University 2008; M.S. 2010; Ph.D. 2014; Assistant Professor of Pharmaceutical Sciences 2020.

NERVANA ELKHADRAGY, B.S. Cairo University 2004; Pharm.D. Purdue University 2008; M.S. 2018; Ph.D. 2020. Assistant Professor of Social and Administrative Pharmacy 2020.

KAREN MRUK, B.A. Drew University 2003; Ph.D. University of Massachusetts Medical School 2012; Assistant Professor of Pharmaceutical Science 2018.

Clinical Professor:

MICHELLE L. HILAIRE, Pharm.D. Duquesne University 2002; Clinical Professor of Pharmacy Practice 2016, 2010, 2004.

JAMIE R. HORNECKER, B.S. Texas Tech University 1999; Pharm.D. University of Wyoming 2003; Clinical Professor of Pharmacy Practice 2012, 2005.

Clinical Associate Professors:

LAUREN BIEHLE, Pharm.D. University of Georgia 2010; Clinical Associate Professor 2020.

BECKY S. LINN, B.A. University of Wyoming 1997; Pharm.D. 2002; Clinical Associate Professor 2020.

JANELLE L. KRUEGER, B.S. University of Wyoming 1992; M.S. University of Kansas 1997; Clinical Associate Professor of Pharmacy Practice 2013, 2005.

ALLISON M. MANN, B.S. University of Colorado Boulder 2004; Pharm.D. University of Colorado Denver 2009; Clinical Associate Professor of Pharmacy Practice 2020.

LEENA D. MYRAN, B.S. University of Wyoming 2000; Pharm.D. 2012; Clinical Associate Professor of Pharmacy Practice 2020.

ALIVN OUNG, Pharm.D. MCPHS University 2014; Clinical Associate Professor 2022.

JEREMY VANDIVER, B.A. University of Colorado 2006; Pharm.D. University of Colorado 2010; Clinical Associate Professor 2020.

TONJA M. WOODS, Pharm.D. University of Wyoming 2002; Clinical Associate Professor of Pharmacy Practice 2009, 2003.

Clinical Assistant Professors:

JED DOXTATER, B.S. University of Montana 2006; M.S. University of North Dakota 2013; Clinical Assistant Professor 2015.

JESSICA PAPKE, PharmD, University of Wyoming 2017; Clinical Assistant Professor 2020.

Assistant Lecturers:

ANTOINETTE K. BROWN, B.S. University of Wyoming 1992; Assistant Lecturer 2013.

DAVID C. BRUCH, B.S. University of Wyoming 1998; Pharm.D. 2010; Assistant Lecturer 2012.

CHARLIE P. CRUZ, B.S. Lorma Colleges 1998; M.A. Don Mariano Marcos Memorial State University 2003; M.S. Lyceum of the Philippines University Batangas 2016; Ph.D. Saint Louis College 2014; Assistant Lecturer of Medical Laboratory Science 2016.

Drug Information Director:

MELISSA L. HUNTER, B.S. University of Wyoming 2000; Pharm.D. 2004; Associate Research Scientist 2013, 2007.

Professors Emeriti:

Emery Brunett, Ph.D.
Bruce W. Culver, Ph.D.
Linda Gore Martin, Pharm.D.
Kenneth F. Nelson, Ph.D.
Robert B. Nelson, Ph.D.
Robert D. Scalley, Pharm.D.
Beverly, Sullivan, Pharm.D.
M. Glauca Teixeira, Ph.D.
Weeranuj Yamreudeewong, Pharm.D.

Deans Emeriti:

John H. Vandel, B.S. Pharmacy
Linda Gore Martin, Pharm.D.

Vision, Mission and Values

Vision

The University of Wyoming School of Pharmacy (UWSOP) is nationally recognized for its distinguished and collaborative teaching, research, pharmacy practice, and its entrepreneurial spirit.

Our graduates are highly skilled health professionals and leaders. Our graduates thrive and innovate in diverse and dynamic environments.

Mission

The University of Wyoming School of Pharmacy (UWSOP) advances the holistic development of our learners, preparing them to embrace change and positively impact the health and well-being of the communities that they serve. We engage in interdisciplinary teaching, research, practice, and service that results in meaningful innovations in healthcare, and improves the health and wellness of Wyoming, national, and global communities.

Statement of Values

The University of Wyoming School of Pharmacy community is committed to supporting and promoting individual and collective excellence in teaching, research, service, and pharmacy practice.

We value learning, collaboration, responsibility, compassion, respect, integrity, diversity, equity, and inclusion in all endeavors.

Graduate Expectations

Our graduates will be recognized and respected for:

- Leading positive change in the communities, organizations, industries, and professions that they serve
- Engaging in collaborative opportunities across disciplines and professions
- Providing evidence-based, empathetic, patient-centered care
- Thinking critically, creatively, ethically, and pragmatically
- Thriving and innovating in dynamic, diverse, and digital environments
- Ability to adapt in an ever-changing environment
- Dedication to excellence and integrity
- Communicating effectively across a wide range of audiences
- Embracing an entrepreneurial spirit

Learning Outcomes

The University of Wyoming adheres to the American Association of Colleges of Pharmacy Center for Advancement of Pharmaceutical Education (CAPE) educational outcomes 2013. This multipage document (and its supplements) can be accessed at www.aacp.org. The school has outlined student/curriculum learning outcomes; these are available on the school website.

Student/Faculty Relations

The faculty and staff at the School of Pharmacy treat students as adults and expect appropriate behavior as beginning professionals. The School of Pharmacy recognizes that the profession of pharmacy demands of its members the utmost degree of professional competence, ethical behavior, and integrity. Upon enrolling at the University of Wyoming SOP and at the start of each academic year, all students will sign a pledge acknowledging that they have received and read the current Honor Code and that they have made a personal commitment to uphold the code and abide by its principles. Similarly, the School of Pharmacy Professionalism Policy for faculty and staff is built on the foundation of respect for others, personal responsibility, the creation and maintenance of trust, and honesty and truthfulness. The administration, faculty, staff, students, and alumni of the School of Pharmacy at the University of Wyoming should strive to set an example of ethical leadership and professional behavior as those traits are essential for good social and business interactions.

Accreditation and Membership

In Wyoming, as in most other states, one requirement for examination and registration as a pharmacist is graduation from an accredited entry-level professional program at a school or college of pharmacy. The Accreditation Council for Pharmacy Education (ACPE), the national accrediting agency for pharmacy, accredits pharmacy degree programs.

The Doctor of Pharmacy program at UW was most recently accredited in 2020 following an on-site evaluation by the ACPE in October 2020. Verification of current accreditation status may be made by: a) contacting the Dean's Office, School of Pharmacy; b) connecting to www.uwyo.edu/pharmacy/; c) contacting the Accreditation Council for Pharmacy Education (190 South LaSalle Street, suite 2850 Chicago IL 60603, (312) 664-3575; info@acpe-accredit.org) or d) by checking the latest Annual Directory of Accredited Professional Programs published by ACPE.

The school is a member of the American Association of Colleges of Pharmacy and adheres to its educational standards.

Preprofessional Program and Requirements

Applicants for the professional program in pharmacy must complete preprofessional requirements before they can be admitted. Usually, two academic years totaling 72 credit hours (which may include summer and J-Term semesters) is required to complete preprofessional requirements.

All preprofessional coursework must be completed by the end of the spring semester prior to matriculation in the professional program.

Graduates of fully accredited high schools may be admitted to the preprofessional program with a math placement score of 3 or an ACT math score of 23.

Early Assurance Program: Students are accepted to the EAP program based on their high school GPA and ACT/SAT scores. High School students can apply to the professional program as they are applying for admission to the University of Wyoming as first-year students.

Preprofessional Pharmacy Program (PPCY)

Students will not receive a degree in prepharmacy. The prepharmacy curriculum guides students as they fulfill requirements for admission to the professional pharmacy degree program.

Required Curriculum

- CHEM1020 - General Chemistry I Credits: 4
- CHEM1030 - General Chemistry II Credits: 4
- LIFE1010 - General Biology Credits: 4
- LIFE2022 - Animal Biology Credits: 4
- MATH2200 - Calculus I Credits: 4
- STAT2050 - Fundamentals of Statistics Credits: 4
- CHEM2420 - Organic Chemistry I Credits: 4
- CHEM2440 - Organic Chemistry II Credits: 4
- KIN2040 - Human Anatomy Credits: 3
- KIN2041 - Human Anatomy Laboratory Credits: 1
- MOLB2021 - General Microbiology Credits: 4
- MOLB3610 - Principles of Biochemistry Credits: 4
- ZOO3115 - Human Systems Physiology Credits: 4
- General Electives (6 credits total)

USP Requirement

The USP-COM 3 requirement is fulfilled in the professional doctoral program.

- FYS-First Year - Seminar Credits: 3

- COM1 - Communication 1 Credits: 3
- COM2 - Communication 2 Credits: 3
- Q- - Quantitative Reasoning Credits: 3
- PN- - Physical and Natural World (1) Credits: 3
- PN- - Physical and Natural World (2) Credits: 3
- H- - Human Culture (1) Credits: 3
- H- - Human Culture (2) Credits: 3
- V- - U.S. & WY Constitution Credits: 3

Professional Doctoral Program

Admission

Admission to the professional program leading to the entry-level Pharm. D. degree is limited to 52 students per year and is highly competitive. Admission is granted by the School of Pharmacy Dean upon the advice of the School of Pharmacy Admissions Committee. Students can apply to the professional program as freshman via the Pharmacy Early Assurance program. All students applying to the UW School of Pharmacy must use the PharmCAS application (www.pharmacas.org) process. All materials (PCAT scores, and Letters of Recommendation) are submitted to UW using this service. The School of Pharmacy requires no supplemental application. Students granted admission to the professional program will have to pay a one-time, non-refundable, seat fee to guarantee their placement into the entering class. In addition students will be required to complete any immunizations necessary for experiential rotations. As part of a College of Health Sciences requirement students are also expected to complete and pass a background check prior to final admission to the professional program.

Students must meet, with or without accommodation, specified requirements. The School of Pharmacy's Technical Standards can be found at http://www.uwyo.edu/pharmacy/_files/documents/admin/uwsop-technical-stds-3-2013.pdf.

The School of Pharmacy provides opportunities to ensure that our students have co-curricular experiences in both our didactic and experiential program. Providing options for students that are co-curricular allows students to choose activities that interest them and will allow them to grow as future health professionals. A portion of co-curricular activities throughout the degree program will be required and assessed.

Students at the University of Wyoming SOP are immersed in interprofessional education opportunities during all years of the professional program. Interprofessional education provides experiences for Pharm.D. students to collaborate and share knowledge with learners in other health sciences disciplines, which fosters readiness for working in team-based care environments in their future careers.

Program of Study

Requirements for Graduation

The degree of Doctor of Pharmacy (Pharm.D.) is granted upon satisfactory completion of 146 hours in the professional curriculum in accordance to the school's academic standards and the fulfillment of the general university requirements. Transfer students who have previous professional pharmacy credits accepted as partial completion of residence work may not earn a degree from this university for less than 30 semester hours of resident credit in the professional program of this School of Pharmacy over a minimum of two resident semesters.

Graduation with Honors

The University of Wyoming School of Pharmacy is authorized to grant honors for academic excellence. A Doctor of Pharmacy with honors designation is awarded by the University of Wyoming to students who graduate with exceptional scholarship in Pharmacy.

Exceptional scholarship in pharmacy is defined as a student who is on track to graduate with their class from the University of Wyoming School of Pharmacy and is in the top 5% of their class based on their pharmacy GPA (as assessed at the end of the fall semester of the P4 year). The Pharmacy GPA is calculated on the basis of required professional pharmacy curriculum coursework and excludes required or selected elective hours. The honors distinction must be approved by a School of Pharmacy faculty vote.

Academic Honesty and Professional Conduct

Students admitted to the professional program are required to participate and sign the University of Wyoming School of Pharmacy Honor Code. Failure to sign the honor code will result in a withdrawal of admission offer or termination from the professional program.

Academic Standards for Progression and Graduation

The course of study in the School of Pharmacy (SOP) is four academic years leading to a Doctor of Pharmacy degree (PharmD). The required professional coursework is organized in a prescribed, non-negotiable, sequential manner. All students have a P-designation identifying their year in the program (P1, P2, P3, P4). Required professional courses (PHCY courses) from any national or international pharmacy programs will not be applied to the UW PharmD degree. The student may petition that coursework to be applied to the program but must replace those credit hours with additional elective courses. Courses taken as S/U, including electives, are usually considered unacceptable in fulfilling program requirements. Auditing courses for the PharmD degree is not allowed.

The academic standards herein described are expected to be followed by all students admitted to the professional program. Any violation will constitute grounds for probation or termination from the professional program and will delay progression towards advanced coursework. Probation is a period of time in which the student is allowed to continue in the program under supervision. Students that do not meet academic standards and are placed on probation will have to submit a petition that includes an individualized plan of study for the next semester. This plan must be developed by the student in agreement with and signed by the academic advisor. The petition will be reviewed by the Student Affairs Committee (SAC), which will send a recommendation to the Dean for approval or denial. A leave of absence may be necessary in cases where poor academic performance is due to a medical or personal hardship. The student may appeal sanctions related to violations of the academic standards and decisions that result in probation and termination in the program. Appeals start at the School level, followed by College and University levels, according to policy.

Academic Standards

1. A grade of D or lower, or course withdrawal, in any required course of the professional program constitutes failure to progress toward the PharmD degree and result in probation.
2. A grade of D or lower, in any elective course of the professional program constitutes failure to progress toward the PharmD degree and result in probation.
3. Students must earn a GPA of 2.000 or better in both University coursework and professional program courses each semester and cumulatively.

4. Students must be considered full time with coursework applicable to the pharmacy degree during each semester while in good standing.
5. Incomplete coursework must be completed prior to progression into the next academic semester and will halt progression in experiential coursework.
6. Students who earn a D or lower in any experiential coursework will have their rotation sequence halted.
7. A course taken in the professional pharmacy program course can be repeated only once.
8. A maximum of three required courses are allowed to be repeated during the degree program.
9. Failure to meet any academic standards for two semesters (not necessarily consecutive) in didactic and/or experiential coursework results in automatic termination from the professional program.
10. Failure of two experiential courses, not necessarily consecutive, results in termination from the professional program.

Elective Credits Policy

The purpose of electives at the School of Pharmacy (SOP) is to complement the pharmacy curriculum, expand knowledge within a specific pharmacy discipline and to ensure completion of the general liberal arts education of the University of Wyoming. Therefore, the following policies have been approved by the faculty for the Doctor of Pharmacy professional program (hereafter, Program).

As published in the University Catalog and SOP students are required to complete a minimum number of electives, specific for the student's year of matriculation into the Program. This number may vary and may be modified as adjustments are made to the professional curriculum to comply with accreditation standards. Students will be made aware of this number during initial orientation into the Program and kept informed of any changes during their stay in the academic program.

Students must take elective courses to satisfy first the requirements of the University Studies Program (hereafter, USP) and then complete the remaining required elective credits as general elective coursework (Program-approved required number of elective hours).

- Students are required to complete all USP requirements even if they exceed the minimum number of elective hours initially defined in their Program in order to graduate from UW.
- Transfer or online courses from other accredited institutions may be honored as elective credits toward the Program. Students are solely responsible to have all transcripts from other schools sent to the University and make sure that the Director of Student Services and advisors are aware of any transfer work in the professional program.
- All required hours (including electives) must be completed by students before progressing into the P4 rotation year. Students will not be allowed to progress toward the 4th year rotations if university studies requirements were not fulfilled.
- Students shall not take electives as Satisfactory/ Unsatisfactory (S/U) credit.
- All courses taken in the preprofessional program or to fulfill requirements in a previous degree cannot be retaken to count as elective hours in the Program. In addition, students cannot use previously taken credit (prior to the professional program) as elective credit in the professional program.
- Credit by exam through the Foreign Languages Dept. will not be accepted as fulfillment of elective requirements in the Program. However, it is a student's right to earn credit by exam for Wyoming History and Government, while receiving elective credits toward the Program and fulfilling USP requirements.
- For procedures and handling of all exceptions to these policies, the students should consult the student handbook, the pharmacy student Share Point site, the SOP website, or check with the Director of Pharmacy Student Services or the Associate Dean of Students.

Curriculum

Pharmacy, Pharm.D.

The School of Pharmacy offers only the four-year curriculum leading to the Doctor of Pharmacy (Pharm.D.) degree. Students admitted to the professional pharmacy program follow a four year program of study leading to the Doctor of Pharmacy Degree. Students complete a total of 146 hours.

In order to keep abreast with changes in pharmaceutical education, the following curriculum is subject to change or modification as required by the accrediting agency. Students should be aware that changes must be expected and they will be included in their academic program. The School of Pharmacy does not plan to change graduation requirements inadvertently, but does reserve the right to change any provisions or requirement deemed necessary at any time within the student's term of residence.

Required Curriculum

- ZOO4125 - Integrative Physiology Credits: 5
- PHCY6100 - Dose Form Design Credits: 4
- PHCY6106 - Pharmaceutical Calculations Credits: 2
- PHCY6110 - Medicinal and Natural Products Chemistry I Credits: 3
- PHCY6140 - Introduction to Social Administrative Pharmacy Credits: 2
- PHCY6160 - Pharmacist Skills I Credits: 1
- PHCY6102 - Biopharmaceutics and Pharmacokinetics Credits: 4
- PHCY6111 - Medicinal and Natural Products Chemistry II Credits: 3
- PHCY6120 - Advanced Pathophysiology Credits: 3
- PHCY6151 - Pharmacy Practice Credits: 2
- PHCY6152 - Therapeutics I Credits: 3
- PHCY6161 - Pharmacist Skills II Credits: 1
- PHCY6170 - Introductory Pharmacy Practice Experience-IPPE1 Credits: 1
- PHCY6480 - Introduction to Community Pharmacy Practice Credits: 4
- PHCY6482 - Introduction to Hospital Pharmacy Practice Credits: 4
- PHCY6215 - Medicinal and Natural Products Chemistry III Credits: 3
- PHCY6230 - Pharmacology I Credits: 4
- PHCY 6230 - Pharmacology I Discussion Credits: 0
- PHCY6240 - Research and Evaluation Methods in Pharmacy Credits: 3
- PHCY6245 - Patient/Professional Interactions Credits: 3
- PHCY6260 - Pharmacist Skills III Credits: 1
- PHCY6231 - Pharmacology II Credits: 4
- PHCY 6231 - Pharmacology II Discussion Credits: 0
- PHCY6246 - Pharmacy Management, Marketing and Finance Credits: 3
- PHCY6251 - Therapeutics II Credits: 3
- PHCY6261 - Pharmacist Skills IV Credits: 2
- PHCY6270 - Intermediate Pharmacy Practice Experience-IPPE2 Credits: 1
- PHCY6312 - Clinical Toxicology Credits: 3
- PHCY6341 - Pharmacy Practice Law Credits: 3
- PHCY6344 - Pharmacy Ethics Credits: 1
- PHCY6350 - Therapeutics III Credits: 4

- PHCY6357 - Clinical Pharmacokinetics Credits: 2
- PHCY6360 - Pharmacist Skills V Credits: 1
- PHCY6300 - Sterile Products Credits: 2
- PHCY6301 - Sterile Products Laboratory Credits: 1
- PHCY6340 - Health Care Policy and Advocacy Credits: 2
- PHCY6351 - Therapeutics IV Credits: 4
- PHCY6353 - Drug Literature Application Credits: 2
- PHCY6361 - Pharmacist Skills VI Credits: 2
- PHCY6370 - Advanced Pharmacy Practice Experience-IPPE3 Credits: 2
- PHCY6485 - Reflective Learning in Pharmacy Credits: 1
- Students complete 3 sections of PHCY 6485, 1 credit each.

- PHCY6470 - Internal Medicine I Credits: 4
- PHCY6473 - Ambulatory Pharmaceutical Care Credits: 4
- (Students complete a second semester of either Internal Medicine or Ambulatory Care)

- PHCY6471 - Internal Medicine II Credits: 4
- PHCY6474 - Ambulatory Pharmacy Care II Credits: 4
- PHCY6481 - Advanced Community Pharmacy Credits: 4
- PHCY6483 - Advanced Institutional Pharmacy Credits: 4
- PHCY6465 - Elective Rotation In: Credits: 4
- Students complete 4 sections of PHCY 6465, 4 credits each.

- Students complete 7 hours of electives during the P1-P3 year.

Total Hours 146

Fourth Year [PH4]:

Consists of nine experiential rotations of four credit hours each and three reflective learning weeks. Rotations are considered full-time. Students may not enroll in any other coursework concurrent with rotations. Consequently, all other coursework (107 credits) must be satisfactorily completed before enrollment in P4 coursework. Note: Students will be required to live in locations other than Laramie when enrolled in experiential rotations. Responsibility for living cost and travel arrangements associated with experimental rotations rests with the student. Students participating in all experimental activities will be required to have a vehicle or an acceptable approved alternative.

Students must complete the following Core or Required Experiential Rotations (subject to change):

- PHCY6470 - Internal Medicine I Credits: 4
- PHCY6473 - Ambulatory Pharmaceutical Care Credits: 4
- PHCY6471 - Internal Medicine II Credits: 4
- or
- PHCY6474 - Ambulatory Pharmacy Care II Credits: 4
- PHCY6481 - Advanced Community Pharmacy Credits: 4
- PHCY6483 - Advanced Institutional Pharmacy Credits: 4
- Plus 4 Elective Rotations (PHCY 6465)

Graduate Study

The School of Pharmacy offers the Master of Science in Health Services Administration and the Master of Business Administration/Doctor of Pharmacy (M.B.A./Pharm.D.) dual degree.

Health Services Administration, M.S.

The School of Pharmacy offers a Master of Science online degree in health services administration (MSHSA).

Specialty Tracks

All students select one specialty track.

Biopharmaceutical Regulatory Compliance Group Specialty Listings

Specialty Tracks through the Biopharmaceutical Regulatory Compliance Group

- o Biopharmaceutical Regulatory Compliance
- o Healthcare Risk Management
- o Forensic Pharmacy
- o Healthcare Policy Analysis
- o Biopharmaceutical Product Representation
- o Clinical Research Administration
- o Patient Safety Systems
- o Healthcare Security Systems
- o Healthcare Ethics & Equity

Health Institution Leadership Group Specialty Listings

Specialty Tracks through the Health Institution Leadership Group

- o Health Institution Leadership
- o Health Economics & Outcomes
- o Healthcare Quality & Improvement
- o Rural Healthcare Coordination
- o Geriatric Care Systems
- o Healthcare Entrepreneurism
- o Healthcare Financing
- o Health Information Technology
- o Healthcare Writing and Reporting

Biopharmaceutical Regulatory Compliance Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks.

- PHCY5040 - The Evolution of American Health Credits: 2
- PHCY5042 - Statistics for Health Services Credits: 3
- PHCY5043 - Empirical Analysis for Health Services Administration Credits: 3
- PHCY5045 - Health Services Administration Applied Research Credits: 1-4
- PHCY5046 - Health Services Administration Seminar1 Credits: 1
- PHCY5041 - Health Services Administration Research Methods Credits: 2
- Sub-Total Program Required Coursework: 15 credit hours

Biopharmaceutical Regulation & Compliance Track

The following tables provides a list of required courses for the track listed

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5242 - The Food and Drug Administration Credits: 2
- PHCY5243 - The Drug Enforcement Administration Credits: 2
- PHCY5244 - State Regulations of Health Professions Credits: 2
- Specialty Track Electives (choose 6 hours)

Healthcare Risk Management Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5342 - Healthcare Risk and Quality Credits: 3
- PHCY5670 - Medication Malpractice Credits: 2
- PHCY5240 - Pharmaceutical Homicide Credits: 2
- Specialty Track Electives (Choose 6 hours)

Forensic Pharmacy Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5240 - Pharmaceutical Homicide Credits: 2
- PHCY 5XXX The Chemistry of Poisonings 2 Credits
- PHCY 5XXX Thr Process of Forensic Science 2 Credits

Specialty Track Electives (choose 6 hours)

Healthcare Policy Analysis Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5047 - Pandemic Preparedness Policy Credits: 2
- PHCY5148 - Health Economics and Policy Credits: 2
- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5246 - Prescription Drug Costs Credits: 2
-

Biopharmaceutical Product Representation Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY5541 - Introduction to Biopharmaceutical Marketing and Production Credits: 3
- Specialty Track Electives (choose 6 hours)

Clinical Research Administration Track

Specialty Track Required Coursework (10 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5242 - The Food and Drug Administration Credits: 2
- PHCY 5XXX Biomedical Ethics 3 Credits

PHCY 5XXX Clinical Research Regulation 2 Credits

Specialty Track Electives (choose 5 hours from list)

Patient Safety Systems Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5341 - Principles of Healthcare Quality Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 6 hours)

Healthcare Security Systems Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY 5XXX Cybersecurity 2 Credits

PHCY 5XXX HIPPA Compliance 2 Credits

PHCY 5XXX Disaster Management 2 Credits

Specialty Track Electives (choose 6 hours)

Healthcare Ethics & Equity Track

Specialty Track Required Coursework (10 Credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY 5XXX Biomedical Ethics 3 Credits

PHCY 5XXX HIPAA Compliance 2 Credits

PHCY 5XXX Clinical Research Regulation 2 Credits

Specialty Track Electives (choose 5 hours)

Health Institution Leadership Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks

- PHCY5040 - The Evolution of American Health Credits: 2
- PHCY5041 - Health Services Administration Research Methods Credits: 2
- PHCY5042 - Statistics for Health Services Credits: 3
- PHCY5043 - Empirical Analysis for Health Services Administration Credits: 3
- PHCY5045 - Health Services Administration Applied Research Credits: 1-4
- PHCY5046 - Health Services Administration Seminar1 Credits: 1
- Sub-Total Program Required Coursework: 15 Hours

Health Institution Leadership Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY5442 - Healthcare Financial Planning Credits: 2
- PHCY5443 - Healthcare Human Capital Plan Credits: 2
- PHCY5444 - Healthcare Strategic Innovation Credits: 2
- Specialty Track Electives (choose 6 hours)

Health Economics and Outcomes

Specialty Track Required Coursework (10 credit hours)

- PHCY5141 - Principles of Health Econ and Outcomes Credits: 3
- PHCY5142 - Health Economic Decision Analysis Credits: 2
- PHCY5143 - Comparative Effectiveness Research Credits: 2
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (Choose 5 hours)

Healthcare Quality & Outcomes Track

Specialty Track Required Coursework (8 credit hours)

- PHCY5341 - Principles of Healthcare Quality Credits: 3
- PHCY5342 - Healthcare Risk and Quality Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 7 hours)

Rural Healthcare Coordination Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5141 - Principles of Health Econ and Outcomes Credits: 3
- PHCY5341 - Principles of Healthcare Quality Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 6 hours)

Geriatric Care Systems Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5341 - Principles of Healthcare Quality Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 6 hours)

Healthcare Entrepreneurism Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5541 - Introduction to Biopharmaceutical Marketing and Production Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3

- Specialty Track Electives (choose 6 hours)

Healthcare Financing Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5141 - Principles of Health Econ and Outcomes Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY5541 - Introduction to Biopharmaceutical Marketing and Production Credits: 3
- Specialty Track Electives (choose 6 hours)

Health Information Technology Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY 5XXX Information Design and Analysis 2 Credits

PHCY 5XXX Healthcare Information Systems 2 Credits

PHCY 5XXX Information Management 2 Credits

Specialty Track Electives (choose 6 hours from list)

Healthcare Writing & Reporting Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY 5XXX Professional Writing in Healthcare 2 Credits

PHCY 5XXX Health Data in Figures, Tables & Graphs 2 Credits

PHCY 5XXX The Healthcare Message 2 Credits

Specialty Track Electives (choose 6 hours)

Additional Notes

NOTE: Specialty track electives can be any course provided in the MSHSA program.

Please consult with the program director if you have questions on the electives to choose for a specific track.

Those course numbers with PHCYXXXX are currently being built or waiting on approval from the University. Please contact the MS HSA program for questions.

Additional Requirements

This degree is geared toward new and mid-career practitioners including pharmacists, nurses, physicians, social workers, and other health care professionals who want to become department directors, patient safety coordinators and/or directors, regulatory compliance officers, clinical research associates, health outcomes researchers or take on leadership roles as advanced practice practitioners.

The program also benefits health care workers in fields such as management positions, pharmaceutical sales representatives, medical science liaisons, and pharmacy technician educators as well as new clinical faculty at newly established pharmacy colleges.

Available nationwide the master's program is delivered via a mix of online self-study and online project-based coursework.

The program can be completed in two years of part-time study. Students are requested to travel to the UW Laramie campus for two weekend seminars during the two-year program (based on travel restrictions during the pandemic this course was held online). Graduates will be expected to complete 30 credit hours of coursework and pass a comprehensive final exam. Coursework will be completed over five consecutive semesters however students can take up to 6 years to complete the program.

A prospective student should have earned at least a bachelor's degree from a regionally accredited institution. To find out more about the application process please see the following website www.uwyo.edu/pharmacy/online-ms-program or contact the Student Services Office.

Medical Laboratory Science

Aley Hall, UW-Casper, (307) 268-2753

FAX: (307) 268-2416

Web site: www.uwyo.edu/pharmacy/mls-program/index.html

Director: Jed M. Doxtater, MS MLS (ASCP)^{CM}

Assistant Clinical Faculty:

JED M. DOXTATER, B.S. University of Montana 2007; M.S. University of North Dakota 2013; Assistant Clinical Faculty of Medical Laboratory Science 2015.

Assistant Lecturer

CHARLIE P. CRUZ, B.S. Lorma Colleges 1998; M.A. Don Mariano Marcos Memorial State University 2003; M.S. Lyceum of the Philippines University Batangas 2016; Ph.D. Saint Louis College 2014; Assistant Lecturer of Medical Laboratory Science 2016.

Mission and Goals

The mission of the Bachelor of Science in Medical Laboratory Science program at the University of Wyoming-Casper is to educate, train, and produce highly competent, ethical professionals who are committed to lifelong learning. Curriculum is designed to prepare students to meet current and future workplace challenges and technological advancements in the profession.

Program Goals

1. Provide education in accordance with the National Accrediting Agency for clinical Laboratory Sciences (NAACLS) standards for Medical Laboratory Science programs.
2. Provide students with adequate knowledge and background experience to successfully complete the national certification examination appropriate to their level of training.
3. Provide opportunity for students to develop skills in effective communication sufficient to serve the needs of patients, public, and other healthcare professionals.
4. Graduate well qualified Medical Laboratory Scientists who can function at a career entry level, and are prepared to meet the workforce needs of the state of Wyoming and the nation.
5. Provide students with professional role models so that they may develop and practice professional behaviors, attitudes and ethics necessary to work in, and promote the field of Medical Laboratory Science.
6. Periodically undergo program review to meet the diverse educational needs of students, accreditation standards and industry demands for qualified, skilled entry level practitioners.
7. Establish an advisory board of professionals, community partners and stakeholders for program development, evaluation and improvement.
8. Promote membership and active participation in professional societies.

Outcomes

Description of Entry Level Competencies of the Medical Laboratory Scientist

At entry level, the medical laboratory scientist will possess the entry level competencies necessary to perform the full range of clinical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology/Transfusion medicine, Microbiology, Urine and Body Fluid Analysis and Laboratory Operations, and other emerging diagnostics, and will play a role in the development and evaluation of test systems and interpretive algorithms.

The medical laboratory scientist will have diverse responsibilities in areas of analysis and clinical decision making, regulatory compliance with applicable regulations, education, and quality assurance/performance improvement wherever laboratory testing is researched, developed or performed.

At entry level, the medical laboratory scientist will have the following basic knowledge and skills in:

- Application of safety and governmental regulations and standards as applied to clinical laboratory science;
- Principles and practices of professional conduct and the significance of continuing professional development;
- Communications sufficient to serve the needs of patients, the public and members of the health care team;
- Principles and practices of administration and supervision as applied to clinical laboratory science;
- Educational methodologies and terminology sufficient to train/educate users and providers of laboratory services;
- Principles and practices of clinical study design, implementation and dissemination of results;
- Theoretical knowledge and technical skills of concepts relating to all content areas required by NAACLS, including Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology, Microbiology, Urine and Body Fluid Analysis, Laboratory Operations and biohazard and safety.

Accreditation

The Medical Laboratory Science Program at the University of Wyoming is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Accreditation is a process of external peer review in which an agency grants public recognition to a program of study or an institution that meets established qualification and educational standards. Participation in the accreditation process is voluntary since there is not a legal requirement for

specialized programs and institutions to participate. However, when students complete a NAACLS accredited program they become eligible to sit for national certification examinations for the profession.

The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) is a nonprofit organization that independently accredits medical technologist (MLS), clinical laboratory technician/medical laboratory technician (CLT/MLT), histotechnologist (HTL), histologic technician (HT), pathologists' assistant (Path Asst), diagnostic molecular scientist (DMS) and cytogenetic technology (CT), Phlebotomist (PBT), and clinical assistant (CA) educational programs.

Contract information:

National Accrediting Agency for Clinical Laboratory Sciences, 5600 North River Road, Suite 720, Rosemont, IL 60018-5119

<http://www.naacls.org>

Prerequisites for Admission to the MLS Professional Program

Students must meet the following minimum criteria to be considered for Admitted Major status:

- Completion of the Casper College A.S. degree in MLT within 5 years or B.S. degree in a related science.
- Minimum grade point average (GPA) of 2.000 on all course work transferred into the University of Wyoming at Casper from other academic institutions.
- Successful completion of the Medical Laboratory Technician BOC exam is preferred. Students that have not completed the BOC may be admitted with MLS program directors approval.
- Students admitted to the program that do not hold an A.S. in MLT or a B.S. in a related science may be required to complete the University of Wyoming University Studies program in addition to the basic requirements for the Bachelor of Science in Medical Laboratory Science degree. See the current requirements at <http://www.uwyo.edu/unst/>

Applying for Admission to MLS Professional Program

Students may enter the MLS professional program in the fall or spring semester of their junior year. Application for the program must be submitted to the MLS program director before finals week of the first semester the student has declared the MLS major and is enrolled in a MLS course.

Prior to participating in the enrichment experiences, students will be subject to that agency's requirements for a background check, drug testing and/or drug abuse prevention policies. Students are then subject to the random drug testing policy of that agency. These background checks are routinely required by schools, hospitals, and other agencies that participate in on-site training. Background check should be obtained from Viewpoint screening (<https://www.viewpointscreening.com/uwyo>). The Casper College MLT background check is a valid substitute if final semester of MLS program falls within 1 year of check.

After completion and submission of the program application, the student must schedule an interview with the program director for an evaluation for acceptance to the MLS program. Interviews must be completed before the student enrolls in the succeeding semester of coursework. It is the students' responsibility to complete and submit applications, and to schedule an interview with the MLS program director by the due dates.

Students are required to complete an observational enrichment experience during the final MLS semester. This observational experience is designed to demonstrate advanced concepts and topics presented in the MLS curriculum, in a practical setting.

The MLS program will provide documentation requirements, as each site may have different requirements for participation (e.g. vaccination records, HIPPA training, safety training, background check/drug screen etc.). If a student finds an appropriate observational enrichment experience outside of the opportunities available through the MLS program, the student must communicate the site to the MLS program director for approval. It will be the responsibility of the student to arrange the experience with the appropriate site personnel/HR, and program director to ensure all required documentation is provided.

Liability insurance will be required for students entering their senior year coursework. Liability insurance is provided through the University of Wyoming at a cost of \$13.00/year to the student.

Health Requirements: The student must provide proof of health insurance and Hepatitis B vaccination (or declination) to participate in on-campus student laboratory sessions. Hepatitis B vaccinations are available on the UW-C campus at student health, or at the county health department for a small fee. Other health records may be required to participate in enrichment activities including MMR, Tetanus, drug screen, and background check/drug screen.

Essential Functions

Applicants must meet certain essential functions as defined by NAACLS. If you feel that you do not meet these essential functions, careful consideration should be made and advisement received before entering the MLS Program. Essential functions are the abilities and essential functions that a student must be able to perform to be successful in the learning experiences and completion of the program.

Observational Requirements

The MLS student must be able to:

- Observe laboratory demonstrations in which biologicals are tested for their biochemical, hematological, immunological, microbiological, and histochemical components.
- Characterize the color, odor, clarity, and viscosity of biologicals, reagents or chemical reaction products.
- Employ a clinical grade binocular microscope to discriminate among the structural and color (hue, shading, and intensity) differences of microscopic specimens.
- Read and comprehend text, numbers, and graphs displayed in print and on a video monitor.

Movement Requirements

The MLS student must be able to:

- Move freely and safely about a laboratory.
- Reach laboratory bench-tops and shelves, patients lying in hospital beds or patients seated in specimen collection furniture.
- Travel to numerous clinical laboratory sites for practical experience.
- Perform moderately taxing continuous physical work, often requiring prolonged sitting, over several hours.
- Maneuver phlebotomy and culture acquisition equipment to safely collect valid laboratory specimens from patients.
- Control laboratory equipment (i.e., pipettes, inoculating loops, test tubes) and adjust instruments to perform laboratory procedures.
- Use an electronic keyboard to operate laboratory instruments and to calculate, record, evaluate, and transmit laboratory information.
- Perform fine hand manipulations with dexterity.

Communication Requirements

The MLS student must be able to:

- Read and comprehend technical and professional materials.

- Follow verbal and written instructions in order to correctly and independently perform laboratory test procedures.
- Clearly instruct patients prior to specimen collection.
- Effectively, confidentially and sensitively converse with patients regarding laboratory tests.
- Communicate with faculty members, fellow students, staff, and other health care professionals verbally and in a recorded format.
- Independently prepare papers, prepare laboratory reports, and take paper, computer, and laboratory practical examinations.

Behavioral Requirements

The MLS student must:

- Be able to manage the use of time and be able to systematize actions in order to complete professional and technical tasks within realistic constraints.
- Possess the emotional health necessary to effectively employ intellect and exercise appropriate judgment.
- Be able to provide professional and technical services while experiencing the stresses of task-related uncertainty and a distracting environment.
- Be flexible and creative and adapt to professional and technical change.
- Recognize potentially hazardous materials, equipment, and situation and proceed safely in order to minimize risk of injury to patients, self, and nearby individuals.
- Adapt to working with unpleasant biologicals.
- Support and promote the activities of fellow students and of health care professionals.
- Realize that the promotion of peers helps furnish a team approach to learning, task completion, problem solving and patient care.
- Be honest, compassionate, ethical and responsible.

Request for Accommodation

All students are held to the same academic and technical standards. Applicants/students with disabilities seeking accommodation must discuss their disability and accommodation needs with the University Disability Support Services (udss@uwyo.edu or (307) 766-6189; TTY: (307) 766-3073). If appropriate and upon request and registration of the applicant, a reasonable accommodation will be made consistent with University of Wyoming guidelines.

Medical Laboratory Science, B.S.

A degree in Medical Laboratory Science prepares healthcare professionals to perform clinical diagnostic testing in the areas of microbiology, hematology, chemistry, immunohematology, urinalysis, serology, and molecular biology.

USP - University Studies Program Requirements

Completion of all University Studies Program requirements is necessary to obtain a bachelors degree from the University of Wyoming. These requirements may be covered by the Medical Laboratory Technician Associates degree at Casper College. Please work with your advisor to ensure these requirements are fulfilled.

- FYS-First Year - Seminar Credits: 3
- COM1 - Communication 1 Credits: 3

- COM2 - Communication 2 Credits: 3
- COM3 - Communication 3 Credits: 3
- Q- - Quantitative Reasoning Credits: 3
- PN- - Physical and Natural World (1) Credits: 3
- PN- - Physical and Natural World (2) Credits: 3
- H- - Human Culture (1) Credits: 3
- H- - Human Culture (2) Credits: 3

Casper College Requirements

MLTK and PEAC courses are available through an articulation agreement with Casper College **and can be taken only through Casper College**. Students are responsible for fulfilling all University Studies requirements. The articulation agreement, with a proposed semester-by-semester sequence, is available at:

<http://www.uwyo.edu/TRANSFER/articulation/agreements/medical-laboratory-science.html>

- MATH1400 - College Algebra Credits: 3 (Meets Quantitative USP requirement) 4 credits at Casper College
- MICR2021 - General Microbiology Credits: 4
- **OR** MOLB 2021 General Microbiology (Casper College equivalent: MOLB 2210)
- SOC1000 - Sociological Principles Credits: 3 OR ANTH 1200 Introduction to Cultural Anthropology
- ENGL1010 - College Composition and Rhetoric Credits: 3 (Meets Communication I USP requirement)
- LIFE1010 - General Biology Credits: 4 (Meets Physical and Natural World USP requirement; Casper College equivalent: BIOL 1010)
- ENGL2005 - Writing in Technology and the Sciences Credits: 3 (Meets Communication II USP requirement)
- POLS1000 - American and Wyoming Government Credits: 3 (Meets U.S. and Wyoming Constitution USP requirement)
- CHEM1020 - General Chemistry I Credits: 4 (Meets Physical and Natural World USP requirement; Casper College equivalent: CHEM 1025 & CHEM 1028)
- PEAC xxxx: Online Activity Credits: 1
- CMAP 1505 Introduction to Computers Credits: 1
- Elective Credits: 3
- MLTK 1500 - Hematology Credits: 3
- MLTK 1600 - Clinical Immunohematology Credits: 3
- MLTK 1700 - Microscopy: UA Body Fluids Credits: 2
- MLTK 2600 - Clinical Microbiology I Credits: 2
- MLTK 2500 - Clinical Chemistry Credits: 3
- MLTK 2650 - Clinical Microbiology II Credits: 2
- MLTK 2700 - Immunology Credits: 4
- MLTK 2971 - Clinical Practicum: Hematology Credits: 2
- MLTK 2972 - Clinical Practicum: Chemistry Credits: 2
- MLTK 2973 - Clinical Practicum: Immunohematology Credits: 2
- MLTK 2974 - Clinical Practicum: Microbiology Credits: 2
- MLTK 2976 - Clinical Practicum: Serology Credits: 1
- MLTK 2977 - Clinical Practicum: UA / Body Fluids Credits: 1
- MLTK 2978 - MLT Professionalism Credits: 1
- MLTK 2800 - Clinical Pathophysiology Credits: 4
- MLTK 1800 - Principles of Phlebotomy Credits: 3

University of Wyoming Requirements

Upper-division courses required to complete the Bachelor of Science in Medical Laboratory Science (**All MLSK courses are only available through UW-Casper.**):

- CHEM1030 - General Chemistry II Credits: 4
- CHEM2300 - Introductory Organic Chemistry Credits: 4
- LIFE3050 - Genetics Credits: 4
- LIFE3600 - Cell Biology Credits: 4
- STAT2050 - Fundamentals of Statistics Credits: 4
- MOLB3000 - Introduction to Molecular Biology Credits: 3
- MOLB3610 - Principles of Biochemistry Credits: 4
- MLSK4840 - Laboratory Education Methodology Credits: 1
- MLSK4850 - Clinical Research Design Credits: 2
- MLSK4860 - Laboratory Management Credits: 3 (Meets Communication III USP requirement)
- MLSK4870 - Advanced Clinical Chemistry Credits: 4
- MLSK4880 - Advanced Hematology: Erythrocytes Credits: 2
- MLSK4981 - Advanced Clinical Practicum-Hematology Credits: 3
- MLSK4982 - Advanced Clinical Practicum-Molecular Credits: 3
- MLSK4983 - Advanced Clinical Practicum-Immunohematology Credits: 3
- MLSK4984 - Advanced Clinical Practicum- Microbiology Credits: 3
- MLSK4890 - Professional Career Paths and Review Credits: 2
- Upper-division elective credits: 1 (see below, consult your academic advisor)

Upper Division Elective Credit Hours

One upper division elective credit hour must be completed in the student's junior or senior year to meet the total 42 required upper division credits to graduate. Students may take a three credit class to meet this requirement.

These credits must be 3000 and above, and achieved through online outreach or on campus courses. A list of courses that are acceptable to fulfil this requirement can be made available to the student. If a course is in question, it is highly suggested to the student to contact the UW-C advising department or the MLS program director for requirement fulfillment confirmation.

Enrichment Rotations and Laboratory Sessions

The final semester of the student's senior year is comprised of didactic material being delivered in an online hybrid manner, supplemented with on campus lab sessions at the UW-Casper campus. These lab sessions will be accompanied by an observational enrichment rotation at a clinical site. This enrichment rotation will allow for the observation of advanced methodologies in a practical environment. It will be the students' responsibility for all travel and housing costs associated with the advanced clinical practicum courses.

Probation

Students who do not meet the minimum grade requirements stated above for MLSK course work will be placed on probation. In this period of time, students will be allowed to continue in the program under supervision, but will submit

a petition which is an individualized plan of study for the next semester that is developed by the student in agreement with and signed by an academic advisor. All completed MLSK courses that fail to meet minimum grade requirements (C or 2.000 or better) must be repeated by the student. Students shall not be allowed to progress to the final semester until all courses in the previous semesters are successfully completed and a GPA of 2.000 is obtained.

Additional Requirements

The program requires 124 credit hours total, with 54 credit hours obtained in the junior/senior years to graduate. Students must complete a minimum of 42 upper division hours, 30 of which must be earned from the University of Wyoming.

Prerequisite for admission to the Medical Laboratory Sciences degree is completion of the Medical Laboratory Technician program at Casper College, or another accredited MLT program. Students interested in the MLS degree who already hold a bachelors degree should contact program director Jed Doxtater at jdoxtate@uwyo.edu.

Division of Social Work

Health Sciences Building, (307) 766-6112

FAX: (307) 766-6839

Web site: www.uwyo.edu/socialwork

Director: Eleanor Pepi Downey, M.S.W., Ph.D

Associate Professors:

ELEANOR PEPI DOWNEY, B.A. Queens College (NC) 1966; M.S.W. Rutgers University 1971; Ph.D. University of Denver 1998; Associate Professor of Social Work 2019.

DIANE A. KEMPSON, B.A. Columbia College 1968; M.S.W. Florida State University 1970; Ph.D. University of South Carolina 1998; Associate Professor of Social Work 2010.

NEELY MAHAPATRA, B.Sc. Utkal University, India 1991; M.Sc. 1993; M.S.S.W. University of Texas-Austin 2003; Ph.D. 2008; Associate Professor of Social Work 2016.

VALERIE THOMPSON-EBANKS, B.Sc. University of the West Indies 2002; M.S.W. 2007; Ph.D. Colorado State University 2012; Associate Professor of Social Work 2018.

Assistant Professors:

SANDY LEOTTI, B.A. Prescott College 2002; M.S.W. University of Montana 2006; Ph.D. Portland State University 2019; Assistant Professor of Social Work 2019.

SUKYUNG YOON, B.A. Chung-Ang University 2002; M.S.W. Yonsei University 2008; Ph.D. University of Tennessee 2019; Assistant Professor of Social Work 2019.

Assistant Lecturers:

BILLIE CHAPMAN, B.A. University of Wyoming 2005; M.S.W. 2008; Assistant Lecturer of Social Work 2018.

KYM CODALLOS, B.A. California State University, Sacramento 1999; M.S.W. California State University, Stanislaus 2006; M.A. 2011; Assistant Lecturer of Social Work 2018.

SARAH S. GREEN, B.A. University of Wyoming, 2015; M.S.W. 2019; Assistant Lecturer 2021.

GRETA MAXFIELD, B.S. University of Wyoming 1994; M.S.W. Washington University 1999; Assistant Lecturer of Social Work 2019.

Social workers are uniquely qualified to help people in their own environments by looking at different aspects of their lives and cultures. We work to ensure the client's personal well-being, prevent crises, counsel individuals, support families, and strengthen communities. We make sure people get the help they need, with the best resources available.

For more than 100 years, social workers have cared for people in every stage of life. Social workers help others overcome life's most difficult challenges and manage the troubles of everyday living, including the troubles that exist due to poverty, stress, addiction, abuse, unemployment, mental illness, family change, and social violence. Social workers advocate for social justice.

Undergraduate Study

The Division of Social Work prepares students for entry-level generalist social work practice. Two locations offer the social work program: the Laramie campus and the University of Wyoming-Casper campus. Graduates receive a Bachelor of Social Work (BSW) and are prepared to work as generalist social work practitioners with individuals, groups, families, organizations, communities, and institutions to achieve more effective and efficient social functioning.

Our program is accredited by the Council on Social Work Education. The curriculum is designed to help students acquire important knowledge and skills in the areas of values and ethics, diversity, social and economic justice, human behavior and the social environment, social welfare policy and services, social work practice, and research. A competency-based curriculum prepares students to meet an "initial level" of competence in nine core areas (CSWE, 2015). Students also select elective courses in areas such as aging, child and adolescent services, health and mental health, and disability services. The program culminates in a 450-hour supervised field practicum, which allows students to work as social workers in one of Wyoming's many human service agencies.

Social Work Major

Social work is a professional degree program. Prior to admission to the professional degree program, students who are working to complete program prerequisites and most University Studies courses are "Social Work-Pre-Admit" majors. Students must be accepted into the BSW program as an admitted "Social Work" major in order to proceed in the program and enroll in professional degree courses beginning in the fall semester (usually of the junior year). Application for Admitted Major status are due in the middle of the Spring semester or in the middle of the Fall semester. Students should apply during the semester they are completing all social work prerequisite courses. Acceptance to Admitted Major (professional degree program) is competitive and requires an application. Please see application requirements on the Division of Social Work website. Students accepted into the professional degree program are expected to complete their degree in a timely manner. Students who have not completed social work classes for one year or more must reapply for Admitted Major and submit a plan for readiness to continue in the social work degree program. A plan may include, but is not limited to, repeating or auditing a course taken at an earlier point in the student's academic experience, completing an independent study that may provide updated social work content for the student, demonstrating knowledge or practice skills. Readmission is not guaranteed.

Criteria for Admission as an Admitted Major

The admissions process is competitive. Students must meet the following minimum criteria to be considered for Admitted Major status.

1. Students must earn a minimum grade point average (GPA) of 2.500 on all UW course work as well as all course work transferred into the University of Wyoming from other academic institutions.
2. Complete the following prerequisites: a. SOC 1000 b. PSYC 1000 c. POLS 1000 d. SOWK 2000 e. Human Biology (KIN/ZOO 2040 or PSYC 2080) f. STAT 2070 g. ECON 1010
3. Students must earn a grade of C or higher in all SOWK prerequisite classes.
4. Students must adhere to the UW Student Code of Conduct and the NASW Code of Ethics.
5. Students cannot exhibit behavior that will impinge on the student's present or future ability to fulfill professional responsibilities as a social work professional.
6. All students seeking admission to programs in the College of Health Sciences are required to undergo a background check as specified by college policy. Criminal convictions may result in rejection of the candidate for admission to Admitted Major.
7. Students must submit an application and an application fee. (See UW Fee Book)
8. Applicants to the social work program cannot receive credit for life experience.

Requirements for Admitted Majors

Once admitted, social work students must:

1. Achieve a C or better in all social work courses, including six hours of required social work electives.
2. Social work classes are offered and must be completed in sequential order.
3. Maintain a 2.500 or above GPA overall every semester after admittance to Admitted Major.
4. Maintain a 2.500 or above GPA overall in all social work course work every semester after admittance to Admitted Major.
5. Registration is restricted and students must meet with their advisor each semester for enrollment.
6. Complete SOWK 4990 with a satisfactory grade.
7. Students must adhere to the UW Student Code of Conduct and the NASW Code of Ethics.

Individuals failing to meet any of the above requirements will be reviewed by faculty and one of the following actions may be taken: remediation, probation, sanction, and/or dismissal from the program. Because many social work courses have prerequisite requirements, receiving a grade lower than a C in a social work course may prevent the individual from moving forward in the social work program.

BSW Field Practicum

All students complete a 450-hour (10 credit hours) field practicum experience in a community-based social agency or social program. Field practicum sites exist throughout the state of Wyoming and students may be placed outside Laramie. Students apply for this program the semester before their actual placement. Students must complete a Field Placement Application and meet with the Field Coordinator prior to determining a practicum site (please review Field

Practicum Manual). Background checks and drug screenings may be required by some agencies even though the College of Health Sciences has received a background check during admission to the major.

For the practicum, a grade of U is interpreted as performing below expectations and will not be considered satisfactory completion of the practicum, hence of the BSW program. Based on input from the student, the field instructor, and the faculty liaison during the field evaluation, the field coordinator will determine what remediation would be required. The plan will clarify course objectives and professional skills upon which the student needs to improve. A student wishing to continue in the program would need to reapply for a field placement. Upon the field committee's approval of the request for placement, the student may then repeat the practicum experience. Consistent with University policy, the most recent grade would be the grade calculated into the GPA. The grade of U is interpreted as not meeting minimal requirements of the course; failure to complete the minimum clock hours in the field placement; failure to complete written assignments in a satisfactory manner; violation of one or more of the tenets of the NASW Code of Ethics (see Appendix B and Termination of Practicum section in the practicum manual); and/or failure to withdraw formally or to terminate the course. A student receiving a U in the practicum will be automatically dismissed from the BSW program with no opportunity to reapply or re-enter. Grades and dismissals may be appealed. (See most current BSW Student Handbook for appeal procedures.)

Requirements for Graduation

The program requires 120 credit hours to graduate. Students must have completed all social work requirements, 42 upper-division hours, maintain a 2.500 GPA overall, a 2.500 GPA in social work coursework, and have achieved a grade of C or better in all social work courses. Courses must be taken for a letter grade unless offered for S/U only. USP H and PN courses must be taken outside the major subject but can be cross listed with the major.

BSW Curriculum

Social Work B.S.W. degree plan

Graduate Study

The Master of Social Work (MSW) prepares professional social workers for advanced level social work practice and leadership positions in frontier and rural human service environments. The Advanced Generalist MSW program is accredited by the Council on Social Work Education. The MSW program graduates advanced integrated practitioners who work within and negotiate complex multi-dimensional problem settings for both clients and practitioners while embracing the profession's values of service, social justice, dignity and worth of the person, importance of human relationships, integrity, competence, human rights, and scientific inquiry. The MSW is a full time, campus-based hybrid program that utilizes different course delivery methods to accommodate its widespread student population.

Wyoming School Social Work Certification

The Division offers the necessary requirements to obtain Wyoming School Social Work certification. Students in the last year of the MSW Program need to successfully complete SOWK 5810 Working with Children and Families in the Schools and complete their field placement within an approved school setting. Upon graduation, students must apply to the Wyoming Department of Education to obtain formal certification. For the most current certification information go to the PTSB website <http://wyomingptsb.com/>

Graduate Admissions Requirements

The Division of Social Work's Graduate Admissions Committee bases recommendations on review of all application materials (applicant's grades, personal statement, academic essay, professional references, and any related social service experience) as they reflect the applicant's commitment to social work, social and economic justice, values and ethics of the social work profession, and applicant's potential as a graduate student, social work practitioner, colleague and leader in the social work field. The Committee also looks for the intangible qualities that an applicant brings to the classroom and campus environment and to professional social work.

Once the committee recommends admission of an applicant, the Office of Admissions in Academic Affairs makes the final decision of admission.

Requirements for the Standard MSW Program

- A baccalaureate degree from an accredited college or university that reflects a broad liberal arts preparation. This consists of having completed at least 21 credit hours in social and behavioral sciences and 6 credit hours each in natural sciences, humanities, visual and performing arts, and quantitative reasoning;
- A human biology course (beyond introductory biology), receiving a grade of C or better;
- A statistics course, receiving a grade of C or better;
- An undergraduate cumulative grade point average (GPA) of 3.000 or above on a 4-point scale.

Requirements for the Advanced Standing MSW Program

- A bachelor's degree in Social Work from a Council on Social Work Education accredited social work program;
- An undergraduate social work GPA of 3.250 or above;
- An overall undergraduate GPA of 3.000 or above;
- Received a B or better and/or a Satisfactory grade in BSW Field Education Practicum.

*International students have special requirements for admission to UW. All are encouraged to contact the International Students and Scholars Office for details before applying.

All Applicants

All applicants will be evaluated on:

- a. Intellectual and personal qualities essential to successful practice of social work, such as sensitivity and responsiveness in relationships, concern for the needs of others, adaptability, good judgment, creativity and integrity;
- b. Commitment to social justice and equality;
- c. Written and verbal communication skills;
- d. Professional references; and
- e. Compatibility of career goals with the MSW program's advanced generalist perspective.

All applicants meeting minimum criteria will be considered for admission. Admitted applicants will be required to complete a criminal background check through College of Health Sciences.

Program Specific Degree Requirements

All incoming students enter the MSW program in the summer semester of their first year, completing introductory and/or bridge courses as needed for their specific program phase. The MSW program is divided into two levels: generalist and advanced generalist. The generalist year of the MSW program prepares students without a BSW degree for the advanced generalist curriculum in the second year. Students who have already obtained the BSW degree may apply for Advanced Generalist in the MSW program. These students complete only the second-year courses.

Master of Social Work Field Practicum

All students, regardless of status, participate in a field practicum experience, starting in their first fall semester. New students submit an initial application for placement upon acceptance into the program.

Foundation students will complete 900 hours in practicum over the course of their two years of study, 400 and 500 hours respectively. Advanced Standing students will complete 500 hours in their one year of study. All students in practicum will take a corresponding field seminar class each semester.

Grading is done as Satisfactory/Unsatisfactory. Receiving a grade of U is considered a failing grade and can result in termination from the practicum. If the practicum is terminated, the student may be offered a remediation plan to retake the required hours. This opportunity is only offered one time. The student may also be referred to the DOSW faculty for review according to the Student Academic and Professional Performance policy.

Specific information and procedures relating to all aspects of the field practicum experience can be found in the Field Practicum Manual located on the Division of Social Work's website.

Master of Social Work requirements

- Students complete all SOWK required courses.
- Students complete either the SOWK 5755 Capstone course or the optional SOWK 5960 - Thesis Research.

For students who complete the Capstone course:

- Complete SOWK 5755. The SOWK 5755 portfolio project requires a minimum of 2 credit hours, usually taken as 1 credit in the fall semester and 1 credit in the spring of the advanced year.
- A final written paper with oral defense is required.
- Thesis is NOT required.

For students who choose the optional thesis:

- Complete SOWK 5960 - Thesis Research. SOWK 5960 requires a minimum of 4 credit hours, usually take as 2 in the fall semester and 2 in the spring semester.
- Students who choose to produce a thesis are required to carry out original research.
- Thesis proposal defense, thesis implementation, and final defense are required per university regulations for a thesis project.

Wyoming Institute for Disabilities (WIND)

147 Health Sciences Building, (307) 766-2761
FAX: (307) 766-2763
Web site: www.uwyo.edu/wind
Executive Director: Sandra Root-Elledge, M.A.

Senior Lecturer, Executive Director:

SANDRA ROOT-ELLEDDGE, B.S. University of Wyoming 2001; M.A. 2003; Senior Lecturer, 2018, 2009, 2004.

Associate Professor, Director Disability Studies:

MICHELLE JARMAN, B.A. University of California at Berkeley 1989; M.A. Northern Michigan University 2000; Ph.D. University of Illinois at Chicago 2006; Associate Professor of Disability Studies 2014, 2007.

Associate UCEDD Directors:

ERIC J. MOODY, B.S. Pacific Lutheran University 1998; M.A. University of Denver 2004; Ph.D. 2007; Postdoc University of Colorado School of Medicine 2011; Research Professor, Director of Research and Evaluation 2018.

CANYON HARDESTY, B.S. University of Wyoming 2004; M.S. 2007; M.S. Creighton University 2011; Associate Lecturer 2018, 2013.

Associate Lecturer:

ALISON QUAGGIN HARKIN, B.A. University of Toronto 1981; M.A. Athabasca University 2010; Assistant Lecturer 2014.

Assistant Lecturers:

TERRI WOFFORD, B.S. University of Central Florida 1994; M.S. East Tennessee State University 1998; Assistant Lecturer 2017.

The Wyoming Institute for Disabilities (WIND) is part of a national network of University Centers of Excellence in Developmental Disabilities Education, Research and Service (UCEDD). These centers provide a broad array of interdisciplinary academic, clinical, and research experiences of people with disabilities-particularly developmental disabilities. A wide variety of disciplines contribute to the study of disabilities.

WIND offers a Disability Studies Minor which investigates broad questions about the nature, meanings, and consequences of disability from interrelated social, historical, cultural, and political perspectives. The undergraduate minor in disability studies examines disability issues from multiple lenses, and draws specifically from social sciences, humanities, and health sciences.

Disability studies has an ethical commitment to place the interests and voices of people with disabilities at the center of our curricula and training activities. The minor balances theoretical exploration with practical application, and provides students with a vibrant understanding of disability history, cultural representation, policy concerns, and current debates. Ultimately, students in the minor will work closely with people with disabilities, and gain the skills and perspectives to participate in unique disability research and advocacy.

Medical Laboratory Science

Aley Hall, UW-Casper, (307) 268-2753

FAX: (307) 268-2416

Web site: www.uwyo.edu/pharmacy/mlsprogram/index.html

Director: Jed M. Doxtater, MS MLS (ASCP)

Assistant Clinical Faculty:

JED M. DOXTATER, B.S. University of Montana 2007; M.S. University of North Dakota 2013; Assistant Clinical Faculty of Medical Laboratory Science 2015.

Assistant Lecturer:

CHARLIE P. CRUZ, B.S. Lorma Colleges 1998; M.A. Don Mariano Marcos Memorial State University 2003; M.S. Lyceum of the Philippines University Batangas 2016; Ph.D. Saint Louis College 2014; Assistant Lecturer of Medical Laboratory Science 2016.

Mission and Goals

The mission of the Bachelor of Science in Medical Laboratory Science program at the University of Wyoming-Casper is to educate, train, and produce highly competent, ethical professionals who are committed to lifelong learning. Curriculum is designed to prepare students to meet current and future workplace challenges and technological advancements in the profession.

Program Goals

1. Provide education in accordance with the National Accrediting Agency for clinical Laboratory Sciences (NAACLS) standards for Medical Laboratory Science programs.
2. Provide students with adequate knowledge and background experience to successfully complete the national certification examination appropriate to their level of training.
3. Provide opportunity for students to develop skills in effective communication sufficient to serve the needs of patients, public, and other healthcare professionals.
4. Graduate well qualified Medical Laboratory Scientists who can function at a career entry level, and are prepared to meet the workforce needs of the state of Wyoming and the nation.
5. Provide students with professional role models so that they may develop and practice professional behaviors, attitudes and ethics necessary to work in, and promote the field of Medical Laboratory Science.
6. Periodically undergo program review to meet the diverse educational needs of students, accreditation standards and industry demands for qualified, skilled entry level practitioners.
7. Establish an advisory board of professionals, community partners and stakeholders for program development, evaluation and improvement.
8. Promote membership and active participation in professional societies.

Outcomes

Description of Entry Level Competencies of the Medical Laboratory Scientist

At entry level, the medical laboratory scientist will possess the entry level competencies necessary to perform the full range of clinical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology/Transfusion medicine, Microbiology, Urine and Body Fluid Analysis and Laboratory Operations, and other emerging diagnostics, and will play a role in the development and evaluation of test systems and interpretive algorithms.

The medical laboratory scientist will have diverse responsibilities in areas of analysis and clinical decision making, regulatory compliance with applicable regulations, education, and quality assurance/performance improvement wherever laboratory testing is researched, developed or performed.

At entry level, the medical laboratory scientist will have the following basic knowledge and skills in:

- Application of safety and governmental regulations and standards as applied to clinical laboratory science;
- Principles and practices of professional conduct and the significance of continuing professional development;
- Communications sufficient to serve the needs of patients, the public and members of the health care team;
- Principles and practices of administration and supervision as applied to clinical laboratory science;
- Educational methodologies and terminology sufficient to train/ educate users and providers of laboratory services;
- Principles and practices of clinical study design, implementation and dissemination of results;
- Theoretical knowledge and technical skills of concepts relating to all content areas required by NAACLS, including Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology, Microbiology, Urine and Body Fluid Analysis, Laboratory Operations and

biohazard and safety

Accreditation

The Medical Laboratory Science Program at the University of Wyoming is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Accreditation is a process of external peer review in which an agency grants public recognition to a program of study or an institution that meets established qualification and educational standards. Participation in the accreditation process is voluntary since there is not a legal requirement for specialized programs and institutions to participate. However, when students complete a NAACLS accredited program they become eligible to sit for national certification examinations for the profession. The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) is a nonprofit organization that independently accredits medical technologist (MLS), clinical laboratory technician/medical laboratory technician (CLT/MLT), histotechnologist (HTL), histologic technician (HT), pathologists' assistant (Path Asst), diagnostic molecular scientist (DMS) and cytogenetic technology (CT), Phlebotomist (PBT), and clinical assistant (CA) educational programs. *Contract information:* National Accrediting Agency for Clinical Laboratory Sciences, 5600 North River Road, Suite 720, Rosemont, IL 60018-5119 <http://www.naacls.org>

Prerequisites for Admission to the MLS Professional Program

Students must meet the following minimum criteria to be considered for Admitted Major status:

- Completion of the Casper College A.S. degree in MLT within 5 years or B.S. degree in a related science.
- Minimum grade point average (GPA) of 2.000 on all course work transferred into the University of Wyoming at Casper from other academic institutions.
- Successful completion of the Medical Laboratory Technician BOC exam is preferred. Students that have not completed the BOC may be admitted with MLS program directors approval.
- Students admitted to the program that do not hold an A.S. in MLT or a B.S. in a related science may be required to complete the University of Wyoming University Studies program in addition to the basic requirements for the Bachelor of Science in Medical Laboratory
Science degree.

See the current requirements at <http://www.uwyo.edu/unst/>

Applying for Admission to MLS Professional Program

Upon completion of the prerequisite requirements of the program, students may apply to the professional program in the fall semester of their senior year. Applications for the program must be submitted to the MLS program director before finals week of the fall semester prior to entering the professional program Advanced Clinical Practicum (ACP) coursework. It is the students' responsibility to complete and submit applications by the defined due date.

Students are required to complete an observational enrichment experience during the final MLS semester. This observational experience is designed to demonstrate advanced concepts and topics presented in the MLS curriculum, in a practical setting.

Prior to participating in the enrichment experience, students may be subjected to that agency's requirements for HIPAA training, a background check, drug testing and/or drug abuse prevention policies. Students may be subject to the random drug testing policy of that agency. These background checks are routinely required by schools, hospitals, and other agencies that participate in on-site training. Background checks should be obtained from Viewpoint screening (<https://www.viewpointscreening.com/uwyo>).

Students must meet the vaccination and health insurance requirements of the university. Vaccinations are available through the county health department or through student health on the UW-C campus, and liability health insurance is available through the University of Wyoming. Current enrichment site affiliates do not require a background check, drug screen or proof of vaccination, as the university vaccination requirements exceed that of the facility. If a student finds an appropriate observational enrichment experience outside of the opportunities available through the MLS program, the student must communicate the site to the MLS program director for approval. This notification should occur well in advance to entering the professional program. It will be the responsibility of the student to arrange the experience with the appropriate site personnel/HR and program director, to ensure all required documentation is provided. The student must provide proof of health insurance and Hepatitis B vaccination (or declination) to participate in on-campus student laboratory sessions. Hepatitis B vaccinations are available on the UW-C campus at student health, or at the county health department for a small fee.

Essential Functions

Applicants must meet certain essential functions as defined by NAACLS. If you feel that you do not meet these essential functions, careful consideration should be made and advisement received before entering the MLS Program. Essential functions are the abilities and essential functions that a student must be able to perform to be successful in the learning experiences and completion of the program.

Observational Requirements

The MLS student must be able to:

- Observe laboratory demonstrations in which biologicals are tested for their biochemical, hematological, immunological, microbiological, and histochemical components.
- Characterize the color, odor, clarity, and viscosity of biologicals, reagents or chemical reaction products.
- Employ a clinical grade binocular microscope to discriminate among the structural and color (hue, shading, and intensity) differences of microscopic specimens.
- Read and comprehend text, numbers, and graphs displayed in print and on a video monitor.

Movement Requirements

The MLS student must be able to:

- Move freely and safely about a laboratory.
- Reach laboratory bench-tops and shelves, patients lying in hospital beds or patients seated in specimen collection furniture.
- Travel to numerous clinical laboratory sites for practical experience. • Perform moderately taxing continuous physical work, often requiring prolonged sitting, over several hours.
- Maneuver phlebotomy and culture acquisition equipment to safely collect valid laboratory specimens from patients.
- Control laboratory equipment (i.e., pipettes, inoculating loops, test tubes) and adjust instruments to perform laboratory procedures.
- Use an electronic keyboard to operate laboratory instruments and to calculate, record, evaluate, and transmit laboratory information.
- Perform fine hand manipulations with dexterity.

Communication Requirements

The MLS student must be able to:

- Read and comprehend technical and professional materials.
- Follow verbal and written instructions in order to correctly and independently perform laboratory test procedures.
- Clearly instruct patients prior to specimen collection.
- Effectively, confidentially and sensitively converse with patients regarding laboratory tests.
- Communicate with faculty members, fellow students, staff, and other health care professionals verbally and in a recorded format.
- Independently prepare papers, prepare laboratory reports, and take paper, computer, and laboratory practical examinations.

Behavioral Requirements

The MLS student must:

- Be able to manage the use of time and be able to systematize actions in order to complete professional and technical tasks within realistic constraints.
- Possess the emotional health necessary to effectively employ intellect and exercise appropriate judgment.
- Be able to provide professional and technical services while experiencing the stresses of task-related uncertainty and a distracting environment.
- Be flexible and creative and adapt to professional and technical change.
- Recognize potentially hazardous materials, equipment, and situation and proceed safely in order to minimize risk of injury to patients, self, and nearby individuals.
- Adapt to working with unpleasant biologicals.
- Support and promote the activities of fellow students and of health care professionals.
- Realize that the promotion of peers helps furnish a team approach to learning, task completion, problem solving and patient care.
- Be honest, compassionate, ethical and responsible.

Request for Accommodation

All students are held to the same academic and technical standards. Applicants/students with disabilities seeking accommodation must discuss their disability and accommodation needs with the University Disability Support Services (udss@uwyo.edu or (307) 766-6189; TTY: (307) 766-3073). If appropriate and upon request and registration of the applicant, a reasonable accommodation will be made consistent with University of Wyoming guidelines.

Requirements for the Bachelor of Science in Medical Laboratory Science

Medical Laboratory Science, B.S. degree plan

Dental Hygiene

Health Sciences Advising Office

Craig Vaske, Manager

Phone: (307) 766-3878

Email: hsadvise@uwyo.edu

Web site: <http://www.uwyo.edu/hs/divisions-and-programs/dental-hygiene-program.html>

The University of Wyoming and Sheridan College offer a cooperative program of dental hygiene education which, when completed, results in two degrees. An Associate of Applied Science degree in dental hygiene is awarded by

Sheridan College following completion of the prerequisites and dental hygiene prescribed study. An optional Bachelor of Science in Dental Hygiene (BSDH) degree is awarded by the University of Wyoming following completion of the Associate of Applied Science in dental hygiene, the University Studies Program, and other requirements of the University of Wyoming, for a total of 120 credit hours including 42 upper level hours, 30 of which must be from the University of Wyoming. See www.uwyo.edu/hs/divisions-and-programs/dental-hygiene-program.html.

The American Dental Association has awarded full accreditation to the Associate of Applied Science degree in dental hygiene at Sheridan College. Graduates are eligible to take the National Board of Dental Hygiene exam, as well as regional and state exams for licensure, as registered dental hygienists.

Applicants should visit www.sheridan.edu/academics/programs-a-z/dental-hygiene for specific prerequisites and application materials. Applications are due to Sheridan College prior to February 15 of the year they wish to enter the program. Class sizes are limited. Admission is contingent upon successful completion of a background check.

All prerequisite coursework must be completed with a cumulative grade point of 2.750 (on a 4.000 point scale). Courses in anatomy, physiology, and microbiology must be current within five years at the time of application to the Dental Hygiene professional program. Students must also complete a minimum of 20 hours of dental hygiene observation prior to application. Completion of the prerequisite courses and observation does not guarantee admission to the professional program. If admitted, students complete their coursework in Sheridan, Wyoming.

Prospective applicants can take prerequisite courses at any higher education institution. To view a list of prerequisites, see the degree program page in this catalog. Students who are completing prerequisite courses at the University of Wyoming are advised by the Health Sciences Advising Office (hsadvise@uwyo.edu). These students apply to UW as "Pre-Dental Hygiene" students.

NOTE: This major is not appropriate for students preparing to apply to dental school.

Learning Outcomes

The primary objective of the program is to assure that graduates have knowledge and abilities necessary to successfully practice dental hygiene.

Interdisciplinary Programs

Biomedical Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website <http://www.uwyo.edu/biomedphd/>
Email: bms@uwyo.edu

Program Director: Sreejayan Nair, Ph.D.

Degree Offered

Ph.D. in Biomedical Sciences

Biomedical sciences is the study of human biological processes; the complex interactions between physiological, genetic and environmental factors that influence disease and health. It spans the spectrum from fundamental discovery to innovation and application.

Areas of focus may include but not limited to cardiac health, nutrition, reproductive biology, toxicology, diagnostic & imaging and medical engineering.

The PhD program in biomedical sciences is designed to position graduates for long-term competitive success in the rapidly changing and multifaceted health-related arena in the 21st century. It is a comprehensive, interdisciplinary program, making connections between various disciplines to gain new insights, discover and apply new knowledge, and promote self-directed, life-long learning.

Biomedical Sciences is a research & discovery focused program balancing depth and breadth of content knowledge with "enabling" skills including problem solving, innovation, entrepreneurship, communication and leadership.

Program Specific Admission Requirements

1. Minimum requirements. Applicants who do not meet the minimum requirements may be conditionally accepted at the discretion of the BMS Admission Committee. Please submit the application packet comprising the following documents for pre-admission screening:

a. Faculty sponsor. Contact potential biomedical sciences graduate program faculty sponsor in your area of interest prior to submitting an application. NOTE: a letter indicating the sponsorship by a faculty is strongly recommended as the program does not have sufficient number of graduate assistantships to support all students.

b. Official academic transcripts. Successful completion of a bachelor's degree from an accredited institution with one or more semesters of biology, physics, anatomy, physiology, chemistry, biochemistry/molecular biology, math are recommended. All applicants should have at least a 3.0 cumulative GPA (scale of 4.0). While a master's degree is not required for admissions into the biomedical sciences Ph.D. program, a master's degree with a strong background in the research area of focus is a plus.

c. TOEFL/IELTS/Duolingo: The minimum acceptable scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/ cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency, until further notice.

d. GRE: A composite minimum score of 291 on the verbal and quantitative sections of the GRE is recommended. The GRE may be waived at the discretion of the admission committee if the applicant already possesses a master's degree, and/or documented research accomplishment in the chosen discipline.

e. Three letters of recommendation.

f. Statement of research interests and career objectives. A letter stating research & career interests and goals, prior research experience and outcomes, reasons for interest in BMS program. Include your contact information in the letter.

g. Current professional resume

2. Application Process. The BMS admissions committee reviews the completed application.

- a. Contact faculty in your area of interest and obtain their endorsement. Faculty may choose to interview the candidate on-campus or via zoom.
- b. Submit your application materials (pdf files of cover letter/statement of purpose, letter of sponsorship from the faculty, three letters of reference, transcripts, TOEFL/GRE scores to the admissions office via the University's admission portal.
- c. To ensure full application review for fall semester admission, applications should be received by **February 15**.
- d. Review by BMS Admissions Committee.
- e. Forward application packet with BMS recommendation to the faculty and host department.
- f. Notification of decision to applicant by **May 1**.

Program of Study

Rationale: The program of study is designed according to student learning goals and research opportunities. It blends depth and breadth of preparation by providing broad core requirements with electives promoting specialization in a "parent" discipline. This is recognized on program documentation by a Doctorate in Biomedical Sciences/"specialization" area. For example, Doctorate in Biomedical Sciences/Reproductive Biology.

Student Learning Outcomes: The BMS program provides unique array of formal courses and informal discovery experiences focused on ensuring aptitudes, behaviors, and skills necessary for leadership and competitive success in the biomedical science arena.

Although the foundation enabling innovative, independent thinking and knowledge discovery is deep discipline knowledge, the BMS program is also designed to promote student competency in information assessment, synthesis and integration, communication and translation to the broader community, teamwork, leadership, and project management.

The BMS program trains graduates to be competent, skilled experimentalists, problem solvers, critical and independent thinkers, expert in their field, with both depth and breadth of knowledge.

In addition, the program aims to instill characteristics that are essential to long-term professional success, preparing scientists who are effective and dedicated mentors and teachers, organized administrators, exemplars of high ethical standards, and effective collaborators.

Upon completion of the program, graduates will demonstrate:

- Independent, critical thinking skills
- Ability to identify appropriate biographical resources
- Knowledge of recent advances in discipline and related areas
- Understanding of a broad spectrum of research methodologies and their applications
- Ability to critically analyze research findings
- Ability to design and independently execute research
- Ability to use appropriate information technology to record, manage, and disseminate information
- Understanding of issues related to researcher and subject rights
- Motivation and aptitude needed to acquire knowledge
- Communication skills that are appropriate for a range of audiences and purposes
- Ability to construct and articulate arguments to a wide range of audiences
- Ability to effectively support the acquisition of knowledge by others when teaching or mentoring students
- Willingness to assume responsibility for their work

- Ability to design and teach undergraduate or graduate courses
- Ability to publish single/first authored papers in peer-reviewed journals.

Program in Ecology, Ph.D. Program

Office of Graduate Education
 Old Main 310
 Phone: (307) 766-4128
 Website: <http://www.uwyo.edu/pie/>
 Email: ecology@uwyo.edu

Program Director: Melanie Murphy, Ph.D.

Degree Offered

Ph.D. in Ecology

The Program in Ecology prepares doctoral students to lead the discipline of ecology during the coming decades. The program is grounded in the natural history of organisms in their environment, but incorporates tools and perspectives from across the biological, physical, mathematical, computational, and earth sciences. Students develop conceptual, historical, and philosophical perspectives spanning the entire range of subdisciplines in ecology, while receiving advanced training in the subdiscipline of their individual interest.

The program fosters long-term career development by exploring the linkages of ecology with other disciplines, and by scanning the ecological horizon for emerging questions, concepts, and approaches that will shape the field in years to come.

Faculty members from 11 departments and 3 colleges participate in the Program in Ecology. Their interests span the full range of topics covered in the field of ecology, and students in the program reflect this diversity.

Program Specific Admission Requirements

The Program in Ecology (PiE) is an interdisciplinary graduate program leading to the Doctor of Philosophy degree in Ecology. Students and faculty from multiple departments and colleges at the University of Wyoming participate in the Program. Graduate students admitted to the Program will have a home department, which will typically be the home department of the respective committee chair or co-chair. Those interested in graduate study in this program, are encouraged to contact individual faculty members in the potential student's area of interest (http://www.uwyo.edu/pie/who_we_are/faculty.html) and the Program in Ecology (307-766-4128; ecology@uwyo.edu) for more information and guidance regarding applying.

In order to apply: 1) **Contact:** Identify a faculty advisor (all PiE students **must** be sponsored by a faculty advisor (http://www.uwyo.edu/pie/who_we_are/faculty.html)). These contacts are generally made in the fall the year before submission, but successful contacts may be made later. 2) **Admission to home department:** Apply to the University of Wyoming via the online application system (<http://www.uwyo.edu/admissions/apply.html>): letter of intent, CV, transcripts, and three letters of recommendation. For department, please select the department of the potential advisor. A minimum of three letters of recommendation are required and up to two additional letters may be submitted. A suggested deadline for application is January 31 to be considered for fall admission, but applications will be continued to be considered. A minimum of a 3.0 undergraduate cumulative GPA is required for admission or MS degree. International applicants, who are not native English-speakers, must submit TOEFL (recommended minimum 525) or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the

applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements. 3) **Admission to PiE:** Submit a letter of interest to the Program in Ecology (ecology@uwyo.edu), stating explicitly why you would wish to be considered for PiE and identifying the faculty advisor immediately after completing your online application. Admission to PiE requires admission is predicated on admission to home department. All applications to the Program will be reviewed by the Graduate Affairs Committee, which has authority on admissions. Students applying to the Program who lack a Master's degree must show exceptional promise and commitment (e.g., through undergraduate or post-graduate research experiences, peer-reviewed publications, and/or success in competing for research fellowships). Such students are encouraged to consult with their prospective advisor on whether to apply directly to PiE or to Master's programs in individual home departments of PiE faculty.

Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the Program. Students who wish to transfer into the Program from department-based doctoral programs must submit a formal application and must satisfy all the admission requirements specified above. Such application will consist of copies of all the application materials originally submitted to the program in which the student is currently enrolled, as well as a letter of recommendation from their prospective PiE advisor. In addition, they must submit a letter stating their reasons for seeking this transfer. All applications will be reviewed by the Graduate Affairs Committee. In addition, the following apply to transfer students:

- Students enrolled in departmental programs who have not yet taken their preliminary examinations may pursue the PhD in Ecology provided they (a) appoint an Advisory Committee under Program rules before they take their preliminary examinations, and (b) fulfill the curricular requirements.
- Students who have been admitted to departmental programs, and who have already taken their preliminary examinations, may pursue the PhD in Ecology provided they (a) appoint an Advisory Committee under Program rules within one month of admission to the Program, and (b) fulfill the curricular requirements. The student's Advisory Committee has the option of requiring a new preliminary examination.

Program Specific Degree Requirements

Advisory Committee

Before the end of the second semester of study, the student should nominate a (minimum) five-member advisory committee to the Office of the Registrar. At least three members of the committee, including the committee chair (usually the student's adviser), will be members of the PiE faculty. One other member, who will serve as Graduate Faculty representative, must be from outside the home department of the major adviser, although (s)he can be a faculty member in a department that participates in the program and/or a faculty member of PiE. The committee will advise the student on his/her program of graduate study, execute and evaluate the student's preliminary examination, evaluate the student's dissertation proposal and dissertation, and conduct the student's dissertation defense.

Program of Study

All students are required to take ECOL 5100 or equivalent. This course should be taken during the first year of residency. Exceptions or substitutions of these requirements are subject to approval by the graduate affairs committee.

The program of study must include at least 6 credit hours aimed at developing a tool skill, which except for rare cases shall be in the quantitative/analytical domain (e.g., statistics, modeling, GIS, remote sensing, bioinformatics). Courses relating to research tools should be taken early in the student's residency to ensure that they can be used in thesis research and advanced studies. Specific coursework and tool-skill development for the student's program of study will be developed in consultation with and subject to approval by the student's advisory committee.

Admission to Candidacy

Admission to candidacy for the Ph.D. requires two steps: 1) providing evidence that the student is prepared to identify a research question, design an approach for investigating that question, and a plan for executing the approach, all in the format of an NSF-style research proposal, and 2) illustrating adequate proficiency in the subject matter of ecology through a process involving both written and oral exams.

Proposal

Students must submit a NSF-style proposal to their committee outlining their project, typically by the end of the fourth semester. Each committee member will provide feedback to the student on the proposed research and indicate approval of the proposal or request revision. The proposal must be approved by all committee members prior to starting the preliminary exams.

While this proposal should be a plan for actual dissertation research, unforeseen circumstances may require altering the student's dissertation work after the proposal has been approved by the committee. In the case of a major alteration, the student should reformulate a research plan and submit it to the committee in writing for committee approval.

Preliminary Exam

Passing the preliminary exam is the official admission to candidacy.

Written Portion of the Preliminary Exam. The student will take the written exam portion of the preliminary exam no fewer than two weeks following approval of the research proposal. The goal of this exam is to test breadth of knowledge in ecology. The design of this exam will be coordinated by the graduate committee under the leadership of the adviser. Each written exam will cover the following topics:

Ecological topics ranging from organismal/evolutionary to ecosystem-level perspectives, integrating concepts and perspectives from across the discipline, over a wide range of spatial and temporal scales.

The philosophical and historical development of ecology.

The conceptual background of the student's area of specialization.

The exam will consist of four to six questions developed collectively by the committee and organized by the student's major professor. The exam will be open book; however, the answers will be solely the work of the student. Answers should be fully cited and collectively should be no longer than 30 pages double-spaced exclusive of references cited. Students will have one full week (seven days) to complete the exam. Committee members will indicate pass/fail within one week following completion of written exams. Four of five passing votes are required.

Oral Portion of the Preliminary Exam. No sooner than two weeks after successfully passing the written exam, the student may proceed to an oral exam administered by his/her graduate committee. Oral exams center around three goals from which questions will be derived:

To verify that the student is prepared, conceptually and methodologically, to carry out successful dissertation research.

To evaluate the student's ability to conceptualize specific questions in a broad, integrative context.

To evaluate the student's ability to think spontaneously and creatively and to articulate responses about unexpected or novel questions.

The advisory committee will discuss and organize specific questions based on these goals in a short session at the beginning of the exam period before admitting the student to the examination room and starting the exam. Following the exam each committee member will provide non-binding paper votes of pass/ fail for each of the three goals of the

oral exam. Following discussion of the student's performance, committee members will each assign a grade of pass/fail for the overall exam. Four of five committee members must vote for passing the overall oral exam.

Students whose performance is unsatisfactory will be given one opportunity for retaking the oral examination. This retake will occur no later than the academic-year semester following the first examination.

Public Seminars

Students are required to give two oral presentations on their research. The purposes of these presentations are to provide the student with practice in oral presentations and to keep the PiE community informed of the student's progress. The first will describe the student's dissertation research proposal. This presentation will be given before the student submits his/her thesis proposal. The second presentation will summarize the student's completed dissertation research, and will normally be given the same semester as the student's dissertation defense. Under extraordinary circumstances (subject to approval by the Graduate Affairs Committee), this presentation may be given at an earlier time. These presentations must be open to the public, and may comprise part of a departmental or Program in Ecology seminar or brown-bag series.

Hydrologic Sciences (WRESE), Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/wrese>
E-mail: wrese@uwyo.edu

Program Director: Andrew D. Parsekian, Ph.D.

Degree Offered

Ph.D. in Hydrologic Sciences

The Water Resources/Environmental Science and Engineering (WRESE) program facilitates Ph.D. level course offerings in water-related disciplines, and coordinates offerings of these courses. Furthermore, the WRESE program serves as a focal-point for water-related graduate research and education at the University of Wyoming.

This interdisciplinary degree program encourages cross-department and inter-college coordination for research and education in hydrology and water resources.

The WRESE Program grants a PhD in Hydrological Sciences.

Program Specific Admission Requirements

Ph.D. in Hydrologic Sciences

The WRESE Program only admits students seeking a doctoral degree.

Those interested in graduate study in this program, are encouraged to contact the WRESE program (wrese@uwyo.edu) for more information and guidance regarding applying. In order to apply, please submit an application to the program via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>). Prospective

students applying to the WRESE program must satisfy the minimum criteria for admission of their advisor's home department (i.e., number of reference letters required; minimum GRE scores, if requested; other supporting documents, if requested; etc.). Similarly, applicants should adhere to the submission deadline indicated by their advisor's home department.

Minimum criteria for admission to the WRESE Program are:

- Minimum undergraduate GPA of 3.000
- Agreement by a faculty member affiliated with the WRESE program to sponsor the student
- Admission to a home department at the University of Wyoming

Typically, students admitted into the program will have previously obtained a Masters-level degree. Under certain circumstance, students may be admitted directly after an undergraduate degree if they show exceptional promise and commitment. Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the WRESE program.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Program Specific Degree Requirements

Students in the WRESE Program are expected to create their graduate committee within the first year of study. The committee should be composed of three faculty members within the PhD program in Hydrology and 2 should be from the student's departmental home. A committee shall be composed of no fewer than 5 members, of which only one may be from outside the University. Additional committee members may be added to support the student's learning and objectives on the discretion of the committee and WRESE Program chair.

Program of Study

Students enrolled in the Program should complete their Program of Study within the first 3 semesters. The student shall work with his/her research advisor and committee to determine the appropriate course of study relative to the student's research agenda. Students are expected to complete a rigorous course of study in quantitative hydrological sciences.

Minimum requirements for the PhD include:

- Coursework credits: 42 hours (26 can be from an MS)
- Total credits: 72 hours
- Math expectations: students are encouraged to pursue a high level of math proficiency, with typical students progressing through differential equations. Individual math expectations will be determined by the committee and program chair.

A dissertation proposal should be approved by the end of the 4th semester. Students shall submit their proposal to their committee for review two weeks prior to a holding a committee meeting where the student (a) presents their proposal in a public presentation and (b) defends the proposal to the committee in a closed meeting. After the meeting, the student shall amend the proposal as required by the committee within a timely manner.

Admission to Candidacy / Preliminary Examination

Advance to candidacy is attained by passing preliminary exams within 3 years of initiating a degree program. Students should complete their preliminary exams as close to the end of their primary coursework as possible. Preliminary

exams consist of two parts. The first part is a written examination wherein committee members shall submit written questions to the student. Once the student has passed their written exams, they will be administered an oral examination.

The written exam shall be administered by the student's research adviser, who will coordinate the questions so as to obtain a comprehensive review of the student's knowledge of the materials the student has learned in the classroom and needs to complete his/her research topic. Written questions should cover both conceptual and theoretical underpinnings in hydrological sciences and technical questions related to the student's research area.

The written exam will consist of a series of questions as decided upon by the committee and should take no more than two weeks to complete.

Each committee member shall grade their portion of the exam as pass/fail. The student shall be viewed as passing the written exam if no more than one person grades their portion of the exam as failing.

The oral examination will be held no sooner than two weeks after the written exams, and only after the student has passed their written examinations. The oral exam should be no less than 90 minutes long and no longer than 3 hours.

Following the exam, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Dissertation

The student will prepare a dissertation and make the document available to the committee at least two weeks in advance of an oral defense of the document. The oral defense must be at least 15 weeks after the student has been advanced to candidacy. Students shall present a public defense to the university community that is expected to be approximately 45 minutes long, with a public question-and-answer period after the presentation. If the committee determines that the student has presented a suitable oral presentation of his/her research findings, a closed session meeting will be held in which the student defends their research to the committee. At the conclusion of the defense, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Other information:

Students in the WRESE Program may participate from any college, with the expectation that their program of study and dissertation will focus on quantitative issues of hydrology and water resources. The Program welcomes academic diversity, and students in WRESE have entered into the Program from a wide range of academic backgrounds and have hailed from numerous home departments, including Ecosystem Science and Management, Civil and Architectural Engineering, Botany, Zoology and Physiology, and Geology and Geophysics.

Molecular and Cellular Life Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/mcls/>
Email: mcls@uwyo.edu

Program Director: Daniel Levy, Ph.D.

Degree Offered

Ph.D. in Molecular and Cellular Life Sciences

This interdisciplinary program with more than 30 faculty participants spans a wide range of research topics, such as:

Biotechnology-bioengineering, biomaterials, pharmacology, cell biology and signaling, genetics and development, genomics, proteomics, computational biology, microbiology and infectious disease, structural biology, and biophysics.

Coursework focuses on core courses in biochemistry and molecular biology, with electives that include such diverse courses as:

Topics in Genomics, Biophysics, Microbial Physiology and Metabolism, Cell and Developmental Genetics, Mass Spectrometry and Analytical Chemistry, Biomedical Engineering, Mammalian Endocrinology, Cell Culture and Virology, Introduction to Bioinformatics, Protein Structure and Function, Microbial Genetics, Computational Biology, and Quantitative Microscopy.

Program Specific Admission Requirements

1. Applicants should apply through the online graduate application link. This process requires uploading a statement of purpose, a CV, academic transcripts, and test scores. The statement of purpose should include a brief narrative that describes the applicant's motivation to pursue graduate studies in the life sciences, relevant experiences, and specific reasons for applying to the MCLS program at the University of Wyoming. The program does not adhere to strict test score minimums, however, for international applicants minimum suggested scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS, respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries will be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency until further notice. More information for international applicants can be found on the University of Wyoming graduate admissions website. The application also requests that three reference letters be submitted in support of the candidate's application. Completed applications are due on January 1.
2. The MCLS admissions committee reviews completed applications starting in early January of each application cycle. Promising applications are selected based on research experience, grades, test scores, and reference letters. The most compelling statements of purpose convincingly describe why the applicant is interested in pursuing graduate studies in the life sciences, detailing relevant past research experience and how it has prepared the student for PhD studies. Reference letters that include specific details and anecdotes about the applicant are most useful. The committee generally looks for grades of B or better in life science and chemistry courses, although lower grades can be balanced by a sufficiently strong research background. Successful applicants will be notified of admission decisions by May 1 at the latest, although the majority of decisions will be made by March 15.
3. Following the initial reviews, selected applicants are invited for a Zoom interview. Applicants will be provided with a primary research paper that they should read in preparation for the interview.
4. Zoom interviews are conducted with at least two members of the admissions committee. Applicants are asked a variety of questions, including why they are interested in the MCLS program, how their previous research experience has prepared them for PhD studies, their perceived strengths and weaknesses as a scientist, and future career goals. The interviewers also ask questions about the research paper and more general molecular biology questions to determine if the applicants have a sufficiently strong background to succeed in the MCLS program.
5. Shortly after the interview sessions, the MCLS admissions committee discusses the results of the Zoom interviews and ranks applicants for offers of admission, conditional upon approval by the Office of Admissions.

Program Specific Degree Requirements

MCLS doctoral students must fulfill the minimum requirements outlined by the university. In addition, students must obtain a high level of proficiency in the core foundations of the molecular and cellular life sciences through required courses in biochemistry/ molecular biology, scientific literature analysis proficiency, and the MCLS cornerstone course. Because of the broad range of research interests pursued by MCLS faculty and students, considerable flexibility will be exercised regarding the specific nature of the graduate level elective courses that students may take. Students must successfully complete four eight-week rotations in MCLS laboratories of their choice during the first year. Additionally, students must pass a comprehensive assessment exam at the end of the first year. Near the end of their second year in the program, students will undertake a qualifying examination in order to be formally admitted to graduate degree candidacy. This exam will have both written and oral components and will cover areas of science that are relevant to the students' proposed research. Annual meetings with a research-specific dissertation committee will facilitate and evaluate the research progress of MCLS students beginning in the second year. Students must also attend weekly outside seminars on topics in the molecular life sciences for the durations of their studies. For more information, please see the program's Website at: <http://www.uwyo.edu/MCLS/>.

Neuroscience, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/neuroscience/>
Email: neuroscience@uwyo.edu

Program Director: Kara Pratt, Ph.D.

Degree Offered

Ph.D. in Neuroscience

The Graduate Neuroscience Program offers training leading to the Ph.D. degree in Neuroscience. The Neuroscience Program emphasizes systems and integrative approaches, and our goal is to provide the students with the necessary background to be broadly trained research neuroscientists and to carry out independent research in neuroscience. The Neuroscience Program emphasizes continuing interaction with faculty from several departments and we have a low student to faculty ratio. Advisors spend considerable time supervising and training each doctoral student. The educational philosophy of the Neuroscience Program is to encourage a problem-oriented rather than a strict discipline-bound approach to research. You will emerge from this program with the scientific and experimental training needed to comprehensively address a very wide range of research questions using a variety of techniques and analytic tools.

The Graduate Neuroscience Program is designed to enable graduate students to acquire competence in the various disciplines necessary for research and teaching careers in neuroscience. The current interests of the Neuroscience faculty include sensory neurophysiology, behavioral neuropharmacology, neurodevelopment, neurodegeneration, and synaptic plasticity.

Students and faculty have access to outstanding resources established by NIH Neuroscience and Sensory Biology Core grants. The Microscopy Core houses both light (Zeiss laser scanning, fluorescent) and electron (Transmission and Scanning) microscopes. Resources needed to conduct research ranging from molecular, cellular circuit level to behavior are readily available within the Neuroscience Center.

Program Specific Admission Requirements

Steps for applying to the Program in Neuroscience:

Step 1: Contact faculty whose research is of interest.

Although not mandatory, applicants are encouraged to read through the faculty research summaries to identify faculty that they are interested in training with. It is strongly recommended that prospective students contact individual faculty for more information regarding their research programs and openings in their laboratories before submitting an application. This initial step is recommended because, due to the limited availability of Graduate Assistantships (GA's), graduate students are oftentimes recruited directly into a laboratory and supported straight away by the advisor's NIH or NSF funding.

Step 2: Submit the online application packet via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>).

For full consideration for fall and spring admissions, applications should be submitted by January 1 and June 30, respectively. The application packet is comprised of the following items:

- **Application form**
- **Official academic transcripts:** Applicants should have at least a 3.0 cumulative GPA (scale of 4.0), and a bachelor's degree in a discipline that is related to neuroscience such as biology, psychology, physiology, chemistry, physics, or chemical or bioengineering. We encourage motivated applicants from degrees in diverse areas that are interested in transitioning to neuroscience. Students with an MS degree in neuroscience or related fields are also encouraged to apply.
- **GRE scores:** Accepted but not required
- **Three letters of recommendation**
- **TOEFL/IELTS:** For international students whose native language is not English. The minimum acceptable scores are 550 (79 iBT) and 6.5 for TOEFL and IELTS, respectively. (The University of Wyoming's school code for TOEFL = 4855.)
- **Personal statement:** A 1-3 page personal statement describing the student's motivation for pursuing a PhD in the field of neuroscience. Please describe areas of interest and any specific research topics or techniques with which you have experience. If your interests are still broad, indicate your general interests and graduate training goals.
- We are also interested in learning about your long-term career goals. What do you aspire to do after graduation? What are you specifically interested in the University of Wyoming? Finally, if you have established a potential faculty advisor (step 1), this should be clearly stated here in the personal statement.

Step 3: The interview

The graduate advisory committee reviews submitted application packets. Only complete packets are reviewed. Applicants deemed strong by the committee will be invited to participate in either an in-person or virtual (via zoom or phone) interview. The interview allows for the committee to learn more about the applicant, and, likewise, for the applicant to interview the committee.

Step 4: Verification of admittance by UW Admissions Office. Applicants that are chosen for admission to the Program in Neuroscience will then be requested to complete the application process through the University of Wyoming Admissions Department. Eligibility for enrollment will be verified by the UW Admissions Office, including the receipt of official transcripts and documents.

Program Specific Degree Requirements

Doctoral Program

All doctoral Neuroscience students are required to complete a program of core classwork that includes the following required courses: Introduction to Neuroscience, Structure and Function of the Nervous System and Neurophysiology. Students are required to take one course in Statistics (e.g. STAT 5050, STAT 5210) and the course that meets this requirement will be arranged with the student's committee. The statistics requirement must be met by the end of the second year. The Neuroscience Program is a research-oriented program and students are expected to take a minimum of 2 to 3 credit hours of research per semester. Students are also expected to enroll in an on-going Seminar in Neuroscience. The Neuroscience Seminar, which meets weekly and is attended by students and faculty members, provides an opportunity for intellectual and social exchange, as well as for the development of professional skills in critical thinking. The topic for seminar and the faculty member directing the seminar changes each semester. The remainder of the coursework for the doctor of philosophy degree is selected from designated courses in Neuroscience, physiology, pharmacology, and molecular biology. A grade of B or better is required for all Neuroscience courses.

A student is expected to have a graduate adviser at all times. The faculty adviser must be a participating member of the Neuroscience faculty. The adviser is responsible for directing the student's research and academic coursework. During the second year, the student will have an advisory committee. The advisory committee will consist of at least three neuroscience faculty members and an outside member. Normally, the student's adviser will chair the committee and help identify members of the committee who best match the student's area of interest. The role of the advisory committee is to oversee all aspects of the student's education after the first year.

In the student's second or third year, the advisory committee will set and evaluate the student's qualifying examination. After successful completion of the preliminary examination the student will profess to Ph.D. candidate status.

The dissertation is the single most important component of the graduate program. It reports the results and significance of the student's research. In addition to the written dissertation, the doctoral candidate will deliver a formal seminar based on their research. The seminar will be followed by an examination by the student's advisory committee.

Science and Mathematics Teaching Center Master's Degrees

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/smtc/>
Email: smtc@uwyo.edu

Program Director: Sylvia Parker

The Science and Mathematics Teaching Center (SMTC) was established in 1970 and is committed to excellence in science, mathematics, technology and STEM education. As part of the Office of Graduate Education in Academic Affairs, the SMTC, in cooperation with the Wyoming Department of Education (WDE) and the Professional Teaching Standards Board (PTSB), serves as a resource and professional development center for the state. The SMTC offers transdisciplinary graduate degree programs with multiple degree concentrations, certification options, and endorsement options. All of the programs emphasize both strong content knowledge and instructional practices. The affiliate faculty for the SMTC includes faculty from the Colleges of Agriculture and Natural Resources, Arts and Science, Education, and Engineering and Applied Science, and the Haub School of Environment and Natural Sciences.

The SMTC provides extensive off-campus professional development that serves teachers, students, administrators, school districts and communities throughout Wyoming and the region. SMTC in-service and extension courses,

workshops, institutes, and conferences are designed collaboratively to improve science and mathematics teaching in Wyoming.

The SMTC administers and supports five master's degree programs:

- (1) the Master of Science degrees in Natural Science with concentrations in Middle Level Math (MMA) and
- (2) Middle Level Science (MSC); these programs are designed for Wyoming's in-service elementary, middle, and high school teachers. They focus on general science and mathematics content with an emphasis on teaching middle school level learners. The course work leads to middle level endorsement provided by the Wyoming PTSB. Teachers must have two years of teaching experience to participate in these programs.
- (3) Master of Science in Teaching - Natural Science (MST - Natural Science). This is a self-directed master's degree program working with the SMTC, SER, and the Haub School as well as other colleges. The program is developed individually with the guidance of a graduate committee based on the interests of the graduate student. This program may be used by teachers to take the 18 graduate-level credits often needed to teach Advanced Placement and community college courses.
- (4) Master of Science - Natural Science (MS - Natural Science). This is a self-directed master's degree program working with the SMTC, the College of Arts and Sciences, SER, and the Haub School and other colleges. The program is developed individually based on the interests of the graduate student and may emphasize formal or informal learning settings. Interdisciplinary study is encouraged.
- (5) Master of Science in Natural Science with a concentration in Natural Science Education (NED). This Master's degree program is designed for students pursuing careers as environmental and natural science educators in non-public school or non-formal education settings. These students spend one year at the Teton Science Schools (TSS) in Jackson. A long-standing MOU between the SMTC and TSS allows students to use 15 graduate credit hours earned at TSS towards a master's degree if they are accepted into the second year at UW within the SMTC.

SMTC Student Learner Outcomes

Upon successful completion of the MS degree program in Natural Science, a student will be able to:

- Engage in teacher research to transform STEM instruction:
 - Design and implement a research project that asks and answers a question using appropriate materials, concepts and methods, and ethical practices, and
 - Effectively communicate all aspects of the research project in both oral and written forms.
- Use professional and academic standards to ensure high-quality interdisciplinary instruction (i.e., place-based, culturally relevant, and/or social justice pedagogy) to maximize learning for all students.
- Engage in mathematical and/or scientific discourse and scientific thinking as active participants in communities of practice.
- Use emerging technology and science investigations as tools to engage students.

Program Specific Admission Requirements

For the MSC, MMA, MST and MS-Natural Science Master's Degrees:

Two years of teaching experience and a valid teaching license (required for MSC and MMA; may be waived for MST and MS-Natural Science)

Application Fee, unless a UW Graduate

Official Transcripts from all Institutions attended and Bachelor Degree conferring institution

3.0 undergraduate grade point average; provisional admission with a lesser GPA only with consent from Academic Affairs

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence (These items are not required of applicants who hold a prior master's degree)

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from the teacher's principal and two other colleagues.

The NED Degree - First Year Application:

Official Transcripts from all institutions attended and Bachelor Degree conferring institution Application Fee, unless a UW Graduate

Acceptance and admission by the Graduate Program at the Teton Science Schools in Jackson, WY

The NED Degree - Second Year Application:

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from a TSS Graduate Program Faculty Member, one from another TSS employee such as a Classroom Instructor or Field Instructor, and one from the first year application

Applicants complete a UW graduate application and upload all of the information on the Admissions Office website (<http://www.uwyo.edu/admissions/apply.html>). Application packets are reviewed by SMTC Admissions Committees and recommendations for admissions are submitted to the University of Wyoming Admissions Office. Any of the above requirements plus the university's minimum 3.00 grade point average may be waived if proper documentation and reasoning are given by the SMTC and approved by the Associate Vice Provost of Graduate Education.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) for more information.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Application Due Dates for Master of Science - Natural Science with Concentrations in the following areas:

Middle-level Science (MSC): applications are accepted on an ongoing basis; new students may begin only in summer each year; final due date for admission in summer is April 1.

Middle-level Mathematics (MMA): applications are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Natural Science Education (NED): applications deadlines for Year 1 are established by Teton Science Schools (<https://www.tetonscience.org/programs/graduate-program/admissions/>); due date for admission to begin Year 2 in the fall at UW is February 1.

MST and the MS- Natural Science Masters Degree: applications for these self-designed programs are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Graduate Assistantships and Scholarships

The SMTC often has scholarships and graduate assistantships available for graduates accepted for the above Master's degree programs. More information upon admission and acceptance.

College of Law

102 Law Building

Klint Alexander, Dean

Phone: (307)766-6416 FAX: (307)766-6417

Web site: www.uwyo.edu/law

Professors:

KLINT ALEXANDER, B.A. Yale University 1991; Ph.D./M.Phil. Cambridge University 1997; J.D. University of Virginia 1999; Dean & Professor of Law 2015.

MELISSA ALEXANDER, B.A. Yale University 1996; J.D. University of Virginia 1999; Professor of Law 2019, 2015.

JACQUELYN BRIDGEMAN, B.A. Stanford University 1996; J.D. University of Chicago 1999; Associate Dean for Academic Affairs and Professor of Law 2008, 2002.

KENNETH CHESTEK, B.A. Pennsylvania State University 1975; J.D. University of Pittsburg School of Law 1979; Professor of Law 2018, 2012.

DANIELLE R. COVER, B.A. University of Maryland 1994; J.D. Tulane University School of Law 1997; Professor of Law 2020, 2014; Director of Legal Services Clinic.

JAMES M. DELANEY, B.A. University of Washington 1985; J.D. Gonzaga University School of Law 1992; LL.M. in Taxation, University of Florida 1997; Professor of Law 2013.

STEPHEN M. FELDMAN, B.A. Hamilton College 1977; J.D. University of Oregon 1982; J.S.M. Stanford University 1986; Jerry W. Housel/ Carl F. Arnold Distinguished Professor of Law 2002.

MARK GLOVER, B.A. Washington University in St. Louis 2002; J.D. Boston University School of Law 2008; LL.M. Harvard Law School 2011; Professor of Law 2019, 2015.

DARRELL D. JACKSON, B.A. College of William and Mary 1987; J.D. George Mason University School of Law 1990; Ph.D. University of Colorado School of Education 2011; Professor of Law 2018, 2013.

SAM KALEN, B.A. Clark University 1980; J.D. Washington University 1984; Professor of Law 2014, 2009.

GEORGE MOCSARY, B.E. The Cooper Union School of Engineering 1995; MBA University of Rochester 1995; J.D. Fordham University School of Law 2009; Professor of Law 2019.

NOAH B. NOVOGRODSKY, B.A. Swarthmore College 1992; J.D. Yale Law School 1997; Professor of Law 2013, 2009.

TARA RIGHETTI, B.A. University of Colorado Boulder 2005; J.D. 2007; Professor of Law 2020, 2014.

JASON ROBISON, B.S. University of Utah 2003; J.D. University of Oregon 2006; LL.M. Harvard Law School 2009; S.J.D. 2013; Professor of Law 2019, 2015.

ALAN ROMERO, B.A. Brigham Young University 1990; J.D. Harvard University 1993; Professor of Law 2007, 2003.

MICHAEL R. SMITH, B.S. Florida State University 1982; J.D. University of Florida 1985; Professor of Law 2006.

Associate Professors:

LAUREN MCLANE, B.S. Radford University 2002; J.D. Seattle University School of Law 2008; Associate Professor of Law 2021, 2018; Director, Defender Aid Clinic.

DONA PLAYTON, B.S. University of Wyoming 1989; J.D. University of Wyoming 1993; Associate Professor of Law 2002, 2018; Director, Family and Child Legal Advocacy Clinic.

Assistant Professors:

JERRY FOWLER, B.A. Princeton University 1983; J.D. Stanford University 1990; Assistant Professor of Law 2019; Director, International Human Rights Clinic.

Academic Professionals:

DEBORA PERSON, B.A. Arizona State University 1981; M.L.S. Rutgers University 1992; Library Associate 1993; Administrative Law Librarian 2005, 1994.

TAWNYA PLUMB, B.A. University of Wyoming 1996; M.L.I.S. University of Texas at Austin 1998; Electronic Services and Assistant Librarian 2004.

Professors Emeritus

Debra L. Donahue, Harvey Gelb, Timothy Kearley, Jerry R. Parkinson, Dee Pridgen, Joel Selig, Elaine A. Welle

The College of Law was founded in 1920. The goal of the college is to provide a sound and thorough education in the law that will prepare the student to practice law in accordance with the highest standards of professional competence and responsibility. The emphasis in instruction is on analysis and understanding of legal principles and the

development of skills necessary to the practice of the profession. The course of study will prepare a graduate to practice in any jurisdiction which has adopted the Anglo-American system of law.

The curriculum of the College of Law consists of three years of study within the college. Required courses necessary to basic legal knowledge make up the first two semesters of study, while courses in the final four semesters are largely elective. Students become eligible to receive the Juris Doctor (J.D.) degree upon successful completion of 90 semester credit hours of law courses with a grade point average of at least 2.000.

The college acts as a law center for Wyoming. It serves lawyers, judges, and government by a program of continuing legal education for attorneys and others interested in significant legal developments, by research projects aimed at improving state law, and by publishing the Wyoming Law Review.

Accreditation

The college is approved by the American Bar Association and its graduates are eligible for admission to the bar in every state. A student planning to practice in a particular state should check its rules for admission to the bar.

The college is also a member of the Association of American Law Schools. Membership is conditioned upon the maintenance of an adequate teaching staff and library, the offering of a sound educational program and adherence to prescribed standards for the admission and graduation of students.

Prelegal Curriculum

There is no prescribed or required set of courses for prelegal work. A student must usually have a B.A. or B.S. degree before beginning the professional study of law. There are no restrictions on the field in which the degree is earned.

The objective of prelegal study should be to acquire knowledge and skills useful in the study and practice of law. College study should prepare the student for law school by developing language comprehension and use, understanding of political, economic, social and cultural institutions, and the ability to think logically and creatively. Courses promoting these objectives are included in the basic requirements for most undergraduate degrees. The choice of a major should be determined by the student's academic interest and professional objective in law.

Valuable background may be acquired through the study of English, history, philosophy, economics, political science, psychology, sociology, business administration, mathematics and the natural sciences.

For additional information, see the College of Law web site, (www.uwyo.edu/law).

Admission Requirements and Procedures

Admission to the professional curriculum in law is granted by the admissions committee of the College of Law. The College of Law restricts the number of entering students to a class size consistent with its facilities and its educational objectives. In evaluating an application, the committee considers the applicant's undergraduate college scholastic record and score on the Law School Admission Test (LSAT).

Other criteria relevant to the probability of success in the study and practice of law will also be considered.

1. Prior to beginning work in the College of Law, applicants must have a bachelor's degree from an accredited college or university, unless they have requested and been granted following exception:
 - a. An applicant who needs not more than 6 semester hours of college credit to qualify for a bachelor's degree may be admitted in exceptional cases to law school if the committee determines that the applicant has sufficient education and preparation for the study of law; has an outstanding

- undergraduate scholastic record; and has an approved program signed by the appropriate undergraduate official indicating that the remaining requirements for the bachelor's degree may be met by summer school attendance or by other means that will not interfere with the study of law.
2. Every applicant must take the Law School Admission Test. A packet giving information about the test, the dates on which it is given, and centers at which it can be taken, sample questions and an application form, may be obtained from Law School Admission Council, Box 2000, Newtown, PA 18940, by phone at (215) 968-1001, online at www.lsac.org.
 3. Every applicant must register with the Law School Admission Council Credential Assembly Service, CAS. Registration may be done through the LSAC website (www.lsac.org). The CAS will prepare a report that is transferred to the college.
 4. Every applicant must complete the electronic University of Wyoming College of Law Application through LSAC between October 15 and April 30. Applications received by December 15 will be considered for early admission.
 5. If admitted, official transcripts sent directly to the College of Law from each college attended must be on file in the Admissions Office at least 30 days before the student's registration date.

Application Deadline

An initial entering class will be selected from completed applications on file on April 30. Students who submit an application by December 15 will be considered for early admission. An application is complete only when the college has received the LSAT score, the CAS report, applications, and all supporting documents.

Admission With Advanced Standing

Transfer students are admitted only when the College of Law facilities and curriculum permit. A transfer student may transfer up to the number of credits the student could have earned had the student completed his or her first year at the University of Wyoming College of Law. Transfer credit will be given only for courses in which the student earned a grade of C or higher. Applicants admitted must satisfy the requirements for graduation established by the College of Law, including such other requirements as may be imposed as a condition of admission. Students interested in transferring should contact the College of Law for information concerning application procedures.

Academic Regulations

The Juris Doctor (J.D.) degree is awarded by the College of Law faculty to candidates who meet the following requirements:

Curriculum is subject to change at the College of Law Faculty's discretion, which may cause the annually updated university catalog to be out of date. For students matriculating in or after the fall 2013 semester, each student must successfully complete (grade of "D-" or better for courses taken at this school, grade of "C" or better for courses taken elsewhere) 90 credit hours (required for graduation) of law coursework in accordance with the official curriculum as adopted by the College of Law faculty. At least 59 of these credits must be completed at the University of Wyoming College of Law. Courses taken for S/U grades count toward the hours required for the J.D. degree only if the course is offered for the S/U grade only. Regardless of the matriculation date, students must complete at least 76 credit hours through graded (A-F) courses.

The course of study must be completed no earlier than 24 months (2 years) and not later than 84 months (7 years) after a student has commenced law study. No student shall be permitted to enroll at any time in coursework that, if successfully completed, would exceed 20 percent (18 hours) of the total coursework required for graduation.

Second and third year students may take up to six of 90 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students must receive a letter

grade of B or better for these non-law courses to count toward graduation requirements. Additionally, these courses will transfer in with a satisfactory grade of 'S' and will not impact their law school GPA. Students who wish to enroll in a non-law course on this basis must secure the prior approval of the course professor and the Associate Dean of Academic Affairs at the College of Law. Approval will be based on the student's submission of a Non-Law Grad Course Request form with a brief written statement explaining how the proposed coursework relates to and enhances the student's legal education. Students should be aware that non-law courses completed on this basis will not count toward the 76 hours that students must complete in graded courses as a requirement for graduation. The non-law coursework will instead be counted as credits the law students are permitted to take on an S/U basis.

The College of Law automatically approves up to 9 hours of any joint degree core courses with the corresponding prefix to their joint degree (i.e. MBAM, POLS, ENR) that meet the grade requirement to transfer in toward their law degree. If additional courses are needed outside of these respective prefixes, these will be approved on a case by case basis. Those students enrolled in a joint degree program may take up to 9 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students in a joint degree program who use 9 non-law credit hours toward their J.D. degree may reduce their required number of graded credits from 76 to 73 so that they can participate in other S/U offerings at the College of Law. To receive law school credit for the non-law course, a student will be required to earn a grade of B or better in the non-law course. The grade will not count, however, toward the student's law school GPA. The course will be counted as a "satisfactory" grade for purposes of the student's law school GPA. Joint degree students should be aware that non-law courses completed on this basis will not count toward the 73 hours that joint degree students must complete in graded courses as a requirement for graduation. The non-law coursework will instead be counted as credits the law students are permitted to take on an S/U basis.

To graduate, all students must earn a cumulative grade point average of 2.000 for all courses taken at the College of Law. If a course is repeated, both grades shall be included in computing the average. The student, except in exceptional circumstances, must have a baccalaureate degree. Candidates who meet these requirements are eligible for graduation at the end of any semester.

Academic Standing

The following requirements apply to any coursework at the College of Law. Courses that law students may complete outside of the College of Law do not count in calculation of the required College of Law grade point average (GPA).

In the first year, a student who fails to make a 1.800 GPA after the first semester, or fails to make a 1.900 cumulative GPA overall in the first year's work, shall be excluded from the College of Law. A student who at any time fails to make a passing grade in two of the courses for which the student is registered in any semester shall be excluded from the College of Law.

A student who enters the second year with a GPA lower than 2.000 but at 1.900 or above, or who fails to maintain a 2.000 cumulative GPA after the first year, shall be placed on academic probation. A student on academic probation who does not attain an overall grade point average of 2.000 within one semester shall be excluded.

A student excluded from the College of Law may petition the faculty for readmission. The faculty may, in its discretion, readmit the student upon receipt of satisfactory evidence of extenuating circumstances or marked improvement in grades and study habits. Readmission may be subject to conditions, including, but not limited to, the repeating of any or all courses, as the faculty may decide. If a student's petition for reinstatement is denied, the student must wait nine months before petitioning again for readmission. Also, all students are limited to two petitions for readmission. The entire faculty will automatically hear and consider a student's initial petition. In the event of a second petition for readmission, a committee selected by the Dean will hear and consider the petition. The committee will present a report and recommendation to the faculty for adoption. Denial of a second petition is final.

Advanced Writing Requirement

As a condition of graduation, all students must complete an upper-level writing requirement consisting of a research paper of a minimum length of 5,000 words, exclusive of footnotes. All students must follow a designated standard citation form. Students must submit a detailed outline of the paper to the supervising professor, then must rewrite the paper at least once after the professor reviews the first draft. With the professor's approval, the student can meet the advanced writing requirement in any law school elective course, including a seminar, as long as the above requirements are met. The supervising professor must certify that the writing requirement has been fulfilled.

All student articles written for law review, whether published or unpublished, must have a supervising faculty member and otherwise meet all other provisions of the College of Law Advanced Writing Requirement. A student may also fulfill the requirement through an independent study or by writing a case note or comment for the law review, under the supervision of a professor. It cannot be satisfied through participation in a clinic.

Attendance Requirement

Students must attend at least 75 percent of regularly scheduled classes in each required course. A professor in a required course may impose an attendance requirement of greater than 75 percent if the policy is announced in writing on the first day the class meets.

In elective courses, students must attend at least 75 percent of regularly scheduled classes unless the professor announces a different policy in writing on the first day the class meets. Any alternative policy must comply with the American Bar Association (ABA) requirement of regular and punctual attendance.

A student who fails to meet the minimum class attendance requirement in any class will be dropped from the course and receive a grade of F, unless extenuating circumstances are present, in which case the student shall receive a grade of W. A professor may impose sanctions for students who have met the minimum class attendance requirement but in other respects have violated specified attendance guidelines, if the professor announces the guidelines and possible sanctions in writing on the first day the class meets.

The following table indicates the number of classes a student must attend under the 75 percent rule in a two hour or three hour course, depending on the number of class meetings. Students must verify with the professor the number of classes required in a one or four hour course.

The ABA requires attendance at 75 percent of all scheduled class times.

3-Credit Course (meeting three times a week for 55 minutes each):

<u>Class Meetings</u>	<u>Must Attend</u>
40	30
41	31
42	32

2-Credit Course (meeting twice a week for 55 minutes each) or a 3-Credit Course (meeting twice a week for 80 minutes each):

<u>Class Meetings</u>	<u>Must Attend</u>
26	20
27	20
28	21

Class Rank

Students are ranked by class at the end of each of the fall and spring semesters once the faculty have submitted all grades. Class rankings will be available in the Front Office. Students can choose to have their spring class ranking letter mailed to them if they provide the Front Office with a self-addressed, stamped envelope. Transfer students to the College of Law shall not be ranked with other UW students until they have completed two full-time semesters at UW (or a minimum of 24 UW credits). Students who visit out at other ABA accredited law schools or who graduate early are ranked based on their ranking at the end of their last semester at UW.

Experiential Learning Requirement

As a condition of graduation, each student must successfully complete no fewer than 6.0 credit hours in experiential learning courses. Experiential learning courses include a simulation course, a law clinic, or an externship field placement. Simulation courses provide substantial experience not involving legal representation of an actual client, that (1) is reasonably similar to the experience of a lawyer advising or representing a client or engaging in other lawyering tasks in a set of facts and circumstances devised or adopted by a faculty member; and (2) includes: direct supervision of the student's performance by the faculty member; opportunities for performance, feedback from a faculty member, and self-evaluation; and a classroom instructional component (ABA Standard 303).

Typically students may fulfill the experiential learning requirement by successfully completing 6.0 credit hours in any of the following upper- class elective courses:

- Advanced Appellate Advocacy (LAW 6520)
- Advanced Legal Research (LAW 6990)
- Advanced Oil & Gas Law (LAW 6992)
- Advanced Persuasive Writing (LAW 6925)
- Alternative Dispute Resolution (LAW 6915)
- Business Planning (LAW 6560)
- Civil Pretrial Practice (LAW 6565)
- Clinic: Civil Legal Services (LAW 6930 or LAW 6931)
- Clinic: Defender Aid (LAW 6932 or LAW 6930)
- Clinic: Energy, Environ. & Natural Resources (LAW 6933 or LAW 6930)
- Clinic: Family & Child Advocacy (LAW 6930 or LAW 6934)
- Clinic: International Human Rights (LAW 6930)
- Clinic: Prosecution Assistance (LAW 6930 or LAW 6936)
- Contract Drafting (LAW 6935)
- Estate Planning (LAW 6670)
- Estate Planning Practicum (LAW 6937 or LAW 6930 or LAW 6915)
- Externships (LAW 6960)
- Interviewing, Counseling & Negotiation (LAW 6166 or LAW 6915)
- Summer Trial Institute (LAW 6850)
- Trial Practice (LAW 6850)

Note: classes may be removed from and/or added to this list each semester.

Grading

Grades are assigned on a plus/minus system. Grades of incomplete (I), and withdrawal (W), are disregarded. A required course in which a grade of F or W or U is received must be repeated. A course cannot otherwise be repeated without

the consent of the faculty. If a course is repeated, both grades are included in computing the student's grade point average.

A4.00	B +3.333	C+2.333	D+1.333	F0.000
A-3.667	B3.000	C2.000	D1.000	WF0.000
	B-2.667	C-1.667	D-0.667	

Satisfactory (S) or unsatisfactory (U) grading applies only if the course is offered on an S/U basis or a student takes a non-law graduate-level course as explained above. Students from other colleges who are permitted to take professional courses in the College of Law must take them for S/U credit. The grading scale is at discretion of the instructor for each course.

Bar Exam Passage Rate Improvement Program

Students matriculating after August 2021, a student whose first-year GPA is in the bottom one-third of the class will be required to pass four of the following courses as a requirement of graduation: Business Organizations (or one of either Agency and Partnership or Corporations); Secured Transactions; Trusts and Estates; Criminal Procedure; Criminal Adjudication; Family Law; Constitutional Law II; or Real Estate Finance. During the fall and spring semesters after the 1L year it is required to take at least one of these courses as a minimum each semester, until the requirement has been satisfied.

In order to graduate, a student whose first-year GPA is in the bottom one-third of the class will also be required to take and pass a law school-offered bar examination course as a 3L (typically in their final spring semester), unless for unanticipated reasons the College of Law does not offer that course in a particular year.

Curriculum

Required Courses: First (1L) Year Students (*Additional courses cannot be taken the first year without special permission from a dean.*)

Fall Semester

Civil Procedure I (6240) - 3

Contracts I (6110) - 3

Legal Research (6165) - 1

Legal Writing I (6160) - 3

Property I (6120) - 3

Torts I (6130) - 4

Spring Semester

Civil Procedure II (6340) - 2

Constitutional Law I (6250) - 3

Contracts II (6210) - 2

Criminal Law (6140) - 3

Legal Writing II (6260) - 2

Property II (6220) - 2

Required Courses: Second (2L) Year Students (offered once per year)

Evidence (6410) - 3

Professional Responsibility (6420) - 3

Elective Courses: Second (2L) & Third (3L) Year Students (* subject to availability)

See Law Courses section

Graduation with Honors

The degree of Juris Doctor is awarded with honors if the student achieves a grade point average of 3.400 or better on all resident credit in the College of Law.

Honor Roll

Students enrolled in a minimum of 12.0 semester hours of law courses carrying A-F grades, and who have no semester grades of incomplete (I), are eligible for the President's Honor Roll and the Dean's Honor Roll. Students with a semester average of 4.000 will be named to the President's Honor Roll. First-year students with a semester average of 3.250 or better and second-year and third-year students with a semester average of 3.400 or better will be named to the Dean's Honor Roll.

Minimum Hours

The College of Law does not permit students to attend on a part-time basis. Students are required to take the full load of required courses during their first two semesters and to carry at least 9 credit hours in each of the remaining semesters of law study. Notwithstanding, if a student has less than 9 credits remaining in their final semester of study, then said student may register for only the number of remaining credits (e.g. if a student only has 4 credits left to graduate, that student will only be required to register for 4 credits). First year students will be allowed to take less than the full load of required courses only if they present exceptional circumstances, as determined by the Dean or his/her delegate.

Transfer Credits

The College of Law admits transfer students only in the fall of their second year. A student granted transfer admission may transfer credits earned in courses taken at another ABA-accredited law school toward a degree from the UW College of Law up to the number of credits that a traditional UW student would have earned during the student's first year at the University of Wyoming (32 credits as of the 2020-21 academic year). In addition, University of Wyoming law students who visit out for a semester or full year may also transfer credits from other ABA approved law schools, as long as 59 credits are completed at the University of Wyoming. The College of Law will also accept up to 15 hours of transfer credit from another ABA accredited school for an international student previously enrolled in an LL.M. or other post-J.D. program. To receive transfer credit from a course, a grade must be a "C" or better. Transfer credits are recorded on the JD transcript as an "S" (Satisfactory), instead of graded credits. All transfer credits must be approved by the Associate Dean of Academic Affairs in advance.

Withdrawing from a Course &/or the University

Failure to attend class or failure to pay tuition does not constitute withdrawal from a class or from the University. Students who pre-register for classes on WyoWeb will be assessed tuition and fees. Students who drop or withdraw from their last or only class for a given term after the end of the drop/add time period must also meet with the Assistant Dean of the College of Law and complete the official withdraw forms required by the Office of Registrar. Financial aid recipients who withdraw from courses or reduce credit hours must consult with a financial aid counselor regarding repayment of financial aid funds if applicable. For more complete details regarding deadlines, refunds, and cancellations, see the University's Accounts Receivable web page <http://www.uwyo.edu/fsbo/accounts-receivable/>

Exam Procedures and Policies

1. Review the Honor Code before beginning the exam period. It applies to all examinations. If you have any questions about the materials allowed by a professor, please see the professor in advance of the exam.
2. A copy of the final exam schedule will be posted on the web, please check dates and times carefully.
3. We use exam numbers, rather than students' names, so that professors cannot identify the students' exams they are grading. Exam numbers will be available in ExamSoft one to two weeks before the exam period. You must write this number on all of your exams and blue books, or as your identification number for typed exams. **DO NOT** write your name on your exam. Midterm exams and final exams have unique numbers. Save these numbers, as you will use the same number for all of your midterm and final exams respectively. New numbers are assigned each semester.
4. All examinations must be: (A) written in ink in 8 1/2 x 11 size "blue books," OR (B) typed on the student's laptop using the ExamSoft software. Students provide their own blue books, pens or laptops. The law school will supply answer sheets and pencils for any multiple choice exams.
5. If you are using a laptop:
 - Exemplify (SofTest) is operable for PC's and Mac's. Please reference this site for the most up to date Minimum System Requirements, Exemplify: Minimum System Requirements - ExamSoft
 - You must download the exam software (free for students) well in advance of the exam day.
 - Have your laptop set up and the software running in the designated room before the time to begin the exam.
 - Instructions for using the ExamSoft Exemplify (SofTest) software are available at the Examssoft website (use Chrome or Firefox ONLY).
 - If you experience any problems with your computer during the exam, come to the front office immediately and someone will assist you.
 - Once you complete the exam, and have turned in your exam questions, be sure you receive the "upload successful" message to assure that your exam answers have been transmitted.
6. All exam reschedules must be approved by COL Assistant Dean, Lindsay Hoyt or the Registrar. You must meet the criteria published within the exam schedule to reschedule an exam, i.e., two exams on one day, three exams in three days, or four exams in five days. Fill out the exam reschedule request form and turn it into COL Registrar, Dave

Bluemel. Please note, that if possible, an elective will be rescheduled rather than a large required class, and rescheduled to a later, rather than an earlier date.

7. Students who are handwriting their exams must return the exam questions and blue books to a staff member in the lobby outside the Dean's office at or before the time indicated on the exam. Laptop users should exit the exam software and turn in the exam questions to a staff member at or before the time indicated. It is your responsibility to determine the precise time the exam is to be returned and to ensure that you meet the deadline. Use the clock in the exam room for reference, not the clock that may appear on your computer or the time on your wristwatch.

8. During the exam, turn off (or leave outside the room) all cell phones, smart watches, pagers, and PDA's. Do not leave them on vibrate, as this may be disturbing to other students.

9. When you finish your exam, please be courteous/quiet as you gather your belongings and leave the exam room. You MAY NOT return to the room to gather your belongings after you have turned in your exam, unless it is after the collection time indicated on the exam. **Be** aware that students are taking exams in both the morning and the afternoon and are taking exams that have differing ending times -- so please curb your talking in the classroom areas and halls during the administration of exams.

10. If you cannot take the exam at the set time due to illness, or other emergency, you must notify Assistant Dean Lindsay Hoyt, as soon as possible, prior to the exam and be prepared to supply appropriate documentation.

11. Final grades will be available on WyoWeb. No grades will be given over the telephone.

Final Exam Reschedule Policy

No student is required to take exams in the following circumstances as long as they submit a reschedule form two weeks prior to the first day of exams:

- two exams on one day
- Three exams in three consecutive days
- four exams in five consecutive days

Students who have six final exams cannot be provided relief due to the limited number of exam days. Efforts will be made, however, to distribute the six exams so as to avoid three in a row. A student who meets the above criteria must see Assistant Dean Lindsay Hoyt to reschedule. Exams are not normally rescheduled outside of the regular exam period.

Disability Assistance

The University of Wyoming College of Law is committed to making its programs accessible to individuals with disabilities and ensuring a robust academic experience for all students. The College of Law works closely with the Disability Support Services office on the University's main campus to coordinate a variety of services for students with disabilities. The Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973 guarantee equal access to programs and services to those with disabilities. In order to be a qualified individual subject to the protections of these Acts, a person must demonstrate that he or she has a disability that substantially limits a major life activity (e.g., seeing, hearing, walking, breathing, performing manual tasks, learning, caring for oneself, and working) and, as such, requires a reasonable accommodation in order to have equal access. This section of the College of Law's policies explains a student's rights and responsibilities in seeking to receive accommodations from the College of Law because of a disability. The process and procedures outlined here apply to law school classroom accommodations, exam accommodations, and accommodations related to accessing the University's facilities.

I. Rights and Responsibilities in Requesting Reasonable Accommodations

A. Accommodation Request Deadlines

1. The deadlines for students requesting accommodations is 2 weeks before the start of the academic year or semester for classroom and exam accommodations.
2. Extensions to these deadlines may be granted to students who were unable to meet the deadline due to extenuating circumstances. Accommodations are prospective; retroactive accommodations are not available. For this reason, it is important that the student timely submit requests for accommodations.

B. Accommodation Process and Procedure for Classroom and Exam Accommodations

1. A student who believes that he or she has a qualifying disability warranting accommodation for academic programs, exams or access to the University's facilities should submit their requests for accommodations through the University of Wyoming's Disability Support Services (DSS), by contacting udss@uwyo.edu or 307 766-3073 or applying through the website found here: <https://www.uwyo.edu/udss/>.
2. The DSS application process is required and separate from any communication with College of Law staff. Students *should not* go directly to any faculty in an effort to arrange accommodations for disabilities.
3. Once the student submits the completed application and supporting medical documentation, DSS will review the documentation to verify the existence of a qualifying and make a decision regarding the student's eligibility for services. DSS also may request additional documentation at any time or may request that the student's physician or other licensed health professional speak directly to the DSS staff.
4. Following the determination that the student has a qualified disability, DSS and the Assistant Dean of the College of Law, as the designated liaison for the College and its faculty, will consult together to make a determination regarding the student's requested accommodations related to the student's courses, exams, and access to university facilities.
5. A reasonable accommodation is an accommodation that does not impose an undue financial or administrative burden on the College of Law and does not fundamentally alter the nature of the educational service, program, or activity at the College of Law.
6. DSS is responsible for making determinations about reasonable accommodations after consulting with the Assistant Dean of the College of Law and will then notify the student by email of the decision to deny, grant, or partially grant or provide a reasonable alternative to the requested accommodations. This email is required prior to any accommodations being made.
7. Information regarding a student's disability and any accommodations provided shall be disclosed only when necessary in furtherance of the student's education or to individuals who have a need to know the information as determined by the University. As a general rule, when feasible, student anonymity will be maintained.
8. For any exam condition accommodations, DSS will notify the Assistant Dean of the College of Law who will oversee the implementation of the accommodation. DSS will also notify any other law school staff designated by the Assistant Dean of the College of Law who are needed to implement the accommodation (e.g. the designated testing coordinator, faculty etc.). Students will be provided notice of the time and place of their accommodated testing by DSS.
9. For classroom accommodations, the Assistant Dean of the College of Law will oversee implementation of the accommodations and notify the faculty of the particular course if the accommodations provided affect the conduct of the class.

10. If a student is denied eligibility for DSS or requested reasonable accommodations, the student may request a review of these determinations by the Vice President for Student Affairs consistent with the process mentioned here <https://www.uwyo.edu/udss/laws-and-complaint-processes/if-and-when-you-disagree.html> Students who have questions about the review process may contact DSS for more information. The Vice President for Student Affairs may consult with the Dean of the College of Law prior to making a final determination.

II. Rights and Responsibilities of the Student after Receiving Classroom and Exam Accommodations

- A. A student must renew his or her request for accommodations each semester by meeting with DSS in order to determine whether new and different accommodations are necessary for the student's disability to be accommodated. Requests for classroom and exam accommodations must be made two weeks prior to the beginning of the semester. At these meetings, DSS may request that the student submit updated documentation verifying the nature and extent of the student's disability.
- B. If a student's condition changes at any time, thereby affecting the nature and extent of his or her disability, the student must notify the DSS immediately and DSS will consult with the Assistant Dean of the College of Law, as the designated liaison for the College to engage in the interactive process set forth in section I(B)(4).
- C. If there is a problem with any accommodations that a student receives, whether it is related to a course, an exam, or access to a facility, the student must promptly notify DSS who will coordinate with the Assistant Dean of the College of Law so that steps may be taken, to the extent practicable, to resolve the problem.
- D. Communication via accommodations (including exam schedules and room assignments) will be made using the student's email account. A student is responsible for checking email on a timely basis to determine the status of any issue relating to the accommodation that has been put in place for a particular disability. If the student's disability prevents physical access to email, an alternative method of communication will be determined in consultation with DSS, the College of Law, and the student.

III. Requests for Accommodations Related to the College of Law Facilities

Any requests for disability accommodations related to the College of Law buildings or University grounds may be initiated by contacting DSS or the Assistant Dean of the College. DSS and/or the College of Law will work collaboratively regarding any requests and may involve other campus units, including but not limited to the UW Operations, in order to process and/or implement reasonable accommodations related to the College of Law facilities.

Joint Degree Programs

JD/MA in ENR Program

A joint Juris Doctor/Master of Arts of Environment and Natural Resources degree is available to all admitted law students upon application. Students in this joint degree program must take 18 credits outside the law school in ENR courses, and must take 12 law school credits from a menu of ENR related law courses to qualify for this joint degree. Students in the joint degree program must also complete a supervised research project. Additionally, nine (9) credits of approved MA coursework (see Academic Regulations) will be applied to the Juris Doctor degree.

Current core courses: ENR 5000, ENR 5900, ENR 5890.

JD/MBA Program

A joint Juris Doctor/Master of Business Administration program is available in the College of Law and the College of Business. This program will take approximately four years to complete. Students spend three years on-campus engaged in law studies. In either their second or third year, students will be enrolled full-time in the MBA Program, taking core Fall and Spring business courses followed by participation in an MBA Summer Project. The MBA Capstone course will be completed during the student's third year for a total of 38 MBA Program credits. Nine (9) credit hours of approved Law coursework will be transferred as elective hours to the MBA Program for a total of 47 credit hours. Additionally, nine (9) credits of approved MBA coursework (see Academic Regulations) will be applied to the Juris Doctor degree. Students successfully completing this lock-step program will earn dual Juris Doctor and Masters of Business Administration degrees.

Current core courses: MBAM 5102, MBAM 5104, MBAM 5107, MBAM 5202, MBAM 5204, MBAM 5207, MBAM 5208, MBAM 5209, MBAM 5305, MBAM 5330.

JD/MPA Program

A student in the joint Juris Doctor/Master of Public Administration program must be admitted to both the College of Law and College of Arts and Sciences. The degrees are awarded concurrently by each college upon successful completion of the combined degree program requirements. In fulfillment of the J.D. degree, the College of Law will accept up to nine hours of MPA credits in courses approved by the law faculty (see Academic Regulations). In fulfillment of the MPA degree, the College of Arts and Sciences will accept up to 12 hours of credits earned in specified courses in the J.D. program. For additional information regarding these joint degree programs, contact the College of Law or the joint program of interest.

Current core courses: POLS 5000, POLS 5400, POLS 5410, POLS 5440, POLS 5684, POLS 5510, POLS 5690, POLS 5080, POLS 5060, POLS 5450, POLS 5460, POLS 5480

Nonprofessional Degree Students

Graduate students from other colleges of the University of Wyoming may be permitted to take one or more law courses on an S/U basis for non-law credit when the following conditions are met: the law course taken is acceptable for their degree program and the prior written approval of the professor assigned to the course and the Associate Dean or Assistant Dean has been obtained. In order to obtain audit or visitor privileges, students must obtain prior written approval of the professor assigned to the course and the Associate Dean or Assistant Dean. For further information and requirements contact the Associate Dean of Academic Affairs, College of Law, Dept. 3035, 1000 E. University Ave., Laramie, WY 82071.

Course descriptions may be obtained online at www.uwyo.edu/law.

Armed Forces Services

LTC George R. Riggin, Commander, Army ROTC
LtCol. Anthony Kusek, Commander, Air Force ROTC

It has been the consistent policy of the university in cooperation with the federal government to make courses in military science and aerospace studies available on a voluntary basis to all qualified students.

Academic credits for Army and Air Force Reserve Officers' Training Corps (ROTC) are applied toward baccalaureate and graduate degrees in varying amounts depending upon the degree plan of the student and as determined by the college concerned.

Department of Military Science

Army ROTC

137 Hill Hall, (307) 766-3390

FAX: (307) 766-3383

Web site: www.uwyo.edu/armyrotc

Professor:

JONATHAN CURTIS, U.S. Military, Military Intelligence West Point B.S.; MSA Central Michigan University 2019; Professor of Military Science 2020.

Lecturer:

JEREMIAH SCHUCHARDT, Master Sergeant, U.S. Army; Senior Military Instructor 2019.

The Department of Military Science - Army ROTC faculty is composed of U.S. Army officers and senior noncommissioned officers. These officers hold bachelors' and masters' degrees in a variety of fields. Noncommissioned officers hold associate degrees in a variety of fields. Officers' military education includes completion of the Officer Basic Course and the Officer Advanced Course. Several faculty are graduates of the Army's Command and General Staff College and have completed military specialty schools such as: Flight School, Ranger School, Airborne School, Air Assault School, Special Forces School, Jumpmaster Course, Special Operations Training and Language School.

General Information

Army ROTC is a program which offers qualified college students the opportunity to graduate as officers and serve tours in the U.S. Army, the Army National Guard or the U.S. Army Reserve. The four-year program is divided into two parts called the basic course and the advanced course. The basic course, consisting of 8 credit hours, is usually taken during the first two years of college. No military obligation is incurred by enrolling in the basic course.

The advanced course, usually taken during the junior and senior years or during graduate school, involves 19 credit hours of study and a five-week Leadership Development and Assessment Course during the summer. Advanced course students incur a military obligation, and they receive up to \$500.00 per month in tax-free subsistence throughout the academic year.

Army ROTC is not itself a major. Participants pursue the degree of their choice and take Army ROTC as an elective program. Those who complete the program may receive federal commissions from the President of the United States.

Army ROTC offers a military science minor. Effective with the Fall 2015 semester, the requirements for a minor in military science are as follows:

ARMY 3010.....	3
ARMY 3020.....	3
ARMY 3025.....	1
ARMY 3026.....	1

ARMY 3030.....	3
ARMY 4010.....	2
ARMY 4020.....	2
ARMY 4015.....	1
ARMY 4016.....	1
ARMY 4025.....	1
ARMY 4026.....	1
HIST 2020 or HP 4900.....	3

Total credit hours 22

The military science minor, encompassing 22 credit hours, will prepare selected students for commissioning and establish a sound basis for their future professional development.

To be eligible for a commission, U. S. citizens must meet prescribed physical, intellectual, and moral standards in addition to completing Army ROTC studies and successful completion of Professional Military Education (PME) courses. These PME courses include written communication skills, military history and computer literacy. A two-year option is available for sophomore and junior students, students with prior military service (see below), and those completing a masters program.

In the Army ROTC classroom the student is exposed to a wide variety of subjects designed to instill confidence, self-discipline, integrity and responsibility. Students gain an appreciation for the role of national defense, and learn what a leader must be, know and do in order to gain the respect and support of their subordinates.

Skills learned in Army ROTC, including resource management, leadership and planning are valuable and complement any university major. Young commissioned officers returning to civilian sectors after military service find an abundance of career opportunities.

Uniforms, Pay and Allowances

All uniforms, books and other instructional materials required in Army ROTC are provided to basic and advance course students at no cost. The cadet uniform is the same as the U.S. Army uniform except for the distinctive ROTC insignia.

Advanced course participants are paid a tax-free subsistence allowance of up to \$500.00 per month during the school year. During the summer training period students receive pay, travel, rations, quarters, clothing, and medical and dental services.

Two Year ROTC Program

The two-year program is designed for community college graduates and university students of sophomore or junior standing who did not take Army ROTC during the first two years of school. The program may also apply to seniors and graduates who have at least two years remaining in post graduate study.

To enter the two-year program, students must first attend a paid 28-day internship during the summer or be a veteran who has graduated from advanced individual training.

Special Scholarship Program

Special Scholarship Program Two-, three-, and four-year scholarships are offered by Army ROTC. These scholarships pay full tuition, laboratory fees and a \$1200 per year book fee. While on scholarship, the student receives up to \$500.00 a month during the school year. In addition to active duty scholarships, Army ROTC offers scholarships to students wishing to join the U.S. Army Reserve or Army National Guard upon commissioning. These reserve scholarships also pay full tuition, laboratory fees, book fees, and up to \$500.00 a month. Graduate students and undergraduate students are eligible to apply for the two- and three-year scholarships. These scholarships are awarded by the Professor of Military Science. Students do not have to be enrolled in ROTC to apply for these scholarships. Certain restrictions apply. High school juniors and seniors seeking a four-year scholarship should contact the Professor of Military Science, Army ROTC, Dept. 3167, 1000 E. University Ave., Laramie, WY 82071. College students desiring a scholarship should contact the Professor of Military Science in 154 Wyoming Hall, (307) 766-3390.

Scholarships are offered to ROTC cadets from several military associations. The Reserve Officers Association (ROA), Association of the U.S. Army (AUSA), Cowboy Battalion Alumni Association (CBAA), the United Services Automobile Association (USAA) and First Command offer annual cash awards to ROTC cadets.

Room and board scholarships are available to students who enroll in Army ROTC. Scholarship awards are based on merit and the student's potential to become a commissioned officer. The number of scholarships and dollar amount vary dependent on funds available. Room and board scholarships may only be used in UW residence halls or university apartments.

Leadership Laboratory

Leadership laboratory provides instruction that complements the classroom. This time provides practical application on subject matter taught in class. Leadership and management dynamics are inherent in this practical application. All students enrolled in a military science course must enroll in the appropriate leadership laboratory unless consent is obtained from the Professor of Military Science. Training includes land navigation, first aid, communications, basic rifle marksmanship, drill and ceremonies, decision making, squad movement and problem solving. This instruction is cadet planned and presented with immediate instructor feedback. The goals of this period are to instill self-confidence, self-discipline and responsibility in each cadet.

Land navigation skills are practiced in a variety of terrain locations near campus. The training instills trust and confidence in the cadet's ability to accurately plot and follow a compass course. Communication, such as radio, telephone and interpersonal skills, are taught and practiced. Marksmanship is taught in the Half-Acre rifle range and on other ranges, weather permitting. Finally, drill and ceremonies teaches methods of organizing and moving groups of individuals in an orderly manner resulting in team building while establishing esprit de corps.

Veterans' Option

Veterans of active military service and members of the National Guard or U.S. Army Reserve may qualify to go directly into the advanced Army ROTC program if they will be an academic junior. In these cases, basic training fulfills the requirement of the first two years of ROTC (Basic Course). Academic freshmen and sophomores are not required to take basic course classes but are highly encouraged to do so. It is common for members of the National Guard to study to become commissioned officers via the ROTC program. The Simultaneous Membership Program (SMP) is a formalized program for advanced course Guard members and Reservists to combine their unit training with ROTC training. In many cases the SMP program will result in increased financial benefit to the individual.

Military Obligation

There is no military obligation for taking the basic course, freshman and sophomore years. When an individual starts the advanced course, he or she incurs an obligation. The nature of that obligation depends upon whether the individual elects to serve in the National Guard, the Army Reserve or the active Army, and whether the individual has an Army scholarship. Those who desire guard or reserve duty may contract specifically for that purpose. The guard and reserve obligation is six years of monthly training meetings and two years of inactive ready reserve (IRR). The active duty obligation is four years Active duty, and four years of inactive ready reserve (IRR).

Extracurricular Activities

Army ROTC offers a variety of activities which are designed to promote an interest in the military and provide relaxing, enjoyable leisure activities for cadets.

The Cowboy Battalion has its own Ranger Challenge team, which is a varsity-level team that competes with other universities in military skills such as orienteering and soldier skills. The battalion also has a cannon crew, mounted color guard, 10-miler team, Bataan Death March team, and participates in intramural sports.

The department periodically sponsors other activities such as rappelling demonstrations, ranger weekends, battlefield tours, leadership exercises and other adventure training, such as mountaineering, land navigation exercises, patrolling and wilderness survival.

Suggested Course Sequence

FRESHMAN YEAR: Fall Hrs.

ARMY 1010	2
Lab (mandatory).....	0
PEAC 1272 (voluntary).....	1/2
ARMY 1011	1
ARMY 3060 (voluntary).....	1

FRESHMAN YEAR: Spring Hrs.

ARMY 1020.....	2
Lab (mandatory).....	0
ARMY 1012	1

SOPHOMORE YEAR: Fall Hrs.

ARMY 2010.....	2
Lab (mandatory).....	0
ARMY 2011.....	1
ARMY 2060 (voluntary).....	2
ARMY 3070 (voluntary).....	2

SOPHOMORE YEAR: Spring Hrs.

ARMY 2020.....2
Lab (mandatory).....0
AMRY 2012.....1
HIST 2020 (mandatory).....3

JUNIOR YEAR: Fall Hrs.

ARMY 3010.....3
Lab (mandatory).....0
ARMY 30111
ARMY 3025 (mandatory).....1
ARMY 3070 (voluntary).....2
ARMY 3015.....1

JUNIOR YEAR: Spring Hrs.

ARMY 3020.....3
Lab (mandatory).....0
ARMY 3012.....1
ARMY 3026 (mandatory).....1
ARMY 3016 (mandatory).....1

SENIOR YEAR: Fall Hrs.

ARMY 4010.....2
Lab (mandatory).....0
ARMY 4011.....1
ARMY 3030 (voluntary).....3
ARMY 4025 (mandatory).....1
ARMY 4015 (mandatory).....1
ARMY 4050 (voluntary).....2
ARMY 3070 (voluntary).....2

SENIOR YEAR: Spring Hrs.

ARMY 4020.....2
Lab (mandatory).....0

ARMY 4012.....1

ARMY 4026 (mandatory).....1

ARMY 4016 (mandatory).....1

Department of Aerospace Studies

Department of Aerospace Studies
110 Wyoming Hall, (307) 766-2338
FAX: (307) 766-2357
Web site: www.uwyo.edu/airrotc

Professor:

ANTHONY KUSEK, Lt. Colonel, U.S. Air Force; B.S. Parks College 1995; M.A. Webster University 2007; Professor of Aerospace Studies 2019.

RICHARD LANDSVERK, Major, U.S. Air Force; B.S. Thomas Edison State College 2008; M.A. Bellevue University 2012; Professor of Aerospace Studies 2019.

SAMUEL R. SHEARER, Lt. Colonel, U.S. Air Force; B.S. University of Utah 1996; M.S. Troy State University 2003; M.A. Naval Postgraduate School 2004; Ph.D. 2013; Professor of Aerospace Studies 2016.

Air Force Reserve Officers' Training Corps (AFROTC) provides University of Wyoming students a path toward earning a commission as an officer in the United States Air Force. The curriculum provides college students a solid understanding of the leadership and military fundamentals an Air Force officer requires. AFROTC cadets supplement their normal university coursework with studies in Air Force fundamentals, history, leadership, and national security affairs. In addition, cadets have the opportunity to learn about various careers in the Air Force through their studies, guest lectures, base visits, and other military training opportunities. While enrolled in AFROTC, the Air Force provides uniforms, AFROTC textbooks, and the necessary Air Force equipment. Upon successful completion of the program and earning their bachelor's degree, cadets are commissioned as 2nd lieutenants in the U.S. Air Force.

Application and enrollment in the program is voluntary. Students should simply register for the appropriate Air Force (AIR) courses. In addition, prospective cadets will need to complete an application package upon arrival at the detachment in order to ensure minimum qualifications for military service. Contact the AFROTC Department for additional details or with any questions regarding registration. All university students, both male and female, are eligible to apply for admission in the program.

Four-Year Program

The four-year program is divided into two phases. The first two years comprise the General Military Course (GMC) consisting of one class period (1 hour) per week in the classroom and one class period (2 hours) per week in leadership laboratory. The GMC is a prerequisite for continuation in the Professional Officer Course (POC), the last two years in the program. Other prerequisites include passing the Air Force Officer Qualifying Test (AFOQT), maintaining at least a minimum grade point average of 2.0 (GMC) and 2.5 (POC), having the physical qualifications for an Air Force commission, and participating in a four-week field training session. The advanced course consists of one class period (3 hours) per week in the classroom and one class period (2 hours) per week in leadership laboratory.

Three-Year Program

Students may enroll in ROTC on a three or three and one-half year program where the GMC component is shorter. To complete the GMC requirements, the student must simultaneously enroll in AIR 1000 and AIR 2000 courses to complete all four academic terms of the GMC program. After successfully completing the GMC program and Field Training, students may enter the two-year POC program. This program is especially suitable for sophomores and junior college transfers. Students that participated in high school Junior ROTC, or have prior-enlisted service, can apply documented participation toward a portion of the GMC requirement.

Leadership Laboratory

The concept of leadership laboratory is to provide leadership training experiences which will improve a cadet's ability to perform as a USAF officer. Leadership laboratory is largely cadet planned and directed.

Field Training

Field training is a four-week program conducted in residence at an Air Force base during the summer.

While at field training, each cadet is provided subsistence, uniforms/equipment, and receives approximately \$28.00/day plus reimbursement for travel to and from the field training base.

Financial Benefits

Freshmen and Sophomores on AFROTC scholarships receive \$300 and \$350, per month, respectively. Juniors enrolled in the Professional Officers Course receive \$450 per month and seniors \$500 per month tax-free during the school year for subsistence. Uniforms, required texts and all necessary Air Force equipment are furnished by the government. In addition, all POC and scholarship cadets are allowed to travel anywhere in the continental United States on military aircraft (on a space available basis).

Special Scholarship Program

Two-, three- and four-year scholarships are offered by AFROTC on a competitive basis. These scholarships pay for a \$900 book allowance per year, tuition (amount dependent on type of scholarship awarded), fees and other required expenses except room and board. The university and the State of Wyoming offer additional room and board funding to Air Force ROTC cadets (who have or have not been awarded an Air Force ROTC scholarship) and reside in university housing. High School seniors seeking a four-year scholarship should contact their high school counselors or the Recruiting Flight Commander, AFROTC Detachment 940, Dept. 3005, 1000 E. University Avenue, Laramie, WY 82071; telephone (307)766-3710; email at airforce.rotc@uwyo.edu, early in the fall of their senior year. Sophomore or transfer students interested in competing for a scholarship should contact the Recruiting Flight Commander before the fall semester prior to junior standing.

Military Obligation

Students enrolling in the first two years of the AFROTC Program (the General Military Course) are not obligated to military service of any kind, unless on an Air Force scholarship their sophomore year. Cadets accepting an AFROTC scholarship and those entering the Professional Officer Course become members of the inactive reserve of the United States Air Force. Upon being commissioned a Second Lieutenant in the Air Force, graduates in nonflying career fields agree to serve four years on active duty; pilot candidates agree to serve on active duty for 10 years after completion of

flight training; RPA, navigator, and air battle manager candidates agree to serve on active duty for six years after completion of their respective training.

Extracurricular Activities

To familiarize students with Air Force life and social customs, the AFROTC Program offers on a voluntary basis a wide range of extracurricular activities. Civil Air Patrol gives cadets an opportunity to experience flying first hand with a trained instructor pilot. The Arnold Air Society, a national professional honorary society, is a service organization active on campus. The color guard supports various university and local activities. Visits to Air Force bases across the nation provide insight into the function of Air Force operational units. Throughout the year, AFROTC teams participate in the university intramural sports program, while cadet-sponsored social events build the spirit of comradeship inherent in military life.

Haub School of Environment and Natural Resources

Helga Otto Haub School of Environment and Natural Resources

John Koprowski, Dean
Bim Kendall House, 804 E. Fremont St.

Phone: (307) 766-5080 FAX: (307) 766-5099
Web site: www.uwyo.edu/haub

Degrees Offered

The Haub School offers undergraduate and graduate degrees, concurrent majors and minors, certificates, and a graduate degree in partnership with the College of Law:

Bachelor of Science in Environmental Systems Science (for baccalaureate students)

Bachelor of Science in Environment & Natural Resources (for baccalaureate students, required concurrent major)

Environment & Natural Resources concurrent major (for baccalaureate or master's students earning a degree from UW)

Bachelor of Science in Outdoor Recreation & Tourism Management (for baccalaureate students)

Environment & Natural Resources minor (for baccalaureate, master's, and doctoral students)

Sustainability minor (for baccalaureate students)

Outdoor Leadership minor (for baccalaureate students)

Master of Science in Environment, Natural Resources & Society (for master's students)

Master of Arts in Environment & Natural Resources (J.D./M.A. for law students only)

Collaborative Practice minor (for master's and doctoral students)

Program Admission

Undergraduate students will apply for admission to the University of Wyoming, and then declare a major or minor within the Haub School at any point during their course of study. To declare a major or minor, students must meet with a Haub School academic advisor.

Graduate students interested in the concurrent major or minor in Environment & Natural Resources (ENR) will apply for admission to a primary degree program at the University of Wyoming. Once accepted to their primary graduate program, students must complete an additional online process to confirm their enrollment in the ENR major or minor. A one-page Statement of Purpose is required to apply. Visit the Haub School website at <https://www.uwyo.edu/haub> for details.

Applicants to the M.S. in Environment, Natural Resources & Society must apply to the University of Wyoming. Applications for graduate assistantships should be directed to the Haub School. Current application requirements are available online.

Applicants to the J.D./M.A. in ENR must apply to both the College of Law and the Haub School. Admission to the joint degree program is contingent on acceptance to the College of Law. Current application requirements are available online.

More information, including complete curricula for each academic offering, is available from the Haub School.

Haub School Requirements for Undergraduate Programs

All students declared in undergraduate Haub School programs, including majors and minors, must earn a C or better in all Haub School program requirements. Students enrolled in multiple Haub School programs must earn 12 credits unique to each program.

Undergraduate students earning a B.S. in Environmental Systems Science, a B.S. in Outdoor Recreation & Tourism Management, and/or a B.S. in Environment & Natural Resources (plus a concurrent major in another field) must also fulfill the additional following Haub School Requirements:

- Complete two courses (totaling a minimum of 6 credit hours), one to meet the U.S. Diversity (ASD) requirement and one to meet the Global Awareness (ASG) requirement. Courses approved to meet these requirements are searchable within WyoRecords under the Browse Classes feature.
- Meet all University of Wyoming requirements for earning a bachelor's degree, including, but not limited to, completion of University Studies Program (USP) requirements and maintaining a minimum 2.0 cumulative GPA for good academic standing and graduation.

National Outdoor Leadership School

**Administered by the Haub School of Environment and Natural Resources
Bim Kendall House**

Haub School Advising Center

Phone: (307)766-5080 FAX: (307)766-5099; Web site: www.uwyo.edu/haub

The University of Wyoming (UW) and National Outdoor Leadership School (NOLS) Articulation Agreement provides the opportunity for UW students to receive UW academic credit for NOLS courses.

When NOLS students step into the world's wild places, they bring not only their backpacks, but also more than 40 years of experience in expeditioning. NOLS founder Paul Petzoldt's idea was simple: take people into the wilderness for an extended period of time, teach them the right things, feed them well and when they walk out of the mountains, they will be skilled leaders. The core of his idea was the extended expedition, one of sufficient length that a person could learn and practice the skills over and over again. That is the backbone of every NOLS course and today the school is widely recognized as the world's leader in the extended expedition, from two weeks to twelve.

This articulation agreement covers domestic and international NOLS courses. This agreement also covers some individual shortterm courses (14 days or less; including mountaineering, rock climbing, sailing, kayaking, skiing, snowboarding, and backpacking) and the Wilderness First Responder (WFR) course.

Application/Eligibility

Current UW students, or students who have been fully or conditionally admitted to UW may receive articulated NOLS credit. Students who have already taken a NOLS course cannot receive credit retroactively (i.e. if a student embarked on a NOLS course and requested to get credit after the course was completed).

Credit and Credit Transfer

UW credit hours will be awarded in the approved courses, which require prior approval. Upon completion of the NOLS courses, provided a grade equivalent to a UW grade of C or better was obtained at NOLS. These UW course grades will be included in your UW GPA. Students who withdraw or are expelled from a NOLS course may receive an incomplete or an F for all enrolled UW credit.

Students should be aware that for internship credits to be awarded, additional academic work requirements determined by the internship course will need to be met. Those additional requirements vary between academic programs and amount of credit desired, but may include a satisfactory evaluation from NOLS, a weekly journal, a substantial written report, and an oral presentation. Internship requirements are established prior to your participating in the NOLS course.

Academic Advising

Prior to participating in a NOLS course for UW credit, students must make an appointment with the Haub School by emailing haub.school@uwoyo.edu or calling (307) 766-5080. If your academic program is outside of the Haub School, students should also meet with their assigned academic advisor to determine if these courses will count towards their major. The Haub School will approve the student's schedule, provide the appropriate course numbers, and liaise with the NOLS Registrar.

Financial Arrangements

Each UW student will pay to NOLS:

- The NOLS tuition and related fees (any changes to be advised in writing by NOLS at least three months in advance of the change coming into effect), related fees would include equipment deposit;
- Complete medical and evacuation health insurance;
- Other fees (e.g. tuition protection program, local transportation, and gear purchases), air transportation and additional living expenses will be paid directly by the student to the provider of the service.

Each UW student will pay to UW:

- The published per credit registration fees to register UW credits earned at NOLS

Financial Aid

Students enrolled in the NOLS program may apply their financial aid to the cost of the program if they are enrolled as a full-time degree seeking student at the University of Wyoming. To do so, please work with the UW Office of Scholarships and Financial Aid.

Rules, Law, and Regulations

UW students studying at NOLS will be bound by all rules, regulations and by-laws in operation at NOLS. In addition, since UW students remain enrolled as degree candidates at UW, they must also adhere to UW standards of conduct, rules and regulations. UW and NOLS both abide by the Federal Right to Privacy Act (FERPA).

Steps to Follow

1. Determine the NOLS course that best fits your needs/interests and/or goals online at: www.nols.edu/courses
2. Make an appointment with an advisor from the Haub School to determine the UW academic credit that best suits your degree program by e-mailing haub.school@uwyo.edu or by calling (307) 766-5080.
3. Meet with your academic advisor (if your academic program is not in the Haub School).
4. Apply and be admitted into NOLS.
5. Prior to leaving for your NOLS course, enroll in the credit offered for the course.
6. Secure your financial aid (if any) with the UW Office of Scholarships and Financial Aid.
7. Attend and successfully complete the course (grade C or better).
8. Grades will be posted the semester of completion of your course.

UW Credit Options for NOLS

UW recognizes the following credit options for taking a NOLS course:

Short Courses (less than 14 days)

Students may be eligible to complete 2 Hours of UW credits in the following course(s).

- ENR4960 - Field Studies in: Credits: 1-6 **

Quarter Length Courses (14-65 days)

Students may be eligible to complete up to 9 hours in the following courses.

- ENR2800 - Introduction to Outdoor Leadership Credits: 3 **

- ENR4960 - Field Studies in: Credits: 1-6 **
- ENR4890 - Topics in Environment and Natural Resources Credits: 1-6 **
- ENR4970 - ENR Internship Credits: 1-6 **

Semester & Year-long Courses (more than 65 days)

Students may be eligible to complete up to 12-24 hours in the following courses.

For year-long courses, independent study credits are also available.

- ENR2800 - Introduction to Outdoor Leadership Credits: 3 **
- ENR4960 - Field Studies in: Credits: 1-6 **
- ENR4970 - ENR Internship Credits: 1-6 **
- ENR4890 - Topics in Environment and Natural Resources Credits: 1-6 **
- ENR3900 - Seminar in Environment and Natural Resources Credits: 1-3 ***

Note:

**There are additional course requirements for 4000-level NOLS credit. Syllabi and course expectations will be shared upon enrollment.

***For courses with a Wilderness First Responder component only.

Information Literacy

Coe Library 304

Phone: (307) 766-5313

The University Libraries offer research assistance and information literacy instruction to students and faculty. Librarians provide customized class orientations to information sources in every discipline, as well as individual research consultations. Students needing research help may call, text, email, instant message, or visit any library branch.

The University of Wyoming addresses information competencies utilizing the [Framework for Information Literacy for Higher Education](#) as approved by the Association of College & Research Libraries (ACRL) and endorsed by the American Association for Higher Education. Librarians collaborate with teaching faculty in addressing these information competencies in course assignments or lectures. Information literacy is the ability to recognize and define the need for information, then locate, evaluate, and use that information effectively and ethically.

Information literacy learning outcomes are included in University Studies First Year Seminar (FYS) and Communication (COM) courses and are similar to the critical thinking learning outcomes in the H, PN, and V courses.

The Libraries also offer credit courses to help students improve research skills and to meet the Communications 2 requirement of the University Studies Program.

Learning Outcomes

We expect that students completing LBRY courses will become knowledgeable consumers of information through learning how to:

1. Recognize and define the need for information;
2. Efficiently locate information in the library or on the Internet;
3. Evaluate the quality of information;
4. Utilize information effectively, ethically, and legally.

Librarians

TAMSEN EMERSON HERT, B.A. Colorado State University 1979; M.L.S. Emporia State University 1984; M.A. 1988; Librarian, 2014, 1986.

DAVID D. KRUGER, B.S. South Dakota State University 1991; B.S.Ed. Minot State University 1994; M.A. Kansas State University 1996; M.L.S. University of Missouri at Columbia 1998; Librarian 2016, 1998.

LAWRENCE O. SCHMIDT, B.S. Montana State University 1987; M.S. 1995; M.L.S. Emporia State University 2002; Librarian 2020, 2008.

Associate Librarians

KAIJSA J. CALKINS, B.A. University of Washington, Bothell 2001, M.L.I.S. University of Washington, Seattle 2004; Associate Librarian 2012, 2006.

JANICE GROVER, B.A. University of Wyoming 2005; M.L.S. Emporia State University 2009; M.A. University of Wyoming 2017; Associate Librarian 2021.

Assistant Librarians

SAMANTHA PETER, B.A. University of Wyoming 2016; M.S.I.S. University of Texas at Austin 2018; Assistant Librarian 2018.

JESSICA RARDIN, B.A. Beloit College 2013; M.L.I.S. University of Wisconsin-Milwaukee 2021; Assistant Librarian 2021.

Geospatial Information Science and Technology

Wyoming Geographic Information Science Center
337 Agriculture C Building

Ramesh Sivanpillai, Program Director
(307)766-2532

Web site: www.uwyo.edu/WyGISC

The Wyoming Geographic Information Science Center (WyGISC) offers undergraduate and graduate courses, degrees, and certificates in Geospatial Information Science and Technology under the GIST prefix. These provide fundamental geospatial science education to undergraduate and graduate students from across disciplines at UW and are appropriate for science and non-science majors. They cover core and advanced geospatial concepts and subdisciplines including

Geographic Information Systems (GIS), remote sensing, spatial data analysis, spatial visualization, spatial databases, cartography, programming, and other topics.

Faculty:

SHANNON E. ALBEKE, B.A. University of Colorado, Boulder 1997; Ph.D. University of Georgia 2010. Associate Research Scientist 2019, 2010.

KENNETH L. DRIESE, B.S. University of Virginia 1981; M.S. University of Wyoming 1992; Ph.D. 2004; Senior Lecturer in Geospatial Information Science and Technology 2019, 2002.

JEFFREY D. HAMERLINCK, B.S. University of North Dakota 1988; M.P. University of Wyoming 1992; Ph.D. University of Colorado - Boulder 2011; Senior Research Scientist 2004.

PADDINGTON HODZA, BSC, University of Zimbabwe, 1994; MSC, University of Zimbabwe, 1998; Ph.D. West Virginia University, 2007; Associate Research Scientist 2016, 2013.

AUSTIN MADSON, B.A. University of California, Los Angeles 2012; M.A. 2015; Ph.D. 2020; Assistant Professor of Geospatial Information Science and Technology 2021.

RAMESH SIVANPILLAI, B.Sc. Bharathiar University 1987; M.Sc. Cochin University of Science and Technology 1990; M.Phil. Bharathiar University 1992; M.S. University of Wisconsin, Green Bay 1995; Ph.D. Texas A&M University 2002; Senior Research Scientist 2012.

CHEN XU, B.S. Sichuan University, China 1999; M.S. Sam Houston State University 2005; Ph.D. Texas A&M University 2010; Associate Professor of Geospatial Information Science and Technology 2019.

DI YANG, B.S. Liaoning University of Petroleum and Chemical Technology 2011; M.S. Texas A&M 2013; Ph.D. University of Florida 2019; Assistant Professor of Geospatial Information Science and Technology 2020.

Geographic Information Science and Technology Degrees and Certificates

GIST degrees and certificates include a Bachelor of Science Degree in GIST (to launch Fall 2022 contingent on demonstration of student demand), undergraduate certificates in GIST and Remote Sensing, each of which can contribute to the B.S. degree; a Research Master's Degree (with thesis), an online Professional Master's Degree (no thesis), and three online graduate certificates, in GIST, Remote Sensing, and Unmanned Aerial Systems (UAS, a.k.a. drones).

Drawing on expertise from geography, computer science, mathematics, statistics, psychology, design, and others, geospatial information science refers to the multi-disciplinary research enterprise that addresses the nature of geospatial information and the application of geospatial technologies to scientific questions. Geospatial information technology is a specialized set of information and communication technologies that support the acquisition, management, analysis, and visualization of geo-referenced data. Examples include: geographic information systems; global navigation satellite systems; and satellite, airborne, drone-based, shipboard and ground-based remote sensing and image processing systems.

Successful students in Geospatial Information Science and Technology (GIST) combine proficiency in spatial thinking and geospatial data science analysis with fluency in geographic information systems, remote sensing, data analytics, and visualization. As professionals, graduates apply their knowledge and skills in a wide range of fields, from environmental management and public health, to civil engineering and urban planning, to economic analysis and marketing.

Any courses listed in degree plans that are not described in the GIST course list are under development and will be added in future catalogs as they are approved.

Undergraduate Certificates

Undergraduate certificates in GIS and Remote Sensing provide a means of adding credentials to your degree that reflect expertise in geospatial science.

Graduate Certificates

Graduate certificates provide a means for students and professionals to earn marketable credentials over the course of 1-2 semesters. These certificates require a combination of core and elective courses as outlined below and will be delivered primarily online.

School of Energy Resources

301 Energy Innovation Center
Phone: (307)766-6879 FAX (307)766-6701

Holly Krutka, Executive Director
Website: www.uwyo.edu/ser

The School of Energy Resources facilitates interdisciplinary academic and research programs in engineering and science, economics, and environment and natural resources policy to address critical energy-related issues faced by our society.

Our mission is to leverage and add to the already significant energy-related talent and resources in the University of Wyoming colleges to develop human resources, know-how, and technical solutions to ensure a secure and sustainable energy future for the state, region, and nation.

The University of Wyoming (UW) School of Energy Resources (SER) was created in 2006 by the Wyoming Legislature through State Statute 21-17-117. Our goal is to enhance the university's energy-related education, research, and engagement. SER directs and funds cutting-edge energy research and technology development, which integrates with the formulation and conduct of academic programs at UW and bridges academics and industry through targeted engagement efforts. The bridges formed between academics and industry ensure programs are relevant, current, and deliver impact and high value to stakeholders and the state. Since its inception in 2006, SER has maintained flexibility in its focus and structure to meet the changing needs of Wyoming's energy industries and the state's economy which is now more critical than ever.

Professors:

TIMOTHY J. CONSIDINE, B.A. Loyola University 1975; M.S. Purdue University 1977; Ph.D. Cornell University 1981; SER Professor of Energy Economics 2008.

CRAIG C. DOUGLAS, A.B. Chicago University 1977; M.S. Yale University 1978; M.Phil. 1980; Ph.D. 1982; SER Professor of Mathematics 2008.

MAOHONG FAN, B.S. Wuhan University of Science and Engineering, 1984; M.S. Beijing University of Science and Technology, 1992; Ph.D. Chinese Academy of Sciences, 1997; Ph.D. Iowa State University, 2000; Ph.D. Osaka University 2003; SER Professor of Chemical Engineering 2015, 2008.

JOHN P. KASZUBA, B.S. Beloit College, 1982; M.S. Virginia Polytechnic Institute & State University 1986; Ph.D. Colorado School of Mines, 1997; SER Professor Geology & Geophysics, 2019, 2008.

SUBHASHIS MALLICK, B.Sc. Indian Institute of Technology 1976; M.Sc. 1978; Ph.D. University of Hawaii 1987; SER Professor of Geology & Geophysics 2008.

BRUCE A. PARKINSON, B.S. Iowa State University 1972; Ph.D. California Institute of Technology 1977; SER Professor of Chemistry 2008.

TARA RIGHETTI, B.A. University of Colorado Boulder 2005; J.D. 2007; SER Professor of Law 2020, 2017, 2014.

Associate Professors:

PO CHEN, B.S. Beijing University 2000; Ph.D. University of Southern California 2005; SER Associate Professor of Geology and Geophysics 2014, 2008.

DARIO GRANA, B.S. University of Pavia, 2003; M.S. 2005; M.S. University of Milano Bicocca, 2006; Ph.D. Stanford University, 2013; SER Associate Professor of Geology and Geophysics 2019, 2013.

Academic Professional:

KRISTOPHER KOSKI, B.S. Colorado School of Mines, 2005; J.D. University of Wyoming, 2008; Associate Lecturer 2017.

Accreditation

All programs at the University of Wyoming are accredited by The Higher Learning Commission, a commission of the North Central Association of Colleges and Schools Commission on Institutions of Higher Education. In addition, the Professional Land Management Concentration is one of only a few programs accredited nationally by the American Association of Professional Landmen.

Graduates from the PLM program are afforded the opportunity to sit for the Registered Landman exam. Individuals with certification can increase their salary by 20% on average. Visit landman.org to learn more.

SER Vision Statement

SER pursues the creation, sharing, and implementation of technology and knowledge for sustainable economic production of Wyoming's natural resources to generate additional employment and revenue opportunities for the state that include supply of clean energy and materials and products.

SER Mission Statement

The School of Energy Resources' academic mission is to ensure students within its interdisciplinary academic programs can illustrate a foundational understanding of fundamentals relative to energy companies and systems. In order to prepare students to meet the demands of the modern-day workforce, students will utilize critical thinking skills, negotiation techniques, and problem-solving methods applicable to a diverse array of energy projects.

Program Admission

Undergraduate students will apply for admission to the University of Wyoming and then declare a major or minor within SER at any point during their course of study. To declare a major, students must meet with the SER academic advisor. Any student can add the SER minor without meeting with an SER advisor.

One of the most important challenges of the 21st century will be to develop and manage energy resources in a sustainable manner. Projections show energy consumption worldwide will increase nearly 50 percent by 2035. And half of the leadership in the energy industries is expected to retire in the next five to ten years.

The future of energy will be characterized by increasing knowledge, relentless change, and technological innovation. As global energy industry increases in complexity, demand will dramatically grow for professionals with a multidisciplinary, entrepreneurial skillset. Future leaders must understand complex technology within the context of business, legal, social, and public policy in order to create comprehensive and sustainable solutions.

The Energy Resource Management and Development (ERMD) B.S. program is designed to fill this need through a combination of rigorous courses, real-world internships, and undergraduate research experiences. The curriculum balances depth of learning with the breadth of understanding to train graduates for sustained competitive success in the energy workforce at the frontiers of knowledge and for self-directed, life-long learning. Students learn to focus on continuous improvement, constant assessment, and the importance of a sense of urgency and consideration of profit motive in the energy industry

Our program emphasizes career planning and provides constant one-on-one guidance and assistance to ensure optimal workforce placement. Students are strongly encouraged to complete an industry internship (the minimum GPA requirement is typically 3.000). Opportunities are also available for undergraduate research, a study abroad experience, or a summer field trip. Multiple events during the year connect students to energy industry professionals.

General Policies

- A minimum 2.00 UW GPA is required to apply for the minor.
- It is the student's responsibility to monitor requirements for the minor, along with their advisor.
- Additional courses may be required to meet individual course prerequisites.
- All classes in the minor must be passed with a grade of "C" or better.

Student Learning Outcomes

The School of Energy Resources was created in 2006 to enhance the University of Wyoming's energy-related education, research, and outreach. The Energy Resource Management and Development Program is designed to meet the demands of the energy workforce and enhance social literacy related to complex energy issues. Competency-based learning that integrates problem-solving, critical analysis of uncertain and complex issues, and constant improvement in performance are overarching components of our undergraduate program.

Energy Resource Management and Development B.S. Program Learning Outcomes:

- Identify or describe fundamental concepts of energy systems.
- Illustrate a foundational understanding of business fundamentals relative to energy companies, including organizational structure, management, entrepreneurship, and international commerce.
- Make use of critical thinking and problem-solving methods within a written group energy project.

Energy and Environmental Systems Concentration

Learning Outcomes:

- Outline the skills in environmental monitoring and compliance.
- Explain energy regulation and management.
- Demonstrate the necessary skills related to the physical and social science dimensions of sustainability.

Professional Land Management Concentration Learning

Outcomes:

- Apply concepts and skills to real-world problems to gain practical understanding and experience.
- Identify and navigate a valid real property transaction from contract to transfer of title.
- Define and navigate the legal and regulatory hurdles for energy development on federal, state, and fee lands.

Energy Resource Management Minor Learning Outcomes:

- Gain appreciation and understanding of fundamental concepts of energy systems.
- Acquire a foundational understanding of the commercial aspects of energy industries.
- Exhibit critical thinking and problem solving related to energy and environmental problems.
- Apply knowledge of energy technology to societal problems requiring economic and policy analysis while working in a multidisciplinary environment.

Minor

Students looking to create a focus for their coursework can add minors to the ERMD program. Courses applying towards the minor must be completed with a grade of "C" or better.

Students not already majoring in BS-Energy Resource Management and Development may add the SER minor to their program of study. More information can be found on the SER website: <http://www.uwyo.edu/ser/academic-programs/minor-erm.html>

University Honors College

Guthrie House

Peter Parolin, Dean

Phone: (307) 766-4110

Web site: uwyo.edu/honors

The Honors College provides academically ambitious students with a series of curricular and co-curricular opportunities. Through these opportunities, students gain the breadth of knowledge needed by citizens, professionals, and family members to be effective in a lifetime of stimulating and enriching pursuits. Honors students learn to write cogently for a variety of audiences in their academic disciplines and beyond. They learn to locate and use reliable information and trustworthy opinion. Through appropriate coursework, they learn how to become engaged citizens and to understand the ethnic and cultural diversity of America and the world. They learn the purposes and values of the arts, humanities, sciences and social sciences. The Capstone Project is a sustained research or creative activity through which students demonstrate what they have learned: to formulate a project independently, to develop the intellectual and creative means to complete it, and to write and speak effectively about their work. The Capstone Project is frequently used as evidence of critical thinking in graduate and career applications.

Honors College Learning Outcomes

Students graduating from the Honors College will be able to: (1) engage in problemsolving, research, and creative pursuits that utilize an interdisciplinary approach (2) articulate the value of international and diversity-focused perspectives (3) develop their own styles of leadership and service and identify meaningful opportunities for engagement in these areas and (4) create intentional pathways through career development, including utilizing internship opportunities.

Honors College Admissions

The Honors College seeks well-rounded, ambitious, and curious learners and leaders. Students are invited to apply to the college prior to their first year. First year applicants should apply to the Honors College when submitting their general application to UW. The Honors College admissions committee considers academic performance and test scores holistically alongside an application essay and high school transcript.

Students admitted into the Honors College who are College of Engineering majors will automatically be accepted as Honors College Engineering students.

The Honors College reviews applications on a rolling basis. Students are admitted to the Honors College only after they have been accepted to UW. Incoming, continuing, and transfer students who are interested in applying to Honors should consult our Admissions page: <https://www.uwyo.edu/honors/applications/>

The Honors College also welcomes application from new transfer students. Transfer students entering the Honors College typically have an overall college GPA of 3.25 or higher. The college also admits transfer students and current UW students with at least three semesters remaining prior to graduation.

To maintain good standing in the college, a student must achieve a 3.0 GPA at the conclusion of the student's first year of study. A 3.25 GPA at the conclusion of the student's second year of study is required, with this standard remaining throughout their academic career. Interested high school seniors and transfer students are encouraged to come by the Honors College or to write to the Dean, The Honors College, Dept. 3413, 1000 University Ave, Laramie, WY 82071. The email address is honors@uwyo.edu.

Scholarships

The Honors College supports UW in financial aid packages for students. In keeping with the vision of Honors to facilitate an international experience, Honors provides scholarships to assist with study abroad. Fellowships for supporting research or creative projects for the senior thesis may also be available.

Program Requirements

To earn a minor in Honors, Honors students must complete a total of five courses in Honors and a Capstone Project, and complete the First-Year and Advanced Honors SOAR badge requirements. They must also graduate with a 3.25 GPA. Students who transfer to UW or join Honors as continuing UW students may have some of their required Honors courses and SOAR requirements waived.

The Honors curriculum immerses students in multi-disciplinary inquiry. Students begin by taking the First Year Colloquium, a two-semester course sequence that takes a complex topic - for example, *Dreams and Reality - or- What Does it Mean to be a Human* and explores it with readings based in the humanities, arts, sciences, and social sciences. The course includes visits to the theatre, the Art Museum, and other UW resources, building community while learning about UW. Thereafter, students enroll in three additional courses: an Honors Non-Western Perspectives course and six hours of upper-division coursework in Honors that emphasize interdisciplinarity. At the upper division, it is strongly recommended that students take at least one Honors course per year. Throughout their Honors academic track, students will complete each level of the Honors SOAR Badge.

The Honors experience concludes with a Capstone Project, either a paper or project, done under faculty mentorship and presented publicly. This requirement ensures that students gain creative or research experience in an area of their interest. These projects often lead to graduate studies or a special career path.

Honors College Minor Curriculum

Specific details about required Honors College coursework can be found at:

[Honors College Minor Curriculum](#)

Honors College SOAR Badge requirements

Students are required to complete each level of the Honors SOAR Badge program. Assistance is available from the Honors College.

[Honors College SOAR Badge Requirements](#)

Capstone Project (Creative or Research-based)

- Students are not required to register for a specific course to complete the Capstone Project. There is no specific Capstone Project course; students complete the project independently in coordination with a faculty mentor.
- Honors offers optional research and capstone methods courses (i.e. HP 4990) that prepare students for independent capstone projects and in some cases work directly on those projects.
- Honors does offer an optional independent study course if desired. Up to 6 hours of credit in the optional HP4976 - Independent Study are allowed.
- HP 4976, HP 4990, and any other research methods courses contribute to the capstone projects. As such, they do not count toward required Honors coursework or USP requirements.
- Students may be pursuing a major that requires a senior or capstone project, and a major-specific project may also meet the requirement for the Honors College Capstone Project. Please contact the Capstone Project Coordinator for details. Email: honorscapstone@uwyo.edu

Honors College Additional Requirements

Students must also graduate with a 3.25 cumulative UW GPA.

Successful completion of the program is indicated on transcripts and diplomas, and seniors are recognized at graduation ceremonies.

Priority registration for enrollment in Honors courses is given to Honors College students, although non-Honors students with a 3.25 GPA or with permission of the instructor are eligible and encouraged to enroll once the general registration period begins, if space is available.

Honors College Advising

The Honors College offers supplemental advising that supports the work that students do with their primary major advisors. Honors Advising instructs students on Honors curriculum requirements and helps students select their Honors courses as well as take advantage of special Honors College opportunities. Students cannot register for Fall or Spring classes without meeting with their primary major advisor.

UWYO

UWYO courses are designed to help students acculturate to college life and coursework and learn key academic skills. Course content is combined with training in critical reading, academic writing, research, formal presentation, and many other emphases. UWYO courses have low student-teacher ratios in an effort to help students experience richer connection with the instructor and students in the course. Most UWYO courses imbed intellectual self-awareness within the course goals. Several UWYO courses are part of UW learning communities and provide additional opportunities for students to engage with and work together in their cohort.

Advising Career Exploratory Studies

222 Knight Hall

Richard Miller, Interim Director

Phone: (307) 766-2398 FAX: (307)766-2089

Web site: www.uwyo.edu/aces/index.html

Success and Engagement Programs

105 Coe Library

April Heaney, Director

Phone: (307) 766-3448

Web site: www.uwyo.edu/learn

STEP

USP Codes are listed in brackets by the 2003 USP code followed by the 2015 USP code (e.g. [QB><Q]).

STEP courses are housed within the Learning Resource Network (LeaRN) Program and comprise first-year and academic success courses aimed at supporting students in college research, written and professional communication,

major and career exploration, and general transition strategies. STEP courses are often embedded in first-year programs including Fall Bridge, First-Year Experience, First-Year Interest Groups (FIGs), and First-Year Seminars.

English Language Center

Cheney International Center 28

Frederica Suess, Director

Phone: (307) 766-3630

Web site: www.uwyo.edu/geo/elc

Our Mission

The English Language Center serves the University of Wyoming and surrounding community by preparing non-native speakers of English linguistically, culturally, and academically to meet the requirements for success in U.S. higher education environments and to fully engage in campus life.

IEP Conditional Admission: Conditional admission is available for undergraduate applicants who are academically eligible but have low language proficiency scores. Students need to do 2 applications; one for IEP and one for a degree program for consideration. *Only one application fee is needed. Contact us directly if you are interested in this option: elc@uwyo.edu.

University of Wyoming at Casper

University of Wyoming at Casper

Brent L. Pickett, Ph.D., Dean

125 College Drive, Casper WY 82601

(307) 268-2713

Web site: <https://www.uwyo.edu/uwcasper/>

Since 1976, the University of Wyoming at Casper (UWC), in partnership with Casper College, has offered on-site courses and a slate of university degree programs in Casper. UW-Casper is also the location in Natrona County for statewide degree programs and classes offered through Distance Credit Programs.

UW-Casper was established to meet the needs of students unable to move to Laramie. Some of these students are nontraditional students who may be older or have families, homes, or jobs in the Casper area. UW-Casper is designed to meet the academic needs of students in a setting that provides small class sizes, dedicated staff, and award-winning faculty. Courses are taught by resident and visiting faculty who are regular or part-time members of UW academic departments. A full-service student success office handles admission, registration, financial aid, and advising.

Classes are taught onsite on the Casper College campus. More than 4,000 students have received their UW degrees through UW at Casper support and programs.

UW-Casper also has the Bachelor's of Applied Science (BAS) program. This fully online program is designed to stack onto an associate's degree to help persons already in the job market further develop their skills and advance their career potential. There are two areas of concentration available in the BAS, one in Health Services Administration and the other in Organizational Leadership.

Undergraduate Majors

Organizational Leadership, B.A.S.

Biology, B.S.

Secondary Career & Technical Education, B.A.S.

Communication, B.A.

Elementary Education, B.A.

Elementary Education/Special Education, B.A.

English, B.A.

Medical Laboratory Science, B.S.

Psychology, B.S.

Secondary Science - Biological Science Education with Concurrent Major in Biology (BSSE), B.A.

Social Work, B.S.W.

Zoology, B.S. UW - Casper

Graduate Majors

Counseling, M.S., Concentration in Mental Health Counseling or Counseling, M.S., Concentration in School Counseling

Minors and Endorsements

Secondary Biology Endorsement

Biology, Minor

Secondary Chemistry Endorsement

Communication Minor

Early Childhood Endorsement

Early Childhood Education Options

Psychology Minor

Sociology Minor

Zoology Minor

For more information, contact UW at Casper at 125 College Drive, Casper, WY 82601; (307) 268-2713, (877) 264-9930; or by e-mail at uwcasper@uwyo.edu.

Armed Forces Services

Armed Forces Services

LTC George R. Rigglin, Commander, Army ROTC
LtCol. Anthony Kusek, Commander, Air Force ROTC

It has been the consistent policy of the university in cooperation with the federal government to make courses in military science and aerospace studies available on a voluntary basis to all qualified students.

Academic credits for Army and Air Force Reserve Officers' Training Corps (ROTC) are applied toward baccalaureate and graduate degrees in varying amounts depending upon the degree plan of the student and as determined by the college concerned.

Department of Military Science

Army ROTC

137 Hill Hall, (307) 766-3390

FAX: (307) 766-3383

Web site: www.uwyo.edu/armyrotc

Professor:

JONATHAN CURTIS, U.S. Military, Military Intelligence West Point B.S.; MSA Central Michigan University 2019;
Professor of Military Science 2020.

Lecturer:

JEREMIAH SCHUCHARDT, Master Sergeant, U.S. Army; Senior Military Instructor 2019.

The Department of Military Science - Army ROTC faculty is composed of U.S. Army officers and senior noncommissioned officers. These officers hold bachelors' and masters' degrees in a variety of fields. Noncommissioned officers hold associate degrees in a variety of fields. Officers' military education includes completion of the Officer Basic Course and the Officer Advanced Course. Several faculty are graduates of the Army's Command and General Staff College and have completed military specialty schools such as: Flight School, Ranger School, Airborne School, Air Assault School, Special Forces School, Jumpmaster Course, Special Operations Training and Language School.

General Information

Army ROTC is a program which offers qualified college students the opportunity to graduate as officers and serve tours in the U.S. Army, the Army National Guard or the U.S. Army Reserve. The four-year program is divided into two parts called the basic course and the advanced course. The basic course, consisting of 8 credit hours, is usually taken during the first two years of college. No military obligation is incurred by enrolling in the basic course.

The advanced course, usually taken during the junior and senior years or during graduate school, involves 19 credit hours of study and a five-week Leadership Development and Assessment Course during the summer. Advanced course students incur a military obligation, and they receive up to \$500.00 per month in tax-free subsistence throughout the academic year.

Army ROTC is not itself a major. Participants pursue the degree of their choice and take Army ROTC as an elective program. Those who complete the program may receive federal commissions from the President of the United States.

Army ROTC offers a military science minor. Effective with the Fall 2015 semester, the requirements for a minor in military science are as follows:

ARMY 3010.....	3
ARMY 3020.....	3
ARMY 3025.....	1
ARMY 3026.....	1
ARMY 3030.....	3
ARMY 4010.....	2
ARMY 4020.....	2
ARMY 4015.....	1
ARMY 4016.....	1
ARMY 4025.....	1
ARMY 4026.....	1
HIST 2020 or HP 4900.....	3

Total credit hours 22

The military science minor, encompassing 22 credit hours, will prepare selected students for commissioning and establish a sound basis for their future professional development.

To be eligible for a commission, U. S. citizens must meet prescribed physical, intellectual, and moral standards in addition to completing Army ROTC studies and successful completion of Professional Military Education (PME) courses. These PME courses include written communication skills, military history and computer literacy. A two-year option is available for sophomore and junior students, students with prior military service (see below), and those completing a masters program.

In the Army ROTC classroom the student is exposed to a wide variety of subjects designed to instill confidence, self-discipline, integrity and responsibility. Students gain an appreciation for the role of national defense, and learn what a leader must be, know and do in order to gain the respect and support of their subordinates.

Skills learned in Army ROTC, including resource management, leadership and planning are valuable and complement any university major. Young commissioned officers returning to civilian sectors after military service find an abundance of career opportunities.

Uniforms, Pay and Allowances

All uniforms, books and other instructional materials required in Army ROTC are provided to basic and advance course students at no cost. The cadet uniform is the same as the U.S. Army uniform except for the distinctive ROTC insignia.

Advanced course participants are paid a tax-free subsistence allowance of up to \$500.00 per month during the school year. During the summer training period students receive pay, travel, rations, quarters, clothing, and medical and dental services.

Two Year ROTC Program

The two-year program is designed for community college graduates and university students of sophomore or junior standing who did not take Army ROTC during the first two years of school. The program may also apply to seniors and graduates who have at least two years remaining in post graduate study.

To enter the two-year program, students must first attend a paid 28-day internship during the summer or be a veteran who has graduated from advanced individual training.

Special Scholarship Program

Special Scholarship Program Two-, three-, and four-year scholarships are offered by Army ROTC. These scholarships pay full tuition, laboratory fees and a \$1200 per year book fee. While on scholarship, the student receives up to \$500.00 a month during the school year. In addition to active duty scholarships, Army ROTC offers scholarships to students wishing to join the U.S. Army Reserve or Army National Guard upon commissioning. These reserve scholarships also pay full tuition, laboratory fees, book fees, and up to \$500.00 a month. Graduate students and undergraduate students are eligible to apply for the two- and three-year scholarships. These scholarships are awarded by the Professor of Military Science. Students do not have to be enrolled in ROTC to apply for these scholarships. Certain restrictions apply. High school juniors and seniors seeking a four-year scholarship should contact the Professor of Military Science, Army ROTC, Dept. 3167, 1000 E. University Ave., Laramie, WY 82071. College students desiring a scholarship should contact the Professor of Military Science in 154 Wyoming Hall, (307) 766-3390.

Scholarships are offered to ROTC cadets from several military associations. The Reserve Officers Association (ROA), Association of the U.S. Army (AUSA), Cowboy Battalion Alumni Association (CBAA), the United Services Automobile Association (USAA) and First Command offer annual cash awards to ROTC cadets.

Room and board scholarships are available to students who enroll in Army ROTC. Scholarship awards are based on merit and the student's potential to become a commissioned officer. The number of scholarships and dollar amount vary dependent on funds available. Room and board scholarships may only be used in UW residence halls or university apartments.

Leadership Laboratory

Leadership laboratory provides instruction that complements the classroom. This time provides practical application on subject matter taught in class. Leadership and management dynamics are inherent in this practical application. All students enrolled in a military science course must enroll in the appropriate leadership laboratory unless consent is obtained from the Professor of Military Science. Training includes land navigation, first aid, communications, basic rifle marksmanship, drill and ceremonies, decision making, squad movement and problem solving. This instruction is cadet planned and presented with immediate instructor feedback. The goals of this period are to instill self-confidence, self-discipline and responsibility in each cadet.

Land navigation skills are practiced in a variety of terrain locations near campus. The training instills trust and confidence in the cadet's ability to accurately plot and follow a compass course. Communication, such as radio, telephone and interpersonal skills, are taught and practiced. Marksmanship is taught in the Half-Acre rifle range and on other ranges, weather permitting. Finally, drill and ceremonies teaches methods of organizing and moving groups of individuals in an orderly manner resulting in team building while establishing esprit de corps.

Veterans' Option

Veterans of active military service and members of the National Guard or U.S. Army Reserve may qualify to go directly into the advanced Army ROTC program if they will be an academic junior. In these cases, basic training fulfills the requirement of the first two years of ROTC (Basic Course). Academic freshmen and sophomores are not required to take basic course classes but are highly encouraged to do so. It is common for members of the National Guard to study to become commissioned officers via the ROTC program. The Simultaneous Membership Program (SMP) is a formalized program for advanced course Guard members and Reservists to combine their unit training with ROTC training. In many cases the SMP program will result in increased financial benefit to the individual.

Military Obligation

There is no military obligation for taking the basic course, freshman and sophomore years. When an individual starts the advanced course, he or she incurs an obligation. The nature of that obligation depends upon whether the individual elects to serve in the National Guard, the Army Reserve or the active Army, and whether the individual has an Army scholarship. Those who desire guard or reserve duty may contract specifically for that purpose. The guard and reserve obligation is six years of monthly training meetings and two years of inactive ready reserve (IRR). The active duty obligation is four years Active duty, and four years of inactive ready reserve (IRR).

Extracurricular Activities

Army ROTC offers a variety of activities which are designed to promote an interest in the military and provide relaxing, enjoyable leisure activities for cadets.

The Cowboy Battalion has its own Ranger Challenge team, which is a varsity-level team that competes with other universities in military skills such as orienteering and soldier skills. The battalion also has a cannon crew, mounted color guard, 10-miler team, Bataan Death March team, and participates in intramural sports.

The department periodically sponsors other activities such as rappelling demonstrations, ranger weekends, battlefield tours, leadership exercises and other adventure training, such as mountaineering, land navigation exercises, patrolling and wilderness survival.

Suggested Course Sequence

FRESHMAN YEAR: Fall Hrs.

ARMY 1010	2
Lab (mandatory).....	0
PEAC 1272 (voluntary).....	1/2
ARMY 1011	1
ARMY 3060 (voluntary).....	1

FRESHMAN YEAR: Spring Hrs.

ARMY 1020.....	2
Lab (mandatory).....	0
ARMY 1012	1

SOPHOMORE YEAR: Fall Hrs.

ARMY 2010.....2
Lab (mandatory).....0
ARMY 2011.....1
ARMY 2060 (voluntary).....2
ARMY 3070 (voluntary).....2

SOPHOMORE YEAR: Spring Hrs.

ARMY 2020.....2
Lab (mandatory).....0
ARMY 2012.....1
HIST 2020 (mandatory).....3

JUNIOR YEAR: Fall Hrs.

ARMY 3010.....3
Lab (mandatory).....0
ARMY 30111
ARMY 3025 (mandatory).....1
ARMY 3070 (voluntary).....2
ARMY 3015.....1

JUNIOR YEAR: Spring Hrs.

ARMY 3020.....3
Lab (mandatory).....0
ARMY 3012.....1
ARMY 3026 (mandatory).....1
ARMY 3016 (mandatory).....1

SENIOR YEAR: Fall Hrs.

ARMY 4010.....2
Lab (mandatory).....0
ARMY 4011.....1
ARMY 3030 (voluntary).....3
ARMY 4025 (mandatory).....1

ARMY 4015 (mandatory).....	1
ARMY 4050 (voluntary).....	2
ARMY 3070 (voluntary).....	2
SENIOR YEAR: Spring Hrs.	
ARMY 4020.....	2
Lab (mandatory).....	0
ARMY 4012.....	1
ARMY 4026 (mandatory).....	1
ARMY 4016 (mandatory).....	1

Minor

Army ROTC Military Science Minor

The military science minor, encompassing 22 credit hours, will prepare selected students for commissioning and establish a sound basis for their future professional development.

Army ROTC offers a military science minor. Effective with the Fall 2015 semester, the requirements for a minor in military science are as follows:

Minor Requirements

Army ROTC offers a military science minor. Effective with the Fall 2015 semester, the requirements for a minor in military science are as follows:

ARMY3010 - Leadership and Tactics I

Credits: 3

Studies leadership techniques and tactical operations at the small-unit level. Instruction covers the decision-making process, troop leading procedures, land navigation and operation orders. In-depth analysis of team/squad tactical procedures and techniques. Numerous student oral presentations and practical exercises.

USP 2003-2014 Code U30

Prerequisite: ARMY 2010, ARMY 2020, basic camp or consent of department head.

ARMY3020 - Leadership and Tactics II

Credits: 3

Studies platoon-level tactics and leadership techniques. Instruction covers the solving of complex tactical problems. Illustrates techniques for properly managing personnel, resources and time to accomplish organizational goals. Introduces Army staff functions and prepares students for successful completion of ARMY 3030.

Prerequisite: ARMY 3010.

ARMY3025 - Conduct of Training

Credits: 1

Introduces the Army's system of conducting training exercises. Covers prerequisite training, pre-execution checks, officer/NCO responsibilities, training presentation techniques, sustainment training and training assessment.

Prerequisite: consent of instructor.

ARMY3026 - Assessment of Training

Credits: 1

Introduces the Army's system of training assessment. Covers formal and informal after-action reviews (AARs); preparation for, conduct of, and goals of an AAR; and writing of Army after-action reports.

Prerequisite: consent of instructor.

ARMY3030 - Practicum in Leadership

Credits: 3

Encompasses Leadership Development and Assessment Course, a five week test of the cadet's leadership ability. Each cadet is evaluated in ten different positions. Positions include both garrison and tactical situations. Each position requires the cadet to plan, implement and execute a wide variety of tasks. The cadet must control all personnel under this command. The cadet is extensively evaluated by cadre Tactical Officer/Non-commissioned Officer on twelve leadership dimensions. Successful completion of the Leadership Development and Assessment course is required for commissioning.

Prerequisite: successful completion of ARMY 3010 and ARMY 3020.

ARMY4010 - Dynamics of the Military Organization I

Credits: 2

Studies and analyzes organization, resources and functions of military staff. Reviews formal staff problem-solving procedures, including student effective writing and briefing presentations. Introduces ethics and the military profession.

Former Course Number [4030]

Prerequisite: ARMY 3010, ARMY 3020 or consent of department head.

ARMY4020 - Dynamics of the Military Organization II

Credits: 2

Introduces military law; planning and management of personal affairs; Army transportation, logistics and personnel management systems. Studies officer/NCO relations. Includes student writing and briefing presentations on assigned

topics.

Former Course Number [4040]

Prerequisite: ARMY 4010 or consent of department head.

ARMY4015 - Staff Officer Practicum I

Credits: 1

Gives students practical experience in serving on an Army staff. Under supervision of an Army ROTC cadre member, students undergo training and conduct practical exercises in one of the following specialties: command and control, operations, personnel or logistics.

Prerequisite: concurrent enrollment in ARMY 4010.

ARMY4016 - Staff Officer Practicum II

Credits: 1

Gives students experience in serving on an Army staff. Under the supervision of an Army ROTC Cadre member, students undergo training and conduct practical exercises in one of the following specialties: command and control, operations, personnel or logistics.

Prerequisite: concurrent enrollment in ARMY 4020.

ARMY4025 - Principles of Training Management

Credits: 1

Introduces students to the Army's system of training management. Covers principles and philosophy of training, training guidance, training cycles, soldiers/leader tasks, techniques for collective and multi-echelon training, as well as procedures for short-term planning.

Prerequisite: consent of instructor.

ARMY4026 - Preparation of Training

Credits: 1

Introduces the Army's system of training preparation. Covers short-range training plans, training meetings, development of timelines, publishing of training schedules, training and evaluation outlines, as well as rehearsals.

Prerequisite: consent of instructor.

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

OR

- HP 4900 Credits: 3

Total Credit Hours: 22

Department of Aerospace Studies

Department of Aerospace Studies
110 Wyoming Hall, (307) 766-2338
FAX: (307) 766-2357
Web site: www.uwyo.edu/airrotc

Professor:

ANTHONY KUSEK, Lt. Colonel, U.S. Air Force; B.S. Parks College 1995; M.A. Webster University 2007; Professor of Aerospace Studies 2019.

RICHARD LANDSVERK, Major, U.S. Air Force; B.S. Thomas Edison State College 2008; M.A. Bellevue University 2012; Professor of Aerospace Studies 2019.

SAMUEL R. SHEARER, Lt. Colonel, U.S. Air Force; B.S. University of Utah 1996; M.S. Troy State University 2003; M.A. Naval Postgraduate School 2004; Ph.D. 2013; Professor of Aerospace Studies 2016.

Air Force Reserve Officers' Training Corps (AFROTC) provides University of Wyoming students a path toward earning a commission as an officer in the United States Air Force. The curriculum provides college students a solid understanding of the leadership and military fundamentals an Air Force officer requires. AFROTC cadets supplement their normal university coursework with studies in Air Force fundamentals, history, leadership, and national security affairs. In addition, cadets have the opportunity to learn about various careers in the Air Force through their studies, guest lectures, base visits, and other military training opportunities. While enrolled in AFROTC, the Air Force provides uniforms, AFROTC textbooks, and the necessary Air Force equipment. Upon successful completion of the program and earning their bachelor's degree, cadets are commissioned as 2nd lieutenants in the U.S. Air Force.

Application and enrollment in the program is voluntary. Students should simply register for the appropriate Air Force (AIR) courses. In addition, prospective cadets will need to complete an application package upon arrival at the detachment in order to ensure minimum qualifications for military service. Contact the AFROTC Department for additional details or with any questions regarding registration. All university students, both male and female, are eligible to apply for admission in the program.

Four-Year Program

The four-year program is divided into two phases. The first two years comprise the General Military Course (GMC) consisting of one class period (1 hour) per week in the classroom and one class period (2 hours) per week in leadership laboratory. The GMC is a prerequisite for continuation in the Professional Officer Course (POC), the last two years in the program. Other prerequisites include passing the Air Force Officer Qualifying Test (AFOQT), maintaining at least a minimum grade point average of 2.0 (GMC) and 2.5 (POC), having the physical qualifications for an Air Force commission, and participating in a four-week field training session. The advanced course consists of one class period (3 hours) per week in the classroom and one class period (2 hours) per week in leadership laboratory.

Three-Year Program

Students may enroll in ROTC on a three or three and one-half year program where the GMC component is shorter. To complete the GMC requirements, the student must simultaneously enroll in AIR 1000 and AIR 2000 courses to complete all four academic terms of the GMC program. After successfully completing the GMC program and Field Training, students may enter the two-year POC program. This program is especially suitable for sophomores and junior college transfers. Students that participated in high school Junior ROTC, or have prior-enlisted service, can apply documented participation toward a portion of the GMC requirement.

Leadership Laboratory

The concept of leadership laboratory is to provide leadership training experiences which will improve a cadet's ability to perform as a USAF officer. Leadership laboratory is largely cadet planned and directed.

Field Training

Field training is a four-week program conducted in residence at an Air Force base during the summer.

While at field training, each cadet is provided subsistence, uniforms/equipment, and receives approximately \$28.00/day plus reimbursement for travel to and from the field training base.

Financial Benefits

Freshmen and Sophomores on AFROTC scholarships receive \$300 and \$350, per month, respectively. Juniors enrolled in the Professional Officers Course receive \$450 per month and seniors \$500 per month tax-free during the school year for subsistence. Uniforms, required texts and all necessary Air Force equipment are furnished by the government. In addition, all POC and scholarship cadets are allowed to travel anywhere in the continental United States on military aircraft (on a space available basis).

Special Scholarship Program

Two-, three- and four-year scholarships are offered by AFROTC on a competitive basis. These scholarships pay for a \$900 book allowance per year, tuition (amount dependent on type of scholarship awarded), fees and other required expenses except room and board. The university and the State of Wyoming offer additional room and board funding to Air Force ROTC cadets (who have or have not been awarded an Air Force ROTC scholarship) and reside in university housing. High School seniors seeking a four-year scholarship should contact their high school counselors or the Recruiting Flight Commander, AFROTC Detachment 940, Dept. 3005, 1000 E. University Avenue, Laramie, WY 82071; telephone (307)766-3710; email at airforce.rotc@uwyo.edu, early in the fall of their senior year. Sophomore or transfer students interested in competing for a scholarship should contact the Recruiting Flight Commander before the fall semester prior to junior standing.

Military Obligation

Students enrolling in the first two years of the AFROTC Program (the General Military Course) are not obligated to military service of any kind, unless on an Air Force scholarship their sophomore year. Cadets accepting an AFROTC scholarship and those entering the Professional Officer Course become members of the inactive reserve of the United

States Air Force. Upon being commissioned a Second Lieutenant in the Air Force, graduates in nonflying career fields agree to serve four years on active duty; pilot candidates agree to serve on active duty for 10 years after completion of flight training; RPA, navigator, and air battle manager candidates agree to serve on active duty for six years after completion of their respective training.

Extracurricular Activities

To familiarize students with Air Force life and social customs, the AFROTC Program offers on a voluntary basis a wide range of extracurricular activities. Civil Air Patrol gives cadets an opportunity to experience flying first hand with a trained instructor pilot. The Arnold Air Society, a national professional honorary society, is a service organization active on campus. The color guard supports various university and local activities. Visits to Air Force bases across the nation provide insight into the function of Air Force operational units. Throughout the year, AFROTC teams participate in the university intramural sports program, while cadet-sponsored social events build the spirit of comradeship inherent in military life.

Minor

Aerospace Studies Minor

Air Force ROTC offers an Aerospace Studies minor.

The 24 credit hours required to accomplish the Aerospace Studies minor will effectively compliment many majors, provide a sound basis for future professional development, and increase the career opportunities of a UW graduate.

Minor Requirements

For the Aerospace Studies minor, the student must complete the core AFROTC program plus:

- 3 credit hours in any Management (MGT) course in the current UW catalog **AND**
 - 3 credit hours in one Political Science (POLS) course listed below
- OR**
- 6 credit hours of Political Science courses listed below.

Political Science

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS2290 - Governments and Politics of Latin America

Credits: 3

Studies chief cultural and historical factors influencing Latin American political process. Surveys major institutions and political patterns of the region.

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

- POLS 2300

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

POLS3220 - Government and Politics of Russia and FSU

Credits: 3

Examines the political, economic and identity transitions of Russia and other states of the former Soviet Union during the post-communist era. Explores how current challenges relate to past Soviet practices.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3300 - Model United Nations

Credits: 1-3
Max Credit (Max. 6)

Focuses on the United Nations (UN) system and multilateral diplomacy to prepare students to participate in a Model UN simulation. Students learn to evaluate the UN system, learn strategies to address international problems, and develop skills to effectively represent a country in a role-playing exercise.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

- POLS 4220

POLS4230 - Governments and Politics of Asia

Credits: 3
Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 5230.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4255 - Politics of Developing Nations

Credits: 3
An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed INST 4255.

Dual Listed POLS 5255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200/INST 1200 or POLS 1250/INST 1250 or POLS 2310/INST 2310, or permission of instructor.

- POLS 4300

POLS4340 - International Organizations

Credits: 3
Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4360 - International Peace and Conflict

Credits: 3
Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed INST 4360.

Dual Listed POLS 5360.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4870 - Seminar in International Relations

Credits: 3

Max Credit (Max. 6)

Encompasses reading and research in international law and politics.

Dual Listed POLS 5870.

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

English Language Center

English Language Center

Cheney International Center 28

Frederica Suess, Director

Phone: (307) 766-3630

Web site: www.uwyo.edu/geo/elc

Our Mission

The English Language Center serves the University of Wyoming and surrounding community by preparing non-native speakers of English linguistically, culturally, and academically to meet the requirements for success in U.S. higher education environments and to fully engage in campus life.

IEP Conditional Admission: Conditional admission is available for undergraduate applicants who are academically eligible but have low language proficiency scores. Students need to do 2 applications; one for IEP and one for a degree program for consideration. *Only one application fee is needed. Contact us directly if you are interested in this option: elc@uwyo.edu.

Other Programs

Intensive ESL Program

The Intensive ESL Program is a full-time English language study program. Students are in class 20 hours every week for one whole semester of 15 weeks. To study in the Intensive ESL Program, students must have an F-1 Student Visa. All instructors are experienced ESL professionals and qualified with a Masters Degree or higher in TESOL or a relevant field of study.

Courses

Students take three classes daily, Monday through Thursday:

- Reading & Vocabulary: College vocabulary skills, reading strategies, and study skills.
- Listening & Speaking: Pronunciation/conversation, lecture listening, note-taking skills, and academic presentations.
- Integrated Skills: Grammar-focused reading, writing, and speaking class using topics from academic content areas.

ESL1110 - Introduction to Academic Writing Skills

Credits: 3

Designed to introduce non-native speakers of English, who do not demonstrate the required competency in writing to enter ESL 1210, to academic writing skills. Includes instruction in grammar and sentence structure, paragraph and essay writing.

Former Course Number [AS 1110]

Prerequisite: TOEFL of 18 or lower; IELTS of 5 or lower.

ESL1210 - English Composition for International Students

Credits: 3

The objective is to equip international students with procedural knowledge

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

Former Course Number [AS 1210; ENGL 1210]

Prerequisite: TOEFL Writing sub-score of 18 or higher, IELTS Writing sub-score of 5 or higher, or instructor's consent.

ESL1310 - Academic Listening for International Students

Credits: 3

This course equips non-native speakers with focused listening strategies and note-taking skills that can be applied across a variety of academic content areas and familiarizes students with discipline specific discourse patterns.

Prerequisite: TOEFL Listening subscore of 18 or lower IELTS subscore 5.0 or lower; or instructor's consent.

ESL1410 - Academic Reading for International Students

Credits: 3

This course equips non-native speakers with focused academic reading strategies across a variety of academic content

areas, introduces the Academic Core Vocabulary lists, and familiarizes students with discipline specific discourse patterns.

Prerequisite: TOEFL Reading subscore of 18 or lower, IELTS Reading subscore of 5.0 or lower, or instructor's consent.

ESL2110 - English Oral Skills

Credits: 3

Instruction for Novice to advanced Low speakers in refining English pronunciation, stress and intonation, listening comprehension, oral grammar practice and building vocabulary.

Former Course Number [AS 2110; ENGL 2110]

Prerequisite: consent of instructor.

ESL3050 - Advanced Academic Writing for International Students

Credits: 3

Through ESL learner targeted instruction, practices, and feedback, the course will emphasize and progressively develop transferrable skills for students' academic work and future professions. It will continue to build on writing skills and emphasize foundational oral and digital communication skills.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: WA/COM1.

ESL4010 - Technical Writing for International Students

Credits: 3

Prepares students from a culturally diverse background for the communication demands of the 21st century. Students conduct rhetorical analysis of various audiences and purposes in order to design, develop, revise and edit disciplinary and interdisciplinary technical communications, such as reports, proposals, job applications, research related documents and oral presentations.

USP 2003-2014 Code [WC< >COM3]

Prerequisite: WA/COM1, WA/COM2, and junior standing.

ESL5910 - International TA Preparation

Credits: 4

Prepares international teaching assistants for the challenges language, culture, and instruction in the American classroom impose on them: training includes pronunciation/intonation, presentation skills, basics of methodology, understanding of cultural differences, and mock-lessons. One Oral Skills Lab hour per week is included.

Prerequisite: graduate standing.

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AIDHY, DILPUNEET S., Mechanical Engineering

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ALBEKE, SHANNON, WyGIS, Geospatial Information Science and Technology

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ALEXANDER, ANNE, School of Politics, Public Affairs, and International Studies, Economics

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KATO, MUNHEYUKI, WySAC

KATZMANN, JASON, School of Teacher Education

KAUFFMAN, MATTHEW J., Zoology and Physiology

KEITH, JILL, Family and Consumer Sciences

KELLEENERS, THUIS, Ecosystem Science and Management

KELLER, MARY, Philosophy and Religious Studies

KELLEY, JONATHAN PATRICK, Zoology and Physiology

KELLY, ALEXANDRA, History, Anthropology

KELLY, ROBERT L., Anthropology

KEMPSON, DIANE A., Social Work

KIHN, PAULA, Nursing

KILANDER, GINNY, American Heritage Center

KIKUT, PATRICK, Art and Art History

KING, JAMES D., School of Politics, Public Affairs, and International Studies

KINNEY, KELLY, English

KITCHEN, RICHARD, School of Teacher Education

KLADIANOS, JAMES, Civil and Architectural Engineering

KLAGES, RICKI, Art and Art History

KNAPP, CORRINE NOEL, Haub School of Environment and Natural Resources

KNIEVEL, MICHAEL, English

KNIGHT, MARSHA F., Theatre and Dance

KNISS, ANDREW, Plant Sciences

KNOBLOCH, FRIEDA E., School of Culture, Gender, and Social Justice, Creative Writing

KNOX, CHRISTINA, Mathematics and Statistics

KOBULNICKY, HENRY A., Physics and Astronomy

KOCKEN, GREGORY, American Heritage Center

KONESKO, ALYSSA, LeaRN Programs

KONESKO, PATRICK, Theatre and Dance

KORNFELD, MARCEL, Anthropology

KOSKI, KRISTOPHER, School of Energy Resources

KOTLAREK, KATELYN, Communication Disorders

KOTTHOFF, LARS, Computer Science

KOZA, JENN, Accounting and Finance

KREISER, JENNIFER, Accounting and Finance

KREISER, PATRICK, Management and Marketing

KRIST, AMY, Zoology and Physiology

KRSZJZANIEK, ERIC, Management and Marketing

KRUEGER, BREANNA, Communication Disorders

KRUEGER, JANELLE L., Pharmacy

KRUEGER, KEM, Pharmacy

KRUGER, DAVID D., University Libraries

KSAIBATI, KHALED, Civil and Architectural Engineering and Construction Management

KUBELKA, GINKA, Chemistry

KUSEK, ANTHONY, Air Force ROTC

KUZNETSOVA, MARIA I., Psychology

KVENILD, CASSANDRA, University Libraries

LAEGREID, RENEE, History

LAEGREID, WILLIAM W., Veterinary Sciences

LAIR, ASHLEY, Nursing

LAKE, SCOTT, L., Animal Science

LAMARTINE, NICOLE C., Music

LANDEIRA, JOY, Modern and Classical Languages

LANDREVILLE, KRISTEN, Communication and Journalism

LANDSVERK, RICHARD, Air Force ROTC

LANGER, PAMELA J., Molecular Biology

LARSON, MARY LOU, Anthropology

LAU, KIMBERLY, Geology & Geophysics

LAUGHLIN, DANIEL, Botany

LEACH, MARK, Management and Marketing

LEAR, JANET, School of Teacher Education

LEBO, ZACHARY J., Atmospheric Science

LEDUC, ROBERT, WySAC

LEE, BRIAN, Agricultural and Applied Economics

LEE, JIHYUN, School of Counseling, Leadership, Advocacy & Design

LEE, LONG, Mathematics and Statistics

LEGLER, BEN, Botany

LEHMANN, TERESA, Chemistry

LEONARD, BRIAN, Chemistry

LEOTTI, SANDY, Social Work

LEVY, DANIEL, Molecular Biology

LI, DONGMEI (KATIE), Chemical Engineering

LI, LI, Communications and Journalism

LI, YUN, Zoology and Physiology

LINDSTROM, GRANT L., Management and Marketing

LINN, BECKY, Pharmacy

LIU, MATTHEW, Communication and Journalism

LIU, RONGSONG, Mathematics and Statistics; Zoology and Physiology

LIU, XIAOHONG, Atmospheric Science

LIU, YANG, Mechanical Engineering

LIVINGSTON, GREG, Management and Marketing

LOCKWOOD, JEFFREY A., Philosophy and Religious Studies, Creative Writing

LOGAN, BARBARA, History, School of Culture, Gender, and Social Justice

LOOBY, ALISON R., Psychology

LOPEZ, ROBYN, School of Culture, Gender, and Social Justice

LUDDEN, PAUL A., Animal Science

LUTZ, PAULA M., Zoology and Physiology, A&S Dean

LYFORD, MARK, Botany

LYNCH, ELIZABETH, Anthropology

MACY, SHELLEY, Civil & Architectural Engineering & Construction Management

MADDOX, PAUL, School of Counseling, Leadership, Advocacy & Design

MADSON, AUSTIN, WyGIS, Geospatial Information Science and Technology

MAHAPATRA, NEELY, Social Work

MAHVAN, TRACY D., Pharmacy

MAIER, SHANNON BOWEN, American Heritage Center

MALLICK, SUBHASHIS, Geology and Geophysics, School of Energy Resources

MALM, RONALD L., Family Practice

MALMBERG, JENNIFER L., Veterinary Sciences

MANN, ALLISON, Pharmacy

MANYAK, PATRICK, School of Teacher Education

MARKLEY, BENJAMIN, Music

MARKS, CLIFFORD J., English

MARTIN, PAULA, University Libraries

MARTINEZ, TRICIA, School of Culture, Gender, and Social Justice

MASON, CHARLES F., Economics

MAVRIPLIS, DIMITRI J., Mechanical Engineering

McALLISTER, TYRRELL, Mathematics and Statistics

McBRIDE, SHAWNA, Physics and Astronomy

McCARTHY, DEBORAH, University Libraries

McCONIGLEY, NINA, Honors College

McCONNELL, JASON, School of Politics, Public Affairs, and International Studies

McCOY, DANIEL, Haub School of Environment and Natural Resources

McCOY, ROCHELLE, School of Teacher Education

McCRACKEN-FLESHER, CAROLINE, English

McCREA, SEAN M., Psychology

McDONNELL, CHRISTINA, Psychology

McELROY, BRANDON, Geology and Geophysics

McELWAIN, ALYSSA, Family and Consumer Sciences

McGEE, BLAKE, Music

McGEE, MICHAEL, Army ROTC

McGEE, NANCY, Nursing

McGINITY, RICHARD C., Management and Marketing

McINROY, JOHN E., Electrical and Computer Engineering

McKAMEY, ANDREW, Accounting and Finance

McKIBBIN, CHRISTINE L., Psychology

McKIM, COURTNEY, School of Counseling, Leadership, Advocacy & Design

McLANE, LAUREN, Criminal Justice, Law

McLEOD, DON, Agricultural and Applied Economics

McMANUS, PATRICK, Civil and Architectural Engineering

MEALOR, BRIAN, Plant Sciences

MEANS, JEFFREY D., History

MEANS, WARRIE J., Animal Science

MEEKS, Jenna, Plant Sciences

MERCIL, AMBER, Accounting and Finance

MERKLE, BETHANN, Wyoming Cooperative Unit

MERKLE, JEROD A., Zoology and Physiology

MICHALAK, RUDI, Physics and Astronomy

MILES, NOAH, Modern and Classical Languages

MILLER, KATE C., Geology and Geophysics

MILLER, MARCIE, Civil and Architectural Engineering

MILLER, MICHAEL, Family Practice

MILLER, MYRNA M., Veterinary Sciences

MILLER, SCOTT N., Ecosystem Science and Management

MILLER, STEVEN L., Botany

MINCKLEY, TOM, Geology and Geophysics

MINEAR, MEREDITH, Psychology

MINTON, ELIZABETH, Management and Marketing

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MONTEITH, KEVIN, Haub School of Environment and Natural Resources, Zoology and Physiology

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MOUSAVIRAAD, MAYSAM, Mechanical Engineering

MRUK, KAREN, Pharmacy

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MURPHY, SHANE, Atmospheric Science

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MYERS, JAMES D., Geology and Geophysics

MYRAN, LEENA, Pharmacy

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NOBLE, KENT, Management and Marketing

NORTH, CHRISTOPHER, Life Sciences, Botany

NORTHROP, KATE, Creative Writing

NORTON, URSZULA, Plant Sciences

NOVOGRODSKY, NOAH B., Law

NUNEZ, NARINA L., Psychology

OAKLEY, JOHN, Chemical Engineering

O'BRIEN, JOHN F., Electrical and Computer Engineering

O'BRIEN, YELENA, Electrical and Computer Engineering

OBERT, JULIA, English

OGGERO, ELENA, Electrical and Computer Engineering

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OKPODU, CAMELLIA, Botany

OLER, MITCHELL, Accounting and Finance

ONETO, STEPHANIE A., Management and Marketing

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PAGNACCO, GUIDO, Electrical and Computer Engineering

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PANTER, KAREN, Plant Sciences

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PEARSON, TIMOTHY, WySAC

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PEPPER, CAROLYN M., Psychology

PERSON, DEBORA, Law

PERSON, MARK, Modern and Classical Languages

PETER, SAMANTHA, University Libraries

PETERSON, C. MARK, Management and Marketing

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PICCORELLI, ANNALISA, Mathematics and Statistics

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PICKETT, BRENT, School of Politics, Public Affairs, and International Studies

PIERCE, MICHAEL, Physics and Astronomy

PIERRE, JOHN W., Electrical and Computer Engineering

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PIKAL, JON M., Electrical and Computer Engineering

PIRI, MOHAMMAD, Petroleum Engineering

PISHKO, MICHAEL, Chemical Engineering

PLUMB, TAWNIA, Law

PORTER, CHRISTINE, Kinesiology and Health

PRATHER, JONATHAN, Zoology and Physiology , Director of Life Sciences Program

PRATT, KARA, Zoology and Physiology

PRICE, LINDA, Management and Marketing

PRICE SCHULTZ, CINDY J., Communication and Journalism

PRIDGEN, MARY D., Law

PRINCE, NICHOLAS, Management and Marketing

PROCTOR, J'LAINÉ, Nursing

PRZYGOCKI, JAMES, Music

QUADE, ERIC, Mathematics and Statistics

QUAGGIN HARKIN, ALISON, Wyoming Institute for Disabilities (WIND)

RAHEL, FRANK J., Zoology and Physiology

RAMPOLLA, PEDRO, WySAC

RARDIN, JESSICA, University Libraries

RASHFORD, BENJAMIN, Agricultural and Applied Economics

READDY, R. TUCKER, Kinesiology and Health

RETTLER, BRADLEY, Philosophy and Religious Studies

REUTZEL, D. RAY, College of Education Dean

REYNOLDS, TODD, School of Teacher Education

RICE, WILLIAM, Physics and Astronomy

RICUPERO, BRYAN, University Libraries

RIEBE, CLIFFORD, Geology and Geophysics

RIGGIN, GEORGE, Army ROTC

RIGHETTI, TARA, School of Energy Resources, Law

RINER, NICOLE A., Music

RITCHIE, MARK , Art and Art History

RITTEN, JOHN, Agricultural and Applied Economics

ROBERTS, AMY, School of Teacher Education

ROBISON, JASON, Law

ROBISON, RANI, Art and Art History

ROBISON, TIGER, Music

ROBITAILLE, BETH, Family Practice

RODRIGUEZ HICKS, SONIA, Modern and Classical Languages

ROMERO, ALAN, Law

ROOT, KAITLYN, Sociology

ROOT-ELLEGE, SANDRA, Wyoming Institute for Disabilities (WIND)

ROSENBLUM, AARON, Accounting and Finance

ROTHFUSS, CHRISTOPHER, Honors College

ROTHFUSS, HEATHER, Zoology and Physiology

RUDD, WILLIAM, Wyoming Cooperative Unit

RUNYON, SIMONE, Geology & Geophysics

RUSH, LESLIE, School of Teacher Education

RUSSEL, BAILEY, Art and Art History

RUSSELL, DOUG, Art and Art History

SAILOR, RACHEL, Art and Art History

SANDOVAL, CORRI, Communication Disorders

SARAJI, SOHEIL, Petroleum Engineering

SCASTA, J. DEREK, Ecosystem Science and Management

SCHERR, FREDERICK P., Family Practice

SCHILLINGER, JESSICA, WySAC

SCHLUMP, PHILIP, Computer Science

SCHMIDT, LAWRENCE O., University Libraries

SCHMITT, EMILY, Kinesiology and Health

SCHNEIDER, Shannon, Nursing

SCHOBORG, TODD, Molecular Biology

SCHROER, JOSEPH, School of Teacher Education

SCHUCHARDT, JEREMIAH, Army ROTC

SCHUHMANN, ROBERT A., School of Politics, Public Affairs, and International Studies

SCHUMAKER, BRANT A., Veterinary Sciences

SCULL, REED, School of Counseling, Leadership, Advocacy & Design

SEITZ, THOMAS R., School of Politics, Public Affairs, and International Studies

SELTING, LEIGH, Honors College, Associate Dean

SEVILLE, ROBERT, Zoology and Physiology

SHADER, BRYAN L., Mathematics and Statistics

SHADWELL, SHELBY, Art and Art History

SHANG, ZONGBO, WYGISC

SHANNON, DENIS, University Libraries

SHAW, SCOTT R., Ecosystem Science and Management

SHEARER, SAMUEL R., Air Force ROTC

SHELSTAD, MARK L., American Heritage Center

SHERLINE, EDWARD D., Philosophy and Religious Studies

SHIM, JENNA, School of Teacher Education

SHINKER, JACQUELINE J., Geology and Geophysics

SHOEMAKER, LAUREN, Botany

SHOGREN, JASON F., Economics

SHUKLA, DIKSHA, Computer Science

SHUMAN, BRYAN, Geology and Geophysics

SIEGER, CRYSTAL, Music

SIMONTON, KELLY, Kinesiology and Health

SIMPSON, JANELLE, WySAC

SIMS, KENNETH, Geology and Geophysics

SINGH, RESHMI, Pharmacy

SINIFT, SHERRY, Music

SISNEROS-KIDD, ABIGAIL, Haub School of Environment and Natural Resources

SIVANPILLAI, RAMESH, WyGIS, Geospatial Information Science and Technology

SKIBA, ALEXANDRE, Economics

SKINNER, MEGAN McGUFFEY, Family and Consumer Sciences

SLATER, TIMOTHY F., School of Teacher Education

SMALL, NANCY, English

SMITH, DEREK, Kinesiology and Health

SMITH, MARCI, Kinesiology and Health

SMITH, MICHAEL R., Law

SMITH, RONN, Management and Marketing

SMITH, SHERRILL J., Nursing

SMUTKO, L. STEVEN, Haub School of Environment and Natural Resources, Agricultural and Applied Economics

SNYDER, JAMIE, Criminal Justice

SNIDER, JEFFERSON R., Atmospheric Science

SOHIER, BÉNÉDICTE, Modern and Classical Languages

SONDGEROTH, KERRY, Veterinary Sciences

SOTO, LILIA, School of Culture, Gender, and Social Justice

SPARKS, JEREMY, Aerospace Studies

SPIKER, AMY, School of Teacher Education

SPRAGUE, ROBERT D., Management and Marketing

SPROUT AHRENHOLTZ, TREVA, Family and Consumer Sciences

STANESCU, DAN, Mathematics and Statistics

STANTON, KASEY, Psychology

ST. CLAIR, SHERRA, Nursing

STEELE, REBECCA, Modern and Classical Languages

STEINKRAUS, HOLLY, Molecular Biology

STEINMAN, BERNARD, Family and Consumer Sciences

STEVENS, ANNE, Psychology

STEWART, JOYCE, English

STEWART, JUSTIN, Communication and Journalism

STEWART, MITZI, Communication and Journalism

STEWART, WHIT, Animal Science

STIDOLPH, CANDACE, Nursing

STOELLINGER, MICHAEL, Mechanical Engineering

STOELLINGER, TEMPLE, Haub School of Environment and Natural Resources, Law

STOESZ, ERIN, Science and Mathematics Teaching Center

STRUBE, KARI, Mechanical Engineering

STUMP, WILLIAM, Plant Sciences

SUN, QIAN QUAN, Zoology and Physiology

SUROVELL, TODD, Anthropology

SWANNER, HOSANNA, Honors College

SWANNER, SETH, LeaRN Programs

SWANSON, DEREK, Civil and Architectural Engineering

SWAPP, SUSAN, Geology and Geophysics

TABLER, JENNIFER, Sociology

TAGGART, BREEZY, Honors College

TAGGART, GABEL, School of Politics, Public Affairs, and International Studies

TAHERI, REZA, Petroleum Engineering

TAHMASEBI, PEJMAN, Petroleum Engineering

TANG, JINKE, Physics and Astronomy

TANK, DAVID, Botany

TANNER, JENNIFER E., Civil and Architectural Engineering and Construction Management

TARWATER, COREY E., Zoology and Physiology

TAYLOR, MICHAEL, Chemistry

TAYLOR, ZACHARY, School of Politics, Public Affairs, and International Studies

TEDMON-JONES, SCOTT, Theatre and Dance

TEMAN, ERIC, School of Counseling, Leadership, Advocacy & Design

TEULÉ-FINLEY, FLORENCE, UW-Casper

THAKAR, AMIT, Neuroscience

THAYER, DAVID, Physics and Astronomy

THIEL, CHASE, Management and Marketing

THOMA, AUSTIN, Communication and Journalism

THOMAS, JENIFER, Nursing

THOMPSON, D. CLAUDIA, American Heritage Center

THOMPSON, JASON, English

THOMPSON, ROD, School of Teacher Education

THOMPSON-EBANKS, VALERIE, Social Work

THUNSTROM, LINDA, Economics

TIAN, JIFA, Physics and Astronomy

TODD, W.D. (TREY), Zoology and Physiology

TOELLE, BRIAN, Petroleum Engineering

TOLO, KHAMA-BASSILI, Modern and Classical Languages

TOOHEY, JASON, Anthropology

TREICK, PHILIP, Accounting and Finance

TRELEASE-BELL, AMY, Family Practice

TRENT, ALLEN, School of Teacher Education

TURPEN, J. SCOTT, Music

TURPEN, JENNIFER, Music

URYNOWICZ, MICHAEL A., Civil and Architectural Engineering and Construction Management

VALI, GABOR, Atmospheric Science

VAN DIEPEN, LINDA, Ecosystem Science and Management

VAN 'T VELD, KLAAS T., Economics

VANDERBORGH, BETH, Music

VANDERMEADE, SAMANTHA, School of Culture, Gender, and Social Justice

VANDIVER, JEREMY W., Pharmacy

VAUGHAN, KAREN L., Ecosystem Science and Management

VEERAKUMAR, RAMSANKAR, Mechanical Engineering

VERCOE, RICHARD, Haub School of Environment and Natural Resources

VIETTI, LAURA, Geology and Geophysics

WADE, CHRISTINE, Family and Consumer Sciences

WAGGENER, JOHN, American Heritage Center

WAGGENER, LESLIE, American Heritage Center

WAGNER, CATHERINE, Botany

WALKER, PETER, History

WALL, DANIEL, Molecular Biology

WALLHEAD, TRISTAN, Kinesiology and Health

WALRATH, DAVID E., Mechanical Engineering

WALTERS, ANNIKA W., Zoology and Physiology

WAMBEAM, RODNEY, WySAC

WANG, LIPING, Civil and Architectural Engineering and Construction Management

WANG, WENYONG, Physics and Astronomy

WARD, JAMES, Computer Science

WARD, NAOMI, Botany

WARD, SETH, Philosophy and Religious Studies

WARREN, CHRISTINA, Nursing

WATSON, RACHEL, Chemistry

WATSON, WILTON, Creative Writing

WAWROUSEK, KAREN, Chemical Engineering

WEATHERMON, RICK, Anthropology

WEBB, BRETT, Veterinary Sciences

WEBB, RYAN, Civil & Architectural Engineering and Construction Management

WEBER, WILLIAM, Mathematics and Statistics

WEINIG, CYNTHIA, Botany, Molecular Biology

WEISS-LEHMAN, CHRISTOPHER, Botany

WELSH, KATHERINE MUIR, School of Teacher Education

WHEELLOCK, ANDREW, Music

WHITE, CLAIR, Criminal Justice

WILCOX, KEVIN, Ecosystem Science and Management

WILDMAN, KAREN M., Family Practice

WILKOWSKI, BENJAMIN, Psychology

WILLHAUS, JANET, Nursing

WILLIAMS, DAVID G., Botany, Ecosystem Science and Management

WILLIAMS, DUANE D., Agricultural and Applied Economics

WILLIAMS, MIA, School of Counseling, Leadership, Advocacy & Design

WILLIFORD, JASON, Mathematics and Statistics

WILLFORD, JOHN, WWAMI Medical Education

WILLINGHAM, KASSANDRA, Molecular Biology

WILSON, MARGARET, Theatre and Dance

WIMBISH, LAUREL, WySAC

WINTERS, KATHERINE I., American Heritage Center

WITZ, PATRICK, Accounting and Finance

WODAHL, ERIC, Criminal Justice

WOFFORD, TERRI, Wyoming Institute for Disabilities (WIND)

WOODS, TONJA M., Pharmacy

WRIGHT, CAMERON H.G., Electrical and Computer Engineering

WRIGHT, LOU ANNE, Theatre and Dance

WU, CHI-CHEN, Music

WULFF, SHAUN S., Mathematics and Statistics

WYNNE, SUSAN, University Libraries

XU, CHEN, WyGIS, Geospatial Information Science and Technology

YANG, DI, WyGIS, Geospatial Information Science and Technology

YEUNG, MAN-CHUNG, Mathematics and Statistics

YOCOM, DOROTHY JEAN, School of Counseling, Leadership, Advocacy & Design

YOON, SUKYUNG, Social Work

YOUNG, SUZANNE, School of Counseling, Leadership, Advocacy & Design

ZHAI, HAIBO, Civil and Architectural Engineering and Construction Management

ZHANG, CHENGYI (CHARLIE), Construction Management

ZHANG, TENG (TIM), Accounting and Finance

ZHANG, XIANG, Mechanical Engineering

ZHANG, YAN, Modern and Classical Languages

ZHANG, ZHAOJIE, Zoology and Physiology

ZHENG, KENNETH W., Accounting and Finance

ZHONG, PING, Mathematics and Statistics

ZHOU, JING, Chemistry

ZHU, JIANTING (JULIAN), Civil and Architectural Engineering and Construction Management

ZHU, MENGQIANG, Ecosystem Science and Management

ZHU, QIN (ARTHUR), Kinesiology and Health

ZIBRAK, ARIELLE, English

ZLATKOVIC, MILAN, Civil and Architectural Engineering and Construction Management

ZOOK, KATRINA, Music

Intercollegiate Athletics

- Mission Statement
- Guiding Principles
- General Information

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COLIN VICKERS, B.S. University of Wyoming 2017; Director of Athletic Concessions Operations 1999.

RANDY WELNIAK, B.S. University of Wyoming 1988; M.B.A. 1989; Senior Associate Athletic Director for Development and Revenue Enhancement 2011.

MATTHEW J. WHISENANT, B.S. East Tennessee State University 1996; M.A. 1999; PhD Ohio State 2001; Deputy Director of Athletics 2002.

Mission Statement

The University of Wyoming Department of Intercollegiate Athletics is committed to the development of tomorrow's leaders by creating an environment that promotes personal growth, academic and athletic excellence in a progressive, inclusive, and transparent manner. The Department of Intercollegiate Athletics will support the overall University of Wyoming mission, provide an outstanding fan experience, encourage community engagement, and serve as a source of pride for alumni, supporters, and the state of Wyoming.

Guiding Principles

- **Dedication to Student-Athletes:** We will promote the well-being of studentathletes and provide opportunities for academic, athletic, and personal success. We will foster academic excellence, graduate student-athletes, support their development as citizens, and prepare them to be leaders.
- **Integrity:** We will demonstrate integrity in all areas. We are dedicated to financial stability, rules compliance, diversity, and personal accountability.
- **Respect:** We will celebrate a climate of mutual respect, inclusiveness, loyalty, and sportsmanship by recognizing contributions to our teams, our department, and the university.
- **Competitive Success:** We will endeavor to be the very best when representing the University of Wyoming and our state. We are committed to providing the resources and personnel for our teams to achieve success.
- **Tradition:** The legacy of the University of Wyoming athletics is proud and strong. We will honor our outstanding tradition.
- **Excellence:** We believe in a spirit of comprehensive excellence. We will strive for excellence in all we do.

General Information

The University of Wyoming Department of Intercollegiate Athletics (DIA) consists of 17 teams competing at the NCAA Division I level: men's and women's basketball, men's and women's cross country, football (FBS), men's and women's golf, women's soccer, men's and women's swimming, women's tennis, women's volleyball, men's and women's indoor track, men's and women's outdoor track and wrestling. All sports all fully-funded up to the NCAA maximum for grant-in-aids (i.e., scholarships).

The University of Wyoming competes in the Mountain West Conference (MWC), the Western Athletic Conference (WAC), and the Big 12 Conference. In addition to the University of Wyoming the MWC consists of the U.S. Air Force Academy, Boise State University, Colorado State University, University of Nevada-Las Vegas, University of New Mexico, and San Diego State University, University of Nevada, Utah State, University of Hawaii, San Jose State University and Fresno State.

The DIA is managed by the Director of Intercollegiate Athletics who reports directly to the President of the University. The Director of Intercollegiate Athletics ensures the department operates in a manner consistent with the rules and regulations of the University, the MWC and the NCAA.

*For additional information please visit the University's official athletic website at: www.gowyo.com

National Outdoor Leadership School

- Application/Eligibility
- Credit and Credit Transfer
- Academic Advising
- Financial Arrangements
- Financial Aid

**Administered by the Haub School of Environment and Natural Resources
Bim Kendall House**

Haub School Advising Center

Phone: (307)766-5080 FAX: (307)766-5099; Web site: www.uwyo.edu/haub

The University of Wyoming (UW) and National Outdoor Leadership School (NOLS) Articulation Agreement provides the opportunity for UW students to receive UW academic credit for NOLS courses.

When NOLS students step into the world's wild places, they bring not only their backpacks, but also more than 40 years of experience in expeditioning. NOLS founder Paul Petzoldt's idea was simple: take people into the wilderness for an extended period of time, teach them the right things, feed them well and when they walk out of the mountains, they will be skilled leaders. The core of his idea was the extended expedition, one of sufficient length that a person could learn and practice the skills over and over again. That is the backbone of every NOLS course and today the school is widely recognized as the world's leader in the extended expedition, from two weeks to twelve.

This articulation agreement covers domestic and international NOLS courses. This agreement also covers some individual shortterm courses (14 days or less; including mountaineering, rock climbing, sailing, kayaking, skiing, snowboarding, and backpacking) and the Wilderness First Responder (WFR) course.

Application/Eligibility

Current UW students, or students who have been fully or conditionally admitted to UW may receive articulated NOLS credit. Students who have already taken a NOLS course cannot receive credit retroactively (i.e. if a student embarked on a NOLS course and requested to get credit after the course was completed).

Credit and Credit Transfer

UW credit hours will be awarded in the approved courses, which require prior approval. Upon completion of the NOLS courses, provided a grade equivalent to a UW grade of C or better was obtained at NOLS. These UW course grades will be included in your UW GPA. Students who withdraw or are expelled from a NOLS course may receive an incomplete or an F for all enrolled UW credit.

Students should be aware that for internship credits to be awarded, additional academic work requirements determined by the internship course will need to be met. Those additional requirements vary between academic programs and amount of credit desired, but may include a satisfactory evaluation from NOLS, a weekly journal, a substantial written report, and an oral presentation. Internship requirements are established prior to your participating in the NOLS course.

Academic Advising

Prior to participating in a NOLS course for UW credit, students must make an appointment with the Haub School by emailing haub.school@uwoyo.edu or calling (307) 766-5080. If your academic program is outside of the Haub School, students should also meet with their assigned academic advisor to determine if these courses will count towards their major. The Haub School will approve the student's schedule, provide the appropriate course numbers, and liaise with the NOLS Registrar.

Financial Arrangements

Each UW student will pay to NOLS:

- The NOLS tuition and related fees (any changes to be advised in writing by NOLS at least three months in advance of the change coming into effect), related fees would include equipment deposit;
- Complete medical and evacuation health insurance;
- Other fees (e.g. tuition protection program, local transportation, and gear purchases), air transportation and additional living expenses will be paid directly by the student to the provider of the service.

Each UW student will pay to UW:

- The published per credit registration fees to register UW credits earned at NOLS

Financial Aid

Students enrolled in the NOLS program may apply their financial aid to the cost of the program if they are enrolled as a full-time degree seeking student at the University of Wyoming. To do so, please work with the UW Office of Scholarships and Financial Aid.

Rules, Law, and Regulations

UW students studying at NOLS will be bound by all rules, regulations and by-laws in operation at NOLS. In addition, since UW students remain enrolled as degree candidates at UW, they must also adhere to UW standards of conduct, rules and regulations. UW and NOLS both abide by the Federal Right to Privacy Act (FERPA).

Steps to Follow

1. Determine the NOLS course that best fits your needs/interests and/or goals online at: www.nols.edu/courses
2. Make an appointment with an advisor from the Haub School to determine the UW academic credit that best suits your degree program by e-mailing haub.school@uwyo.edu or by calling (307) 766-5080.
3. Meet with your academic advisor (if your academic program is not in the Haub School).
4. Apply and be admitted into NOLS.
5. Prior to leaving for your NOLS course, enroll in the credit offered for the course.
6. Secure your financial aid (if any) with the UW Office of Scholarships and Financial Aid.
7. Attend and successfully complete the course (grade C or better).
8. Grades will be posted the semester of completion of your course.

UW Credit Options for NOLS

Success and Engagement Programs

Success and Engagement Programs

105 Coe Library

April Heaney, Director

Phone: (307) 766-3448

Web site: www.uwyo.edu/learn

STEP

USP Codes are listed in brackets by the 2003 USP code followed by the 2015 USP code (e.g. [QB><Q]).

STEP courses are housed within the Learning Resource Network (LeaRN) Program and comprise first-year and academic success courses aimed at supporting students in college research, written and professional communication, major and career exploration, and general transition strategies. STEP courses are often embedded in first-year programs including Fall Bridge, First-Year Experience, First-Year Interest Groups (FIGs), and First-Year Seminars.

STEP1060 - College Athletics and Society

Credits: 3

This course will examine the unique relationship between intercollegiate athletics and higher education, as well as intersections that occur with gender, politics, and race.

STEP1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

STEP1102 - Step Into College

Credits: 1

Helps students interact with UW campus resources, staff, and faculty; learn about resources for academic support and wellness; and explore academic and co-curricular opportunities for students' professional and personal interests.

Restricted Restricted to new full-time, first-year freshmen.

Prerequisite: Freshman or sophomore class standing.

STEP1105 - Academic Success Skills

Credits: 1-2

Designed to provide students the necessary skill set to succeed at the University and beyond. Skills covered include time management, learning styles, note taking, self-motivation and more.

STEP3000 - Student Leadership in Supplemental Instruction

Credits: 2

Focuses on theoretical perspectives of group tutoring and peer leadership, best practices in supplemental instruction, and student reflection. Will strengthen leadership knowledge and skills and introduce effective methods for group facilitation and SI curriculum.

Prerequisite: closed to general enrollment.

UWYO

UWYO courses are designed to help students acculturate to college life and coursework and learn key academic skills. Course content is combined with training in critical reading, academic writing, research, formal presentation, and many other emphases. UWYO courses have low student-teacher ratios in an effort to help students experience richer connection with the instructor and students in the course. Most UWYO courses imbed intellectual self-awareness

within the course goals. Several UWYO courses are part of UW learning communities and provide additional opportunities for students to engage with and work together in their cohort.

Commonly Used Terms

A-F: Letter grades of A, A-, B+, B, B-, C+, C, C-, D+, D, or F.

Academic load: The total semester hours of credit for all courses taken during a specified time-semester or summer session.

Academic probation: Probation is the status of an undergraduate student who is not progressing satisfactorily toward his or her degree. An undergraduate student shall be placed on probation at the end of the semester or term when his or her cumulative grade point average (GPA) falls below a 2.000 (3.000 for graduate students).

Academic reinstatement: Restoration of a student's eligibility to register for courses after being on academic suspension. This process requires a petition that is first reviewed by the dean of the student's college or the Center for Advising and Career Services. Academic reinstatement does not guarantee restoration of financial aid eligibility which is a separate process handled by the financial aid office.

Academic suspension: The status of a person whose enrollment at UW has been terminated because of unsatisfactory academic progress towards either an undergraduate or graduate degree.

Accredited: A term applied to a school or specific program which has been recognized by a national or regional organization as meeting certain academic standards for quality and educational environment. The University of Wyoming, and all UW academic programs, are accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools Commission on Institutions of Higher Education. This is the highest level of accreditation in the United States. Some academic programs have professional standards established by their respective accrediting associations.

Add and drop deadlines: The latest date in an academic term when a course may be added or dropped from a student's class schedule *without* approval of someone other than the student. Adding and dropping of courses is done through WyoRecords.

Admission: The process of being admitted to the university with the opportunity to take classes.

AP exam: An Advanced Placement Examination from the College Entrance Examination Board (CEEB) in a specific subject area available nationally to high school students. Information on taking the examination may be obtained from a high school guidance counselor. Information on university course credit for these examinations is available from the Office of the Registrar.

Audit: Individuals who want to take a course but who do not want either a grade or credit for taking it may register as an audit. The instructor for the course determines the amount of work and/or participation that is required. Marks of either Audit/Satisfactory or Audit/Unsatisfactory are assigned. Audit hours are charged tuition at the normal rate. Audit hours are not used to determine full- or part-time status.

Banner: Banner is a suite of products that are used as the university's student information system.

Class schedule: A publication containing a listing of all courses scheduled to be offered during a specific semester or summer session. *Class Schedules* are available on the Office of the Registrar's website.

CLEP test: Subject area examination administered by the College Entrance Examination Board (CEEB).

Concentration: A collection of courses within a major which focuses on a particular subject area.

Concurrent major: A double major. Only one degree will be awarded based on the student's primary major.

Continuing probation: An undergraduate student on academic probation is considered on continuing probation in subsequent semesters if the student earns a term GPA of 2.000 or above but whose cumulative GPA is still below a 2.000.

Corequisite: A course to be taken or a requirement to be fulfilled at the same time as a particular course is being taken. Departments reserve the right to drop a student from a class if the student does not have the corequisite.

Cross-listed course: A course which is identical in content, title, credit hours, and requirements which is offered by one or more academic departments. The four-digit course number must be the same. This designation must be approved by the University Course Review Committee.

Curriculum: The set of courses in a particular degree program. More generally, the courses (in total) offered in a college or university.

Degree requirements: Degree requirements include all requirements of the university (including University Studies Program), college, academic department, and major. All requirements must be successfully met in order to obtain a specific degree.

Drop: To discontinue enrollment in a course or courses prior to the end of the drop/add period at the beginning of a term. A dropped course does not appear on the student's academic transcript. Dropping from a class does not influence a student's Satisfactory Academic Progress measurement, but may impact the amount of financial aid a student earns for the semester in question.

Dual degree: Two degrees are awarded, and students must complete all of the degree requirements for the colleges of both majors. Dual degree require additional credits above the minimum required for one degree.

Dual-listed course: A course which is offered at both the 4000- and 5000-level that is identical in course prefix, content, title, and credit hours. The last three digits of the four-digit course number must be the same. The 5000-level course must require additional work beyond that required for the 4000-level course. This designation must be approved by the University Course Review Committee.

Financial aid reinstatement: Restoration of one's financial aid eligibility based on being granted an exception to financial aid or scholarship rules. Financial aid restoration is a separate process from and is not guaranteed by academic reinstatement.

Full-time: A student taking 12 or more credit hours at the undergraduate level or 9 or more credit hours at the graduate level is considered a full-time student. During the summer session, students enrolled in 6 or more credit hours are considered full-time.

Grade point average: The semester grade point average (GPA) is the sum of all grade points earned in a semester or term divided by all credit hours attempted for letter grade. Credit hours in courses in which marks of I, W, S, or U were assigned are excluded. The cumulative grade point average is the sum of all grade points earned at UW divided by the sum of all credit hours attempted at UW for a letter grade, for all non-excluded courses.

Lower-division course: Courses normally taken during the freshman and sophomore years. Lower division courses are those numbered between 1000 and 2999, inclusive.

Major: The primary disciplinary interest or academic subject area of a student as represented by one of the curricula offered by the various academic departments. The undergraduate degree may or may not carry the same title as the major. Every student has one or more majors but may or may not have a minor or concentration.

Minor: A secondary subject area interest (to the major) represented by a specified set of hours and/or courses. Differs from a concentration in that a minor is not a subdivision of the major subject area.

Option: A collection of elective courses within a major which emphasize one aspect of the major, chosen by a student according to his or her interests.

Orientation: A program of one to three days on campus designed to acquaint a new student with the facilities, policies, sources of information and assistance, and academic and social environment. Academic advising and registration are also included.

Prerequisite: A requirement to be completed before enrollment in a course or a degree program. Prerequisites for individual courses are listed in their course description in this catalog. The statement "or consent of instructor" is implied for all prerequisites. Students are responsible for being aware of a course's prerequisites prior to enrolling in the course. Departments reserve the right to drop a student from a class if the student does not have the prerequisite.

Registration: The process of officially enrolling into one or more courses at the university.

Satisfactory academic progress: Satisfactory Academic Progress only applies to federal financial aid applicants and recipients. Three measures of a student's advancement toward the earning of his or her stated degree objective are: 1) a grade point average putting the student in good academic standing, 2) a ratio of credit hours earned compared to credit hours attempted in the student's most recent academic year, and 3) a comparison of the number of credit hours attempted in a college career compared to the number of hours required to earn the pursued degree.

Semester: The division of the calendar year used in academic scheduling. A semester is roughly 15 weeks in length.

Semester credit hour: The unit of academic credit for course work.

Transfer credit evaluations: An evaluation of previous college-level course work from another regionally-accredited academic institution, international post-secondary institution, standardized test, or military course work to determine whether courses are transferable to UW as well as to determine any UW equivalents.

University Catalog: The *University Catalog* is the official document of the university which includes information on all undergraduate academic programs and their requirements, courses offered by each academic department, lists of faculty, policies and procedures related to admission, financial aid, all registration activity, and tuition and fees. A student's degree requirements are based on the *University Catalog* in effect the year he or she enters either UW or another catalog year as approved with a petition.

Upper-division course: Courses normally taken during the junior and senior years. These courses are numbered from 3000 - 4999, inclusive. "W" Number: A student's unique identifier in WyoRecords will begin with "W". This "W" number replaces the Social Security Number as a student's unique identifier.

Withdrawal: To discontinue enrollment in a course or courses after the end of the drop/add period. When withdrawing from one or more, but not all, courses, a student should complete the process on WyoRecords. To withdraw from all courses in a semester, a student should begin the process in the Dean of Students Office. A mark of W will be placed on the student's academic transcript for each course. Withdrawal from a course or from the university may impact both a student's current and future receipt of financial aid. Ask a financial aid office professional before withdrawing.

WyoRecords: The University of Wyoming portal used for communication with the campus community, registration activity, grade posting, financial aid, course management, and advising. A specialized version of WyoRecords is available for all enrolled students, faculty, staff, and alumni.

University of Wyoming at Casper

University of Wyoming at Casper

University of Wyoming at Casper

Brent L. Pickett, Ph.D., Dean
125 College Drive, Casper WY 82601
(307) 268-2713
Web site: <https://www.uwyo.edu/uwcasper/>

Since 1976, the University of Wyoming at Casper (UWC), in partnership with Casper College, has offered on-site courses and a slate of university degree programs in Casper. UW-Casper is also the location in Natrona County for statewide degree programs and classes offered through Distance Credit Programs.

UW-Casper was established to meet the needs of students unable to move to Laramie. Some of these students are nontraditional students who may be older or have families, homes, or jobs in the Casper area. UW-Casper is designed to meet the academic needs of students in a setting that provides small class sizes, dedicated staff, and award-winning faculty. Courses are taught by resident and visiting faculty who are regular or part-time members of UW academic departments. A full-service student success office handles admission, registration, financial aid, and advising.

Classes are taught onsite on the Casper College campus. More than 4,000 students have received their UW degrees through UW at Casper support and programs.

UW-Casper also has the Bachelor's of Applied Science (BAS) program. This fully online program is designed to stack onto an associate's degree to help persons already in the job market further develop their skills and advance their career potential. There are two areas of concentration available in the BAS, one in Health Services Administration and the other in Organizational Leadership.

Undergraduate Majors

Organizational Leadership, B.A.S.
Biology, B.S.

Secondary Career & Technical Education, B.A.S.
Communication, B.A.
Elementary Education, B.A.

Elementary Education/Special Education, B.A.
English, B.A.
Medical Laboratory Science, B.S.
Psychology, B.S.
Secondary Science - Biological Science Education with Concurrent Major in Biology (BSSE), B.A.
Social Work, B.S.W.

Zoology, B.S. UW - Casper

Graduate Majors

Counseling, M.S., Concentration in Mental Health Counseling or Counseling, M.S., Concentration in School Counseling

Minors and Endorsements

Secondary Biology Endorsement

Biology, Minor

Secondary Chemistry Endorsement

Communication Minor

Early Childhood Endorsement

Early Childhood Education Options

Psychology Minor

Sociology Minor

Zoology Minor

For more information, contact UW at Casper at 125 College Drive, Casper, WY 82601; (307) 268-2713, (877) 264-9930; or by e-mail at uwcasper@uwyo.edu.

Organizational Leadership, B.A.S.

The Bachelor of Applied Science degree (BAS) is a completely online program designed for individuals who have completed an associate's degree and who need or desire the additional breadth in skills, knowledge, and professional expertise to enhance their capabilities in their own careers and in the organizations in which they work.

Major Requirements (12 credits)

FCSC3110 is REQUIRED for Option A.

AGRI4350 is REQUIRED for Option B.

PHCY4441 is REQUIRED for Option C.

AGRI3000 - Discovering and Utilizing Ideas and Information

Credits: 3

Learning in this area guides students to accessing, evaluating, and utilizing information and ideas; communicating information and ideas effectively and responsibly; civic engagement for individual, organizational and community problem-solving, and applying new skills, knowledge, and perspectives in a contemporary society.

USP 2003-2014 Code U3I, U3L

Prerequisite: WA and junior status.

AGRI4600 - Developing Organizational Leadership

Credits: 3

A senior capstone experience for Bachelor of Applied Science students, bringing together reading, research, writing, and communication skills to focus on a major project. Leadership skills and approaches to organizational problem-solving are deepened using the structural, human resource, political, and symbolic frames to change and improve leadership and organizational culture.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, AGRI 3000, and senior status.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

OR

COJO3190 - Cross-Cultural Communication

Credits: 3

Studies human communication processes within the context of various cultures and subcultures. Opportunity for field study of the effect of culture on communication behavior.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: COMM 1040 and junior standing.

OR

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

AGRI4350 - Problem Solving in Organizational Settings

Credits: 3

Students apply organizational leadership perspectives and methods to the resolution of a variety of simulations and real world problems. The course will emphasize leadership development as a tool for individual, organizational and community problem solving.

Prerequisite: junior or senior standing and COM2.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

PHCY4441 - Intro Health Institution Leadership

Credits: 3

Max Credit 3

This course provides undergraduates information through analysis of theory and application. The course will use discussion boards to highlight examples of leadership roles and discuss differences in types of leadership roles. Organizational, team, and individual dimensions of leadership are examined.

Restricted Selection of leadership track in BAS program

Contemporary Society Requirement (2 courses, 6 credits)

Pick **two courses** from the following courses listed:

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

CRMJ3500 - Drugs and the Criminal Justice System

Credits: 3

Focus on drugs and their impact on society. Particular interest is paid to the extent of drug use/abuse in America, and the effects of this problem on the criminal justice system and society as a whole. Strategies for controlling both supply

and demand are discussed.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 5860.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400 and junior standing.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political

tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

SOC3150 - Collective Behavior and Social Movements

Credits: 3

Analyzes and explains fads, fashions, rumors, riots and mass behavior in light of theoretical frameworks. Studies social movements including blacks, women, labor, religions and students.

Prerequisite: SOC 1000.

SOC4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed INST 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 3000.

Career Electives (9 credits)

Students will work with their advisor to identify these career electives.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Option A: Community Resources (12 Credits)

The Community Resources option guides students through an examination of how managers operate effectively with stakeholders and employees in community leadership and non-profit settings.

AGEC4720 - Water Resource Economics

Credits: 3
Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3
Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.
Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGRI4350 - Problem Solving in Organizational Settings

Credits: 3
Students apply organizational leadership perspectives and methods to the resolution of a variety of simulations and real world problems. The course will emphasize leadership development as a tool for individual, organizational and community problem solving.

Prerequisite: junior or senior standing and COM2.

FCSC4117 - Understanding Community Leadership

Credits: 3
Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

Option B: Business Management (12 Credits)

The Business Management option guides students through an examination of how managers create value by understanding and developing employee and customer relationships.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

Option C: Health Services Administration (HSA) Concentration (11 Credits)

The Health Services Administration (HSA) concentration allows students to meet their career goals. This concentration:

Is designed for students who are interested in careers such as health services administrators, patient service associates, community outreach coordinators, healthcare office managers, and various positions in community health agencies and the health care industry.

Benefits students who are interested in working side by side with health care workers.

Provides an excellent option for those who want to advance in healthcare but who do not want to pursue additional clinical education.

Students pursuing this concentration must take the business management track and will substitute PHCY 4160/4441 Intro to Health Leadership in lieu of AGRI 4350.

PHCY4050 - Evolution of American Health

Credits: 2

PHCY4141 - Health Economics and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

PHCY4241 - Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

PHCY4341 - Intro to Healthcare Quality

Credits: 3

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Program Overview

Dr. Josh Valk, Director- Bachelor of Applied Science Program

jvalk@uwyo.edu

This program is available by distance delivery only. Entry into the program requires an application process. Students must apply for admission to UW first. Official transcripts from all institutions attended must be submitted to UW Admissions. Entry into this program requires an existing associate's degree. Transcripts will not be analyzed prior to application.

All students pursuing a bachelor's of applied science degree in Organizational Leadership are required to complete: a) University Studies Program (USP) requirements, b) 120 approved credits, 42 of which must be upper division (with 30 coming from UW), and c) courses within the program checklist. The program is designed to be completed in two years, but students may move at a pace that works for them.

All courses within the Bachelor of Applied Science must be completed with a grade of C or better. If you do not pass the course with a grade of C or better after three attempts you will be dismissed from your organizational leadership major.

Each student is assigned an advisor, who can be reached at (bas@uwyo.edu), and will be advised each semester. It is important that you work closely with your advisor to plan your course schedule.

University Requirement - All degrees at the University of Wyoming require 42 upper division credit hours (3000+).

Residency Requirement - All degrees must include a minimum of 30 upper division credit hours from UW

Zoology, B.S. UW - Casper

Zoology is the study of animals: their structure, physiology, development and evolution. One of the enduring fascinations of zoology is that we can learn so much about ourselves and our environment by studying what our fellow creatures do.

At the end of this program students will have a comprehensive knowledge of zoology, will be well prepared for graduate education, and will be equipped to enter any of the many employment opportunities that are available.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Foundation Courses

Foundation Courses

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3
Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the

lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM3020 - Environmental Chemistry

Credits: 3

Environment and modern environmental problems in terms of chemical structures and reactions. Chemical principles of equilibrium, kinetics, and thermodynamics are used to help understand our changing environment. Topics include toxicological chemistry, aquatic chemistry, atmospheric chemistry, and green chemistry.

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 2230; and QA course.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: PHYS 1110.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy

relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Advanced Zoology Course

* if more than one of the required courses is completed, additional courses can count towards the Zoology Approved Core Electives below.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

Zoology Approved Core Electives

A minimum of 10 of 18 Zoology Approved Core Electives must be exclusive to the ZOOL major.

Choose a total of 18 credits from:

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on

the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT4664 - Special Topics in Evolution

Credits: 1-4

Max Credit (Max. 6)

Advanced topics in evolutionary biology are engaged by studying primary research and topical synthesis in the current

literature.

Dual Listed BOT 5664.

Prerequisite: LIFE 3500 or equivalent.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application or remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

ENTO4682 - Insect Anatomy and Physiology

Credits: 5

Studies structure and function of the insect body, particularly emphasizing the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 5682.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: ENTO 1000.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

College of Agriculture and Natural Resources

College of Agriculture, Life Science and Natural Resources

151 Agriculture Building

Barbara Rasco, Dean

Phone: (307)766-4135 Fax: (307)766-4030

Web site: www.uwyo.edu/uwag

The College of Agriculture and Natural Resources offers a wide variety of course work in agriculture, natural resources, molecular biology, and family and consumer sciences. The curriculum provides a sound background in basic sciences and the choice of a number of fields in which to specialize. Students are trained in principles which apply throughout the world, with special emphasis on agriculture and natural resources found in the Rocky Mountain region.

Laboratory work and other experiential learning opportunities are stressed in all programs. Students receive excellent training from case studies and practical experience provided at research and extension centers. Other facilities include modern laboratories and classrooms, an abattoir, meat processing rooms, livestock and crop farms and greenhouses.

In addition to the academic departments, the college includes the Agricultural Experiment Station and the UW Extension. Materials and techniques resulting from this effective triple combination benefit students in the never-ending search for problem-solving information. The close relationship between teachers, researchers, and extension educators creates a learning atmosphere that encourages the development of the finest students.

Programs of Study

Undergraduate Degrees

Bachelor of Science

Agricultural business
Agricultural communications
Animal and veterinary science
Microbiology
Molecular biology

Plant Production and Protection
Rangeland ecology and watershed management

Bachelor of Science in Family and Consumer Sciences

Graduate Degrees

Master of Arts

Molecular biology

Master of Science

Agricultural and applied economics
Agricultural economics/water resources

Animal and veterinary sciences
 Entomology
 Entomology/water resources
 Family and consumer sciences
 Food science and human nutrition
 Molecular biology
 Plant sciences
 Rangeland ecology and watershed management
 Rangeland ecology and watershed management/water resources
 Reproductive biology
 Soil science
 Soil science/water resources

Doctor of Philosophy

Animal and veterinary science

Biomedical Sciences
 Entomology
 Molecular and cellular life sciences
 Molecular biology
 Plant sciences
 Rangeland ecology and watershed management
 Reproductive biology
 Soil science

The following certificates and/or degrees in the College of Agriculture and Natural Resources are available through Distance Education:

Certificate: Early Childhood Program Director
 Online bachelor's degrees: Family and Consumer Sciences (Professional Child Development Option)

For more information, contact the College of Agriculture and Natural Resources Office of Academic and Student Programs. Phone: (307)-766-4135

The College of Agriculture and Natural Resources also offers a graduate certificate in reclamation and restoration ecology. For more information, contact the Department of Ecosystem Science and Management.

Basic Education Core

All undergraduates in the College of Agriculture and Natural Resources curriculums are required to follow the basic education core as noted below.

Core Components (USP 2015).....Hrs.

- First-Year Seminar (FYS).....3
- Quantitative Reasoning (Q)3
- Communication 1 (COM1).....3
- Communication 2 (COM2).....3

Communication 3 (COM3).....	3
Human Culture (H)	6
Physical & Natural World (PN).....	6
U.S. and Wyoming Constitutions (V).....	3
Subtotal (min. core requirements)	30
Hours for major, support areas and electives as determined by division... 90-98	
Total Hours 120-128	

Core Components (USP 2003)

Core Components (USP 2003) Hrs.

Intellectual Community (I)	1-3
Writing 1 (WA)	3
Oral Communication (O).....	3
Quantitative Reasoning 1 (QA)*	3
Quantitative Reasoning 2 (QB).....	3
Science (S, SB, SP, SE).....	4-8
Cultural Context (C, CH, CS, CA).....	9
U.S. and Wyoming Constitutions (V).....	3
Physical Activity and Health (P).....	1
Subtotal (min. core requirements)	30-36
Hours for major, support areas and electives as determined by division....79-91	
Total Hours 120-128	

*Core Components are mutually exclusive of each other; hence, two core components may not be fulfilled by the same course. Except for the QA, core courses may have topics from the embeddable components list included in their curriculum, where appropriate.

Courses taken for S/U

A maximum of 20 elective hours with a grade of S (satisfactory) may be included as part of the total credit requirements for graduation; but no S/U hours may be used to satisfy university, major requirements or required electives, unless the course is offered for S/U grading only.

Minors in Agriculture and Natural Resources

Minors provide a formalized recognition of concentrated study in a specific subject area. A minor offers recognition for academic achievement outside of the students' major course curriculum and gives students a focus of work in the chosen minor area. A minors program can enable students to enhance and expand career opportunities. A minor will also improve the possibility of admission to graduate programs in any chosen major, minor, or related field of study.

Minors Available in the College of Agriculture and Natural Resources Include:

Agricultural business
Animal and veterinary science
Apparel design

Agroecology

Agronomy
Equine
Farm and ranch management
Forest resources
General agricultural economics
Horticulture
Human development and family sciences
Human nutrition
Insect biology
Interior design
International agricultural economics
Molecular biology
Natural resource economics
Plant Protection
Rangeland ecology and watershed management
Reclamation and restoration ecology
Soil science

Agricultural Communications Major

A wide variety of courses in agriculture, communications, and journalism provides students with basic preparation for positions as broadcasters, editors or writers for farm and home organizations, state and federal agencies, magazines, newspapers, radio and television stations, and commercial businesses. Communication skills are also distinct assets in agricultural sales, research, service and teaching. Students enrolled in agricultural courses acquire up-to-date and knowledgeable backgrounds of the subject matter. Courses in communication and journalism develop proficiencies demanded by employers of communication professionals.

Minimum Requirements for Agricultural Communications Majors (B.S.)

Hrs.

University Studies Program requirements..... 30

Communications/journalism core..... 24

COJO 1000, 1040, 2010, 2100 and minimum of 12 hours of communication/journalism elective. (Minimum grade of C required)

Agriculture core requirements..... 42

At least 18 hours must be lower division (Ag 1000-2000) elective courses, and at least 24 hours must be upper division (Ag 3000-4000) elective courses and include AGRI 4975.

Supporting course requirement4

STAT 2050 or 2070

Additional hours for major and electives 20

Total Hrs: 120

Students wishing to pursue an agricultural communications degree are encouraged to also select a minor. The college currently offers a variety of minors, and any of these can help to better prepare students for employment or graduate work. Agricultural communications majors may also complete an internship in their field. A variety of opportunities are available and students can work with their advisor to determine an appropriate internship for their area of emphasis.

Bachelor of Applied Science

160 Agriculture Building

Awarded by the College of Agriculture and Natural Resources

Phone: (307)766-4034 Fax: (307)766-4030; Web site: www.uwyo.edu/basa/

Organizations need leaders at all levels who can effectively understand the environment and society in which they operate; analyze situations and solve problems; supervise and manage, interact and communicate appropriately within and outside the organization; anticipate changes; and plan for the future. The Bachelor of Applied Science degree (B.A.S.) is designed for individuals with a completed Associate of Applied Science, Associate of Science, Associate of Business or an Associate of Arts degree at a Wyoming Community College (or an equivalent degree at another accredited institution) and who need or desire the additional breadth in skills, knowledge and professional expertise to enhance their capabilities in their own careers and in the organizations in which they work.

The fundamental philosophy of the B.A.S. degree is that the student must complete the general education (University Studies Program - USP) requirements expected of all UW bachelor's degrees and must engage in upperdivision coursework sufficient to provide focus and depth of learning. Following this philosophy, the B.A.S. has four basic components. These components are university studies, career specialty, professional concentration, and electives. The fundamental elements of the baccalaureate degree are provided by the general education core (USP) and the upper division professional concentration. At the end of the program, students are expected to meet the following Student Learning Outcomes:

1. to develop proficiency in accessing, evaluating and utilizing information, ideas, and data;
2. to develop proficiency in communicating information and ideas effectively and responsibly;
3. to gain an appreciation for leadership development as a tool for individual, organization and community problem solving;
4. to demonstrate an understanding of organizational design, behavior, ethical practices, and effective managerial and supervisory practices;
5. to gain an understanding of social, cultural, economic and environmental contexts essential for effective leadership and the management of change.

The University Studies Program (USP 2015) consists of a minimum of 27 credit hours as adopted by the UW faculty, and the Articulation Agreement between UW and the Wyoming Community Colleges. Students with an Associate of Applied Science degree from a Wyoming community college will normally matriculate with 15-20 hours of credit that count toward this component. The remainder may be required as part of a UW student's coursework, including the Professional Concentration or Electives coursework.

The Career Specialty Component is fulfilled with the Associate of Applied Science, the Associate of Science, or Associate of Arts degrees. This component will consist of a minimum of 40 credit hours in the major.

The Professional Concentration Component is the advanced component of the program and the courses are selected by the student and the advisor. All students are required to take a range of courses from the prescribed set of areas of concentration within this component in order to provide them with the breadth and depth of learning necessary for a baccalaureate degree. This component will consist of 36-40 upper division or articulated equivalent credit hours. Note: Within the Professional Concentration, students have a choice between two Organizational Leadership areas. Option A focuses on Community Leadership; Option B focuses on Business Leadership.

The Elective Component will consist of the number of credit hours needed (after completing the other three components) to complete the degree components. A minimum of 120 hours is required for the B.A.S.

All University of Wyoming Students must earn a total of 42 upper division hours (at least 30 hours taken from UW), to earn their degree. Students in the B.A.S. program must earn a "C" in all courses on the B.A.S. checklist. Failure to do so will require repeating the course. Per university regulations, students may only attempt a course three times; an "F" or "W" count as attempts.

Application Process

All students must apply to the Bachelor of Applied Science program, including those who would like to change their major to the B.A.S. in Organizational Leadership. Students cannot just fill out a change of major form and have Admissions change their status. These are the steps for application:

1. Apply to the University of Wyoming through Admissions, declaring the Bachelor of Applied Science in Organizational Leadership.
2. Have official transcripts from all institutions attended sent to Admissions.
3. Email BAS@uwyo.edu when you have received your acceptance to UW. Include your W# in the message. We can then track your files to evaluate them for the BAS program.
4. Students will receive a letter telling the application decision. If a student is denied admission to the BAS, an explanation for the denial will be provided. If accepted, the student will be given information for how to work with the program advisor, Rosalind Grenfell (rgrenfel@uwyo.edu), to enroll in classes.

Department of Agricultural and Applied Economics

206 Agriculture Building, (307) 766-2386

FAX: (307) 766-5544

Web site: www.uwyo.edu/agecon

E-mail: ag-econ@uwyo.edu

Department Head: Benjamin S. Rashford

Professors:

CHRISTOPHER T. BASTIAN, B.S. University of Wyoming 1987; M.S. 1990; Ph.D. Colorado State University 2004; Professor of Agricultural Economics 2017, 2005.

ROGER COUPAL, B.S. Utah State University 1978; M.S. University of Arizona 1985; Ph.D. Washington State University 1997; Professor of Agricultural Economics 2015, 1997.

DON MCLEOD, B.S. St. John's College 1982; M.S. Oregon State University 1987; Ph.D. 1994; Professor of Agricultural Economics 2015, 1995.

JOHN RITTEN, B.S. Arizona State University 2001; M.B.A. New Mexico State University 2004; Ph.D. Colorado State University 2008; Professor of Agricultural Economics 2020, 2008.

L. STEVEN SMUTKO, B.S. Colorado State University 1978; M.C.R.P. North Dakota State University 1982; Ph.D. Auburn 1995; Spicer Chair of Collaborative Practice, Professor of Agricultural Economics 2009.

Associate Professors:

KRISTIANA M. HANSEN, B.A. Reed College 1996; M.S. University of California, Davis 2003; Ph.D. 2008; Associate Professor of Agricultural Economics 2016, 2009.

VARDGES HOVHANNISYAN, B.S. Armenian State University of Economics 1999; M.S. Armenian State Agrarian University 2002; Ph.D. University of Wisconsin-Madison 2012; Associate Professor of Agricultural Economics 2021, 2015.

CHIAN A. JONES-RITTEN, B.S. Northern Arizona University 2003; M.A. Colorado State University 2007; Ph.D. 2011; Associate Professor of Agricultural Economics 2013.

BENJAMIN S. RASHFORD, B.S. University of Wyoming 1999; M.S. 2001; Ph.D. Oregon State University 2006; Associate Professor of Agricultural Economics 2012, 2006.

Assistant Professor:

ANDERS VAN SANDT, B.A. Linfield University 2012; Ph.D. Colorado State University 2018; Assistant Professor of Agricultural Economics 2020.

Academic Professionals:

JEFFERSON G. EDGENS, B.A. Presbyterian College 1989; M.P.A. Coastal Management University of West Florida 1992; Ph.D. Michigan State University 1998; Senior Lecturer 2017.

BRIDGER M. FEUZ, B.S. University of Wyoming 1994; M.S. 1996; Senior Extension Educator 2012, 2004.

THOMAS FOULKE, B.A. University of Montana 1985; M.S. University of Wyoming 1992; Senior Research Scientist 2010, 1998.

LETICIA HENDERSON, B.S. New Mexico State University 2010; M.S. 2012; Assistant Lecturer 2019.

JOHN HEWLETT, B.S. Montana State University 1985; M.S. Oregon State University 1987; Senior Extension Educator 1987.

BRIAN LEE, B.S. University of Wyoming 2010; M.S. 2012; Research Scientist 2012.

AMY NAGLER, B.A. University of Wyoming 1996; M.S. 2002; Assistant Research Scientist 2016.

DUANE D. WILLIAMS, B.S. Oklahoma State University 1981; M.S. 1983; Ph.D. Kansas State University 1995; Senior Academic Professional 2014.

Temporary Lecturer:

Professors Emeritus:

Nicole Ballenger, Edward Bradley, Larry J. Held, James J. Jacobs, Dale Menkhaus, Carl Olson, Alan C. Schroeder, David T. Taylor, Glen D. Whipple

The Department of Agricultural and Applied Economics offers three concentrations within the agricultural business bachelor of science degree program. They are agribusiness management, farm and ranch management, and livestock business management. All three concentrations focus on the development of critical thinking, research, and communication skills for students interested in

1. agricultural operations,
2. small rural businesses,
3. community economics,
4. financial institutions,
5. agricultural and natural resources development, and
6. other pursuits where applied economic tools will be useful.

A brief description of minimum course requirements for each of the three concentrations in agricultural business is given below. In addition, professional advisers will work with students to tailor a curriculum to individual interests and goals.

Agribusiness Management Concentration

This curriculum is for students preparing for careers in the agribusiness field. Applied agricultural economics courses are supplemented with marketing, management, finance and other courses from the College of Business and production-oriented courses from other departments in the College of Agriculture and Natural Resources.

Minimum Course Requirements for Agricultural Business (B.S.) Majors within the Agribusiness Management Concentration¹

Hrs.

First-Year Seminar (FYS).....3

Writing9

ENGL 10102 (COM1), Communication II (COM2), AGECE 4965 or AGECE 4970 (COM3)	
Quantitative (Q) (required for major).....	7
MATH 1400; 2350	
Science (PN)	6
Human Culture (H)	6
U.S. & Wyoming Constitutions (V).....	3
Agricultural Economics	24
1010, 1020, 3400, 4050 or MKT 3210 (count for either upper-division AGECE or business credit, but not both), 4060, 4500; either 4450 or 4830 or 4840 or 4880; 3 hours of AGECE electives	
Supporting Agriculture	9
AG College hours other than Agricultural Economics	
Statistics	4
Computers	3
Supporting Economics.....	6
ECON 3010 and 3020	
Business	15
ACCT 2010 and 2020; and 9 hours of 3000-4000 level business courses	
Electives	25

Total Hours 120

¹ A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW.

²Recommend or equivalent COM1 course.

³ Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits.

H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended.

24 credit hours in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level.

COSC 1200 recommended, or IMGT 2400.

Farm and Ranch Management Concentration

This curriculum is for students intending to become operators or professional managers of farms, ranches or feedlots. It is also well suited for students interested in the field of agricultural finance, or a minor in biological fields such as agroecology or range management. In this concentration, courses in farm and ranch management, finance, and

marketing are supplemented by courses in crops, range management, veterinary sciences and animal science, with electives in other areas.

Minimum Course Requirements for Agricultural Business (B.S.) Majors within the Farm and Ranch Management Concentration ¹

Hrs.

First-Year Seminar (FYS).....	3
Writing	9
ENGL 10102 (COM1), Communication II (COM2), AGECE 4965 or AGECE 4970 (COM3)	
Quantitative (Q) (required for major).....	7
MATH 1400; 2350	
Science ³ (PN)	
CHEM 1000 or 1020 or 1050.....	
4	
SOIL 2010	4
One additional PN course	3
Human Culture (H)	6
U.S. & Wyoming Constitutions (V).....	3
Agricultural Economics	28
1010, 1020, 2020, 3400, 4640, 12 hours AGECE electives	
Supporting Agriculture	12
SOIL 2010 and 8 AG College hours other than Agricultural Economics	
Statistics	4
Computers	3
Supporting Economics.....	6
ECON 3010 and 3020	
Business	3
ACCT 2010	
Electives	29
Total Hrs.	120

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW. ² Recommend or equivalent COM1 course. ³ Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits. H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended. 24 credits in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level. COSC 1200 recommended, or IMGT 2400.

Livestock Business Management Concentration

This curriculum is for students intending to work in any sector of the livestock and meat industry, ranging from input suppliers, to ranches, feedlots, meat packing companies, marketing and sales agents, futures/commodities exchange groups, policy makers, and international trade organizations. In this option, courses in farm and ranch management, agricultural finance, marketing, and trade are supplemented with courses in animal science, biology, range management, food science, data analysis, and other disciplines. Students may pursue a minor in Animal Science as part of this option, but can choose the non-minor version instead. Students will gain a broad understanding of both the business and science of the livestock industry.

Minimum Course Requirements for Agricultural Business (B.S.) Majors within the Livestock Business Management Concentration¹

Hrs.

First-Year Seminar (FYS) ²	3
Writing - Communication ²	9
COM1 ² , COM2 ² , COM3 - AGECE 4965 or AGECE 49702	
Quantitative (Q)	7
MATH 14002 ; 2350	
Science (PN) ³	8 CHEM 1000; LIFE 1010
Human Culture (H) ³	6
U.S. & Wyoming Constitutions (V).....	3
Agricultural Economics	31
AGECE 1010, 1020, 2020, 4640, 3400 or 4710, 4060, 4050 or MKT 3210, AGECE 4830 or 48405 , 4880 or 4280 or ECON 4720, AGECE 4500	
Additional Quantitative Skills.....	10
STAT 2050 or 2070; COSC 1200 or IMGT 2400 or AGRI 10106 ; AGECE 4230 or 4840 or STAT 3050 or IMGT 2400 or 3400 or MATH 2355 or ACCT 2010 or 2020	
Biology of Livestock.....	17

LIFE 2022, 3050, FDSC 2040, 3060, ANSC 4540

Additional Biology of Livestock (for Animal Science minor⁷)19

ANSC 2010, 3010, 3100, 4120, PATB 4110, ANSC 3150 or 4220 or 4230 or 4240

Or

Additional Biology of Livestock (for nonminor) 20

ANSC 1010, 2020, 4050, REWM 2000, 4100, REWM 4000 or PATB 4110

Supporting Economics.....3

ECON 3020

Electives3-4

Total Hrs. 120

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW. ² Must earn a "C" or better. ³PN and H may not be fulfilled by AGECE or ECON courses. 31 credits in Ag Econ beyond those earned to satisfy University Studies requirements; 21 of these 31 credit hours must be earned at the 3000-4000 level. AGECE 4840 may not be double-counted towards both Agricultural Economics and Quantitative Skills. Suggest COSC 1200 for most, or IMGT 2400 (for advanced users). Must earn a "C" or better in all courses required in the minor to earn the minor.

Environment and Natural Resources

Students interested in natural resource or environmental issues or careers may complete any of the four options within agricultural business offered by the department with an environment and natural resource emphasis. Inquiries about environment and natural resource concentrations in agricultural business should be directed to the Department of Agricultural and Applied Economics.

Minor Programs

The department also offers five minor programs. These five minors are to give students majoring in other undergraduate curricula in the university a concentration of work in any of the specialized undergraduate curricula offered by the department or in general agricultural economics. Each minor requires 27 hours in prescribed course work including 6 hours in supporting agriculture. Students need to plan their course work to meet course prerequisites.

Agricultural Business Minor. AGECE 1010, 1020, 4050 or MKT 3210, and 4060; ACCT 2010; 6 additional hours in upper-level agricultural economics courses; 6 hours in supporting agriculture courses.

Farm and Ranch Management Minor. AGECE 1010, 1020, 2020 and 4640; 9 additional hours in upper-level agricultural economics courses; 6 hours in supporting agriculture courses.

International Agriculture Minor. AGECE 1010, 1020, 3860 and 4880; 6 additional hours in upper-level agricultural economics courses; 3 hours in foreign culture or language; 6 hours in supporting agriculture courses.

Natural Resource Economics Minor. AGECE 1020, 3750, 4700, 4720; choose 9 additional hours from: AGECE 4450, 4600, 4710, ECON 2400, 4400, 4410, 4520 (note: College of Business prerequisites), ENR 4500.

General Agricultural Economics Minor. AGEC 1010, 1020 and 15 additional hours in agricultural economics courses with 12 hours at the upper-level; 6 hours in supporting agriculture courses.

Graduate Study

The Department of Agricultural and Applied Economics offers graduate work leading to the Master of Science degree. Students may choose among major options in the areas of agricultural and applied economics and agricultural business. The Plan A agricultural economics major emphasizes research with any of the following focus areas:

production economics and management, marketing and market analysis, resource and environmental economics, international agriculture, and economic and rural development.

The Plan B agricultural business option offers advanced skills to students who desire professional careers in the business sector. Students in the agricultural business option may concentrate their coursework and writing in management, marketing, or finance. Dual majors in water resources, and environment and natural resources are also offered.

Finally, the Department offers a graduate minor in applied economics. This program is for currently enrolled graduate students in other disciplines seeking a foundation in economics as well as their major discipline.

Program Specific Admission Requirements

Undergraduate major in agricultural economics or economics is not required.

Students may be required to complete program prerequisite courses, without graduate credit, that were not completed in their undergraduate education.

Specifically, students who have not completed at least one course in calculus, statistics, and intermediate microeconomic theory may be required to complete these courses without graduate credit during their first semester in residence.

Program Specific Degree Requirements

Master of Science in Agricultural Economics

The following courses constitute the M.S. in Agricultural Economics core requirements and are required of all Plan A candidates (22 hours).

Economic Theory

AGEC 5310 Theory of Producer Behavior...	3
AGEC 5630 Advanced Natural Resource Economics	3
AGEC 5710 Advanced Agricultural Market Theory	3
AGEC 5740 Theory of Consumer Behavior	3

Quantitative Methods

AGEC 5230 Intermediate Econometric Theory	3
AGEC 5320 Quantitative Methods in Agricultural Economics.....	3

Research

AGEC 5650 Communicating Research.....3

AGEC 5880 Advanced Seminar.....1

Plan A (thesis):

Minimum of 30 credit hours including AGEC M.S. core requirements, thesis hours and electives. No more than three hours of AGEC coursework numbered below 5000-level count toward the 30 hour requirement. Achieve a cumulative 3.000 GPA in the AGEC M.S. core requirements. The student's graduate committee, nominated by the major professor, the student, and the department head determine the final program of study and thesis research topic. Presentation of research results at a formal public seminar. Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Plan B (non-thesis):

Minimum of 32 hours of coursework; Non-thesis business analysis paper accepted by the student's graduate committee. Minimum of 13 credit hours of agricultural economics coursework numbered at the 5000-level are required, including:

AGEC 5310

AGEC 5740

AGEC 5880

AGEC 5630 or 5710

AGEC 5320 or 5230

In addition, students are required to complete 3 credit hours from each of the following three areas:

Management:

AGEC 4060, 4640 or 5460; or MGT 4410, 4420, 4440, 4470, or 4520

Marketing:

AGEC 4050, 4830, 4840, 4880, or 5710; or MKT 4240, 4430, 4520, or 4540

Finance:

AGEC 4500; or FIN 4510, 4520, 4610, 4810; or ECON 4740

Remaining credit hours will be filled with electives. The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic. Presentation of the business analysis paper at a formal public seminar. An internship experience is strongly encouraged as part of the agricultural business option (AGEC 5990).

Master of Science in Agricultural Economics/ Water Resources; Plan A (thesis):

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 10 credit hours in water resources approved courses. Please refer to Water Resources Degree program in this Catalog for updated degree requirements. Achieve a cumulative 3.000 GPA in the AGEC M.S. core requirements. The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the water resources area. Presentation of research

results at a formal public seminar. Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Master of Science in Agricultural Economics/Environment and Natural Resources (ENR); Plan A (thesis):

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 15 credit hours in environment and natural resources, as approved by the student's committee and the ENR academic adviser. Achieve a cumulative 3.000 GPA in the AGECE M.S. core requirements. The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the area of environment and natural resources. Presentation of research results at a formal public seminar. Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Graduate Minor in Applied Economics:

Graduate standing. AGECE 4640, AGECE 5310 or 5740, AGECE 5320 or 5230, and 6 additional credits of approved courses. Committee selection for the student's major thesis or dissertation committee should include at least one faculty member from AGECE.

Major

Agricultural Business, Agribusiness Management Option, B.S.

Prepare for careers across agribusiness and business sectors. Agricultural economics is supplemented with business and agricultural science courses to prepare you for a wide range of careers in the agricultural supply chain.

Minimum Course Requirements

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW1

- First-Year Seminar Credits: 3 (FYS)
- Science Credits: 6³ (PN)
- Human Culture Credits: 6⁴ (H)
- U.S. & Wyoming Constitutions Credits: 3 (V)
- Supporting Agriculture Credits: 9 (AG College hours other than Agricultural Economics)
- Statistics Credits: 4
- Computers Credits: 3⁶
- Electives Credits: 25

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Writing: 9 Hours

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

- Communication II (COM2)

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

OR

AGEC4970 - Technical Communication for Agribusiness

Credits: 3

This course is the senior capstone for agribusiness majors. Students will use written, oral, and digital communication appropriate for the discipline to complete a technical report and oral presentation on a complex topic affecting agriculture or natural resources.

USP 2003-2014 Code U5C3

Quantitative (Q): 7 Hours

(Required for Major)

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

Agricultural Economics: 24 Hours

⁵24 credit hours in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)
USP 2003-2014 Code U3WB
Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)
Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.
OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 and MATH 1400.

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

OR

AGEC4830 - Agricultural Commodities and Futures Markets

Credits: 3

Economics of price determination for agricultural commodities and development of pricing strategies in cash and futures markets.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or equivalent.

OR

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

OR

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

- 3 hours of AGECElectives

Supporting Economics: 6 Hours

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Business: 15 Hours

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

- 9 hours of 3000-4000 level business courses

Total Hours: 120

² Recommend or equivalent COM1 course.

³ Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits.

⁴ H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended.

⁶ COSC 1200 recommended, or IMGT 2400.

Agricultural Business, B.S.

The Department of Agricultural and Applied Economics offers three options within the agricultural business bachelor of science degree program. They are agribusiness management, farm and ranch management, and livestock business management. All three options focus on the development of critical thinking, research, and communication skills for students interested in

1. agricultural operations,
2. small rural businesses
3. community economics,
4. financial institutions,
5. agricultural and natural resources development, and
6. other pursuits where applied economic tools will be useful.

The agricultural business curriculum is designed to enable our students to:

1. communicate effectively economic, agricultural, business decision-making and natural resource concepts,
2. fit into a business, agency, or academic environment and use economic concepts to quantify and analyze relevant issues, and
3. be familiar with issues related to agriculture, natural resources, and rural communities.

Options

A brief description of minimum course requirements for each of the four options in agricultural business is given below. In addition, professional advisers will work with students to tailor a curriculum to individual interests and goals.

- Agricultural Business, Agribusiness Management Option, B.S.
- Agricultural Business, Farm and Ranch Management Option, B.S.
- Agricultural Business, Livestock Business Management Option, B.S.

Environment and Natural Resources

Students interested in natural resource or environmental issues or careers may complete any of the four options within agricultural business offered by the department with an environment and natural resource emphasis. Inquiries about environment and natural resource concentrations in agricultural business should be directed to the Department of Agricultural and Applied Economics.

Agricultural Business, Farm and Ranch Management Option, B.S.

Combine courses in farm and ranch management, finance and marketing with crop, range, veterinary and animal sciences to prepare for a career managing farms, ranches, or feedlots.

Minimum Course Requirements

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW.

- First-Year Seminar Credits: 3 (FYS)
- Human Culture Credits: 6 ⁴ (H)
- U.S. & Wyoming Constitutions Credits: 3 (V)
- Statistics Credits: 4
- Computers Credits: 3 ⁶
- Electives Credits: 29

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Writing: 9 Hours

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

- Communication II (COM2)

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

OR

AGEC4970 - Technical Communication for Agribusiness

Credits: 3

This course is the senior capstone for agribusiness majors. Students will use written, oral, and digital communication appropriate for the discipline to complete a technical report and oral presentation on a complex topic affecting agriculture or natural resources.

USP 2003-2014 Code U5C3

Quantitative (Q): 7 Hours

(Required for Major)

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

Science (PN):

³Credits earned in USP approved science courses offered within the College of Agriculture and Natural Resources shall also serve as Supporting Agriculture credits.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

OR

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

- One additional PN course Credits: 3

Agricultural Economics: 28 Hours

24 credits in Ag Econ beyond those earned to satisfy University Studies requirements. 18 of these 24 credit hours must be at the 3000-4000 level.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

- 12 hours AGEC electives

Supporting Agriculture: 12 Hours

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

- 8 AG College hours other than Agricultural Economics

Supporting Economics: 6 Hours

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Business: 3 Hours

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

Total Hours: 120

² Recommend or equivalent COM1 course.

⁴ H requirement cannot be fulfilled with AGECE or ECON courses; USP-approved H language courses are recommended.

⁶ COSC 1200 recommended, or IMGT 2400.

Agricultural Business, Livestock Business Management Option, B.S.

Build skills to work in any sector of the livestock and meat industry, from input suppliers to meat processing, by combining courses in farm and ranch management, finance and marketing, with animal, range and food science, biology, and data analysis.

Minimum Course Requirements

¹A minimum of 42 credits must be at the 3000 and 4000 level for graduation. At least 30 of the 42 credits must be earned from UW.

- First-Year Seminar Credits: 3 ² (FYS)
- Human Culture Credits: 6 ³ (H)
- U.S. & Wyoming Constitutions Credits: 3 (V)
- Electives Credits: 3-4

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Writing - Communication: 9 Hours

²Must earn a "C" or better.

- COM1 ²
- COM2 ²

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

OR

AGEC4970 - Technical Communication for Agribusiness

Credits: 3

This course is the senior capstone for agribusiness majors. Students will use written, oral, and digital communication appropriate for the discipline to complete a technical report and oral presentation on a complex topic affecting agriculture or natural resources.

USP 2003-2014 Code U5C3

Quantitative (Q): 7 Hours

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2350 - Business Calculus

Credits: 4

Primarily for students in the College of Business. Includes an introduction to limits; the definition of a derivative; derivatives and their applications; antiderivatives; definite integrals and their applications. The applications emphasize concepts of interest to business majors.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

Science (PN): 8 Hours

³PN and H may not be fulfilled by AGEC or ECON courses.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Agricultural Economics: 31 Hours

⁴31 credits in Ag Econ beyond those earned to satisfy University Studies requirements; 21 of these 31 credit hours must be earned at the 3000-4000 level.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

OR

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 and MATH 1400.

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction;

branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.

OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

AGEC4830 - Agricultural Commodities and Futures Markets

Credits: 3

Economics of price determination for agricultural commodities and development of pricing strategies in cash and futures markets.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or equivalent.

OR

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

OR

AGEC4280 - International Food and Farm Cultures

Credits: 3

Study-tour course in western France of lectures, fieldtrips, and other cultural activities are integrated into a curriculum to study sustainable food cultures and farming systems. Students live with host families and learn about current policies, belief systems and cultural practices that guide food production, consumption and marketing in Europe.

USP 2003-2014 Code U3G

Prerequisite: completion of WA/COM1 and I/FYS.

OR

ECON4720 - International Trade

Credits: 3

The gains from specialization and trade are studied, as are explanations of trade patterns among countries, policies affecting trade such as tariffs, quotas, tax breaks, subsidies, cartels and price stabilization plans. Topics on labor migration and multinational corporations are covered.

When Offered (Normally offered fall semester)

Prerequisite: ECON 3020 and Junior class standing.

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

Additional Quantitative Skills: 10 Hours

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC1200 - Computer Information Systems

Credits: 3

Introduces computers and information processing, computer systems and hardware, computer software, information processing systems, information systems and information resource management. Uses word processing, data base language and electronic spreadsheet program in hands-on exercises.

Prerequisite: passing of Mathematics Placement Examination at Level 2 or equivalent.

OR

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

OR

- AGRI 1010 ⁶

AGEC4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 4230

Dual Listed AGEC 5230

When Offered (Normally offered spring semester)

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

OR

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

OR

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

OR

- IMGT2400 - Introduction to Information Management Credits: 3

OR

MATH2355 - Mathematical Applications for Business

Credits: 4

Primarily for students in the College of Business. Includes the mathematics of finance; systems of linear equations and matrices; linear programming; sets, counting, and probability. Students will learn to use Excel spreadsheets to solve business application problems in a computer lab that meets one day per week.

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

OR

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

OR

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

Biology of Livestock: 17 Hours

- LIFE 2020

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

FDSC2040 - Principles of Meat Animal Evaluation

Credits: 3

Live animal and carcass evaluation of beef, sheep and swine. Slaughter, meat inspection and anatomy are discussed.

When Offered (Normally offered spring semester)

FDSC3060 - Principles of Meat Science and Muscle Biology

Credits: 3

Principles of muscle, adipose, and connective tissue growth, structure and metabolism; conversion of muscle into meat; fresh meat properties and quality; chemical properties of meat; meat microbiology, preservation and storage; meat by-products; HACCP.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000 and LIFE 1010.

ANSC4540 - Principles of Animal Breeding

Credits: 3

Discusses genetic principles underlying animal improvement; introductory population genetics; heritability; systems of mating; and selection.

Dual Listed ANSC 5540.

When Offered (Normally offered fall semester)

Prerequisite: STAT 2050 or STAT 2070.

Additional Biology of Livestock

For Animal Science minor: 19 Hours

⁷Must earn a "C" or better in all courses required in the minor to earn the minor.

ANSC2010 - Domestic Animal Metabolism

Credits: 3

Integrates cellular and whole-animal metabolism through introduction to metabolic regulation. Introduces students to the nomenclature, structures and functions of cellular metabolites and vitamins. Knowledge of chemical structure will be applied to cellular reactions in various tissues of domestic animals. Ruminants and non-ruminants will be contrasted.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

OR

ANSC4220 - Advanced Beef Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in beef production management schemes. Emphasizes analysis and decision making. Consists of two hours of lecture and two hours of lab, with approximately one-half of labs meeting at Animal Science Livestock Center.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120 , ANSC 4540 .

OR

ANSC4230 - Advanced Sheep Production & Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in sheep production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120, ANSC 4540.

OR

ANSC4240 - Advanced Swine Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in swine production management schemes. Consists of two hours of lecture and two hours of lab, with at least one-half of labs meeting at Animal Science Livestock Center.

Former Course Number [3330]

Prerequisite: ANSC 3100, ANSC 4120, or ANSC 4540.

For Non-minor: 20 Hours

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

ANSC4050 - Animal Growth and Development

Credits: 3

Explores aspects of animal growth and development, with a focus on skeletal muscle, adipose, soft connective tissues, and bone. Addresses genetic, endocrine, nutritional, and environmental impacts on tissue development and growth.

Dual Listed ANSC 5050.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2022.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

OR

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

Supporting Economics: 3 Hours

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Total: 120 Hours

²Must earn a "C" or better.

⁵AGEC 4840 may not be double-counted towards both Agricultural Economics and Quantitative Skills.

⁶Suggest COSC 1200 for most, or IMGT 2400 (for advanced users).

⁷Must earn a "C" or better in all courses required in the minor to earn the minor.

Agricultural Communications, B.S.

Courses in agriculture, communications, and journalism prepare students for careers as broadcasters, editors or writers for farm and home organizations, state and federal agencies, magazines, newspapers, radio, television, and commercial businesses.

Minimum Requirements

University Studies Program Requirements: 30 Hours

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Communications/Journalism Core: 36 Hours

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

AND

3 hours COJO/COMM Elective - ANY LEVEL

AND

12 hours COJO Electives - UPPER DIVISION

Agriculture Core Requirements: 36 Hours

At least 18 hours must be lower division (Ag 1000-2000) elective courses, and at least 12 hours must be upper division (Ag 3000-4000) elective courses and include

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB
USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FDSC1410 - Scientific Study of Food

Credits: 3

Scientific Study of Food is an introductory course in the science of food, which includes selection, preparation, to meet physical, psychological, and social needs. This course fulfills the Physical and Natural World USP.

When Offered (Normally offered fall semester)
USP 2003-2014 Code PN

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)
OR

ANSC2020 - Feeds and Feeding

Credits: 4
Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

FDSC2040 - Principles of Meat Animal Evaluation

Credits: 3
Live animal and carcass evaluation of beef, sheep and swine. Slaughter, meat inspection and anatomy are discussed.

When Offered (Normally offered spring semester)
OR

PLNT2200 - Field Crop Production

Credits: 3
Provides students with a fundamental understanding of production cropping systems. Students will gain basic knowledge of major food crops, tillage systems, crop rotations, fertilization, irrigation, crop development, pest management, and other topics related to field crops.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 1000 or concurrent enrollment
OR

REWM2000 - Principles of Rangeland Management

Credits: 3
Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

AND

12 hours of UPPER DIVISION Electives from AECL, AGECL, AGRI, ANSC, ENTO, FCSC, FDSC, MICR, MOLB, PATB, PLNT, REWM, SOIL

AGRI4975 - Agricultural Communications Senior Project

Credits: 1
A baccalaureate degree capstone experience incorporating self assessments of student learning, reflective writings, and an analysis, synthesis and evaluation of the agricultural communications curriculum. Students develop and present a

personalized, comprehensive, professional portfolio.

Prerequisite: agricultural communication major with senior standing and WB.

Supporting Course Requirement: 4 Hours

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Additional Hours for Major and Electives: 14 Hours

8 hours of General Electives ANY DIVISION

6 hours of General Electives UPPER DIVISION

Total Hours: 120

Additional Requirements

Agricultural communication majors will also complete an internship in their field. A variety of opportunities are available, and students can work with their advisor to determine an appropriate internship for their area of emphasis.

Students wishing to pursue an area of emphasis in the agricultural communications option are encouraged to also select a minor. The college currently offers a variety of minors, and any of these can help to better prepare students for employment or graduate work.

Minor

Agricultural Business Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and

inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)
Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.
OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)
Prerequisite: AGEC 1020 and MATH 1400.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

- 6 additional hours in upper-level agricultural economics courses;
- 6 hours in supporting agriculture courses.

Applied Economics Minor

Graduate standing.

Committee selection for the student's major thesis or dissertation committee should include at least one faculty member from AGECE.

Courses Required

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGECE 1020, AGECE 2020 and MATH 1400.

AGEC5310 - Theory of Producer Behavior

Credits: 3

Economic models of optimization as they apply to firm-level production decisions. Topics include the properties of production functions, theories of linear and non-linear optimization, firm decision making under perfect and imperfect competition and firm decision making under uncertainty.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

OR

AGEC5740 - Consumer Behavior and Prices Analysis

Credits: 3

Focuses on microeconomic consumer theory and its application. Topics include utility theory, market demand theory, expected utility theory, and econometric applications.

Prerequisite: ECON 3020, MATH 2350 and STAT 2050.

AGEC5320 - Quantitative Methods in Agricultural Economics

Credits: 3

Covers mathematical programming and simulation techniques for solving applied problems in agricultural economics. Emphasizes the formulation of economic research problems in quantitative terms and the use of computer software packages to derive solutions.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

OR

AGEC5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variables, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 5230.

Dual Listed AGEC 4230.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

- 6 additional credits of approved courses.

Farm and Ranch Management Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC2020 - Farm and Ranch Business Management

Credits: 4

Discusses economic principles, business methods and science applied to organization and operation. Includes measurements of size of business; rate and efficiency of production.

When Offered (Normally offered spring semester)

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

- 9 additional hours in upper-level agricultural economics courses;
- 6 hours in supporting agriculture courses.

General Agricultural Economics Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

- 15 additional hours in agricultural economics courses with 12 hours at the upper-level;
- 6 hours in supporting agriculture courses.

International Agricultural Minor

Courses Required

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC3860 - World Food, Ag, & Development

Credits: 3

Explores economic approaches to improving nutrition, agriculture production, and the environment in developing regions of the world. Students gain understanding of complex conditions surrounding food security; institutions involved with food policy, aid, and production; environmental factors influencing agricultural production; inequality; and international cultural and societal food disparities.

Cross Listed INST 3860.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3G

USP 2015 Code U5H

Former Course Number [4860]

Prerequisite: AGEC 1010/ECON 1010 or AGEC 1020.

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

- 6 additional hours in upper-level agricultural economics courses;
- 3 hours in foreign culture or language;
- 6 hours in supporting agriculture courses.

Natural Resource Economics Minor

Courses Required

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

Choose 9 Additional Hours From:

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

AGEC4600 - Community Economic Analysis

Credits: 3

Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic analysis, fiscal impact analysis and benefit cost analysis.

Dual Listed AGEC 5600.

USP 2015 Code U5H

Prerequisite: ECON 3010, ECON 3020, and MATH 1400.

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4520 - Public Economics

Credits: 3

Studies the role of government within a market economy. The focus is on how governments fund and provide non-market goods demanded by society, e. g. , health care, military, education. Examines public goods, taxation, environmental challenges, affects on economic growth and stability, benefit-cost analysis, and state/local finance.

Prerequisite: ECON 3010, ECON 3020.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication,

management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

Graduate

Agricultural Economics, M.S.

Degree Requirements

The following courses constitute the M.S. in Agricultural Economics core requirements and are required of all Plan A candidates (22 hours).

Economic Theory

AGEC5310 - Theory of Producer Behavior

Credits: 3

Economic models of optimization as they apply to firm-level production decisions. Topics include the properties of production functions, theories of linear and non-linear optimization, firm decision making under perfect and imperfect competition and firm decision making under uncertainty.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

AGEC5710 - Advanced Agricultural Market Theory

Credits: 3

Theoretical foundations of the study of agricultural markets and how business is conducted in those markets. Topics include pure competition, industrial organization concepts related to imperfect competition including game theory, principal-agent theory, transaction costs economics, intermediary theory, and welfare implications of alternative agricultural market structures.

Prerequisite: ECON 3020 and MATH 2350.

AGEC5740 - Consumer Behavior and Prices Analysis

Credits: 3

Focuses on microeconomic consumer theory and its application. Topics include utility theory, market demand theory, expected utility theory, and econometric applications.

Prerequisite: ECON 3020, MATH 2350 and STAT 2050.

Quantitative Methods

AGEC5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variables, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 5230.

Dual Listed AGEC 4230.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5320 - Quantitative Methods in Agricultural Economics

Credits: 3

Covers mathematical programming and simulation techniques for solving applied problems in agricultural economics. Emphasizes the formulation of economic research problems in quantitative terms and the use of computer software packages to derive solutions.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

Research

AGEC5650 - Communicating Research

Credits: 3

Focuses on the broad methods, and written and oral communication of research in applied economics. Topics include formulating a research question, organizing a manuscript, editing for clarity and conciseness, building effective figures and tables, finding and citing literature, developing and delivering effective presentations, and upholding research ethics.

Prerequisite: graduate standing.

AGEC5880 - Advanced Seminar

Credits: 1-2
Max Credit (Max. 2)

Involves reporting to the seminar group on research methods and results obtained in the investigation of a topic or question relevant to the field of agricultural economics.

Prerequisite: 9 credits in AGECE and/or ECON.

Plan A (Thesis):

Minimum of 30 credit hours including AGECE M.S. core requirements, thesis hours and electives.

No more than three hours of AGECE coursework numbered below 5000-level count toward the 30 hour requirement.

Achieve a cumulative 3.000 GPA in the AGECE M.S. core requirements.

The student's graduate committee, nominated by the major professor, the student, and the department head determine the final program of study and thesis research topic.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Plan B (Non-thesis):

Minimum of 32 hours of coursework;

Non-thesis business analysis paper accepted by the student's graduate committee.

Minimum of 13 credit hours of agricultural economics coursework numbered at the 5000-level are required, including:

AGEC5310 - Theory of Producer Behavior

Credits: 3

Economic models of optimization as they apply to firm-level production decisions. Topics include the properties of production functions, theories of linear and non-linear optimization, firm decision making under perfect and imperfect competition and firm decision making under uncertainty.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

AGEC5740 - Consumer Behavior and Prices Analysis

Credits: 3

Focuses on microeconomic consumer theory and its application. Topics include utility theory, market demand theory, expected utility theory, and econometric applications.

Prerequisite: ECON 3020, MATH 2350 and STAT 2050.

AGEC5880 - Advanced Seminar

Credits: 1-2
Max Credit (Max. 2)

Involves reporting to the seminar group on research methods and results obtained in the investigation of a topic or question relevant to the field of agricultural economics.

Prerequisite: 9 credits in AGECE and/or ECON.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3
An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.
OR

AGEC5710 - Advanced Agricultural Market Theory

Credits: 3
Theoretical foundations of the study of agricultural markets and how business is conducted in those markets. Topics include pure competition, industrial organization concepts related to imperfect competition including game theory, principal-agent theory, transaction costs economics, intermediary theory, and welfare implications of alternative agricultural market structures.

Prerequisite: ECON 3020 and MATH 2350.

AGEC5320 - Quantitative Methods in Agricultural Economics

Credits: 3
Covers mathematical programming and simulation techniques for solving applied problems in agricultural economics. Emphasizes the formulation of economic research problems in quantitative terms and the use of computer software packages to derive solutions.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.
OR

AGEC5230 - Intermediate Econometric Theory

Credits: 3
Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy

variables, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed ECON 5230.

Dual Listed AGEC 4230.

Prerequisite: ECON 3020, STAT 2050 and MATH 2350.

In Addition:

Students are required to complete 3 credit hours from each of the following three areas:

Management:

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 and MATH 1400.

AGEC4640 - Advanced Farm/Ranch Management

Credits: 3

Tools of management decision-making applied to problems of farm-ranch management and resource acquisition and use.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020, AGEC 2020 and MATH 1400.

OR

- AGEC 5460

OR

- MGT 4410
- MGT 4420
- MGT 4440

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

OR

- MGT 4520

Marketing:

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or ECON 1020 and MATH 1400.

AGEC4830 - Agricultural Commodities and Futures Markets

Credits: 3

Economics of price determination for agricultural commodities and development of pricing strategies in cash and futures markets.

When Offered (Normally offered fall semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4840 - Agricultural Market Analysis

Credits: 3

Applies economic theory to an analysis of economic organization and operation of agricultural markets, including price behavior.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: MATH 1400 and ECON 3020.

AGEC4880 - International Agricultural Trade, Markets and Policy

Credits: 3

International agricultural commodity markets, product markets and market channels are characterized and examined. Presents economic theory relevant to description and analysis of international markets. Characterizes and analyzes historical and contemporary U. S. commercial trade policy and agricultural policy and their effect on markets.

When Offered (Normally offered spring semester of even-numbered years)

USP 2003-2014 Code U3G

Prerequisite: ECON 3020 and junior or senior standing.

OR

AGEC5710 - Advanced Agricultural Market Theory

Credits: 3

Theoretical foundations of the study of agricultural markets and how business is conducted in those markets. Topics include pure competition, industrial organization concepts related to imperfect competition including game theory, principal-agent theory, transaction costs economics, intermediary theory, and welfare implications of alternative agricultural market structures.

Prerequisite: ECON 3020 and MATH 2350.

OR

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4430 - Marketing Management

Credits: 3

Analysis of policy-making and operating decisions of the marketing manager and the tools available to aid in solving marketing problems.

Prerequisite: MKT 2100, MGT 2100, STAT 2050 or equivalent.

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

OR

MKT4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed INST 4540.

Prerequisite: MKT 2100 and junior class standing.

Finance:

AGEC4500 - Agricultural Finance

Credits: 3

Principles of financial management; compounding and discounting; leverage and capital budgeting and alternatives in resource control.

When Offered (Normally offered spring semester)

Former Course Number [650]

Prerequisite: AGEC 1020 or equivalent.

OR

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

- FIN 4520
- FIN 4610

FIN4810 - Real Estate Investment

Credits: 3

Covers advance real estate investment topics such as investments risk and valuation sensitivity analysis, futures and real options, liquid real estate investments, analysis of development projects, and commercial mortgage backed securities. While the theory the topics will be presented, the course focus is on the application of the material.

Prerequisite: FIN 2100 and advanced business standing

OR

ECON4740 - International Economics and Policy

Credits: 3

The focus is on foreign exchange markets, balance of payments analysis and effects of international trade and capital flows on the domestic economy. Policies to correct payment deficits, gold, international liquidity and international financial institutions are studied.

Prerequisite: ECON 3010 and ECON 3020; QA.

Remaining Credit Hours

Remaining credit hours will be filled with electives.

The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic.

Presentation of the business analysis paper at a formal public seminar.

An internship experience is strongly encouraged as part of the agricultural business option (AGEC 5990).

Agricultural Economics/Environment and Natural Resources, M.S.

Plan A (Thesis)

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 15 credit hours in environment and natural resources, as approved by the student's committee and the ENR academic adviser.

Achieve a cumulative 3.000 GPA in the AGECE M.S. core requirements.

The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the area of environment and natural resources.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Agricultural Economics/Water Resources, M.S.

The objective of this program is to provide students with specialized study in water resources and to signify this specialization by the designation of the water resources interdisciplinary major on the transcript.

Coursework and Thesis

Students must complete the 24 credit hour agricultural and applied economics including M.S. core requirements plus 4 thesis hours and 9 credit hours in water resources approved courses.

Achieve a cumulative 3.000 GPA in the AGECE M.S. core requirements.

The candidate's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and thesis research topic, which must be in the water resources area.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the graduate committee.

Oral Exam Requirement

In addition to coursework and a Plan A Thesis, students must pass a final oral examination. The student's committee may also require a written examination.

Interdisciplinary Component

nine hours (see Water Resources degree requirements)

Plan A (Thesis)

Students must complete the 20 credit hour agricultural and applied economics M.S. core requirements plus 4 thesis hours and 10 credit hours in water resources approved courses.

Please refer to Water Resources Degree program in this *Catalog* for updated degree requirements.

Achieve a cumulative 3.000 GPA in the AGECE M.S. core requirements.

The student's graduate committee, nominated by the major professor, the student and the department head determine the final program of study and business analysis topic, which must be in the water resources area.

Presentation of research results at a formal public seminar.

Completion of an oral examination covering the student's thesis research administered by the student's graduate committee.

Department of Animal Science

Animal Science/Molecular Biology Bldg., Rm 101

(307) 766-2224

FAX: (307) 766-2355

Web site: uwyo.edu/anisci

Department Head: Bledar Bisha

Professors:

BRENDA M. ALEXANDER, B.S. University of Wyoming 1986; M.S. 1988; Ph.D. 1999; Professor of Animal Science 2019, 2006.

SCOTT L. LAKE, B.S. University of Nevada 1998; M.S. 2001; Ph.D. University of Wyoming 2005; Professor of Animal Science 2021, 2014, 2008. Extension Livestock Specialist. Director of Laramie R&E Center.

JAMES K. PRU, B.S. 1991 and M.S. 1993 Zoology and Physiology, University of Wyoming; Ph.D. Molecular Reproductive Biology University of Wyoming 2000; Professor and Rochelle Chair of Animal Science 2021.

Associate Professors:

BLEDAR BISHA, D.V.M. Agricultural University of Tirana-Albania 1999; M.S. Iowa State University 2004; Ph.D. 2009; Associate Professor of Animal Science 2019, 2013.

PAUL A. LUDDEN, B.S. University of Nebraska-Lincoln 1991; M.S. Purdue University 1994; Ph.D. University of Missouri-Columbia 1997; Associate Professor of Animal Science 2004, 1998.

WARRIE J. MEANS, B.S. Colorado State University 1979; M.S. 1982; Ph.D. 1985; Associate Professor of Animal Science 2002, 1992.

STEVEN I. PAISLEY, B.S. University of Wyoming 1993; M.S. 1995; Ph.D. Oklahoma State University 1998; Extension Beef Cattle Specialist; Associate Professor of Animal Science 2007, 2001. Director of SAREC R&E Center.

Assistant Professors:

JEREMY BLOCK, B.S. University of Missouri 1998; M.S. University of Florida 2003; Ph.D. 2007; Assistant Professor of Animal Science 2020.

HANNAH C. CUNNINGHAM-HOLLINGER, B.A. St. Olaf College 2012; M.S. University of Wyoming 2014; Ph.D. 2018; Assistant Professor of Animal Science 2019.

CODY GIFFORD, B.S. 2013, M.S. 2016; Ph.D. Colorado State University 2019; Assistant Professor of Animal Science 2019.

SHELBY ROSASCO, B.S. California State University 2012; M.S. New Mexico State University 2016; Ph.D. New Mexico State University 2020; Assistant Professor of Animal Science 2020.

WHIT STEWART, B.S. Brigham Young University-Idaho 2008; M.S. Oregon State University 2010; Ph.D. New Mexico State University 2015; Assistant Professor of Animal Science 2017.

Academic Professional Lecturers:

JENNIFER A. INGWERSON-NIEMANN, B.S. University of Nebraska-Lincoln 2005; M.S. Iowa State University 2014; Academic Professional Lecturer in Animal Science 2014.

McKENZIE K. PHILLIPS, B.S. University of Wyoming 2015; M.S. Texas A&M University 2017; Assistant Lecturer in Animal Science 2018.

Adjunct Professors:

Kristi Cammack, Jeff Chandler, Thomas Hansen, John Johnston, Tom McDonald, Peter Nathanielsz, Mark Nijland, Heywood Sawyer, Donal Skinner, D. Paul Thomas, Meijun Zhu

Professors Emeriti:

Ray Field, Bret Hess, Frank Hinds, Doug Hixon, Steven W. Horn, Conrad Kercher, Richard J. McCormick, Gary Moss, William Murdoch, Johannes Nel, Bibek Ray

The Department of Animal Science offers a variety of courses in animal and food science. The department uses modern laboratories and excellent animal facilities including a livestock teaching arena and a meat processing facility.

The Department of Animal Science and the Department of Veterinary Science have a combined curriculum, under Animal and Veterinary Science (ANVS). The curriculum has options in production, range livestock, business,

communication, animal biology, preveterinary medicine, meat science and food technology, and equine science. The curriculum leads to a wide variety of career opportunities for animal and veterinary science graduates.

B.S. in Animal and Veterinary Science

The Department of Animal Science and the Department of Veterinary Sciences have combined their efforts to offer several degree options leading to the bachelor of science degree in animal and veterinary science. Courses in animal science, food science, and pathobiology are the core offerings in the various options. Agriculture, in its broadest definition, is the nation's largest industry. Livestock production is Wyoming's largest agricultural enterprise. Animal agriculture and its associated industries offer many opportunities for the interested student. Whether a student is interested in production livestock, allied fields such as meat science, business or animal health, or wants to apply to a college of veterinary medicine, the degree tracks offered will form the basis for a challenging career in animal agriculture/biology. The various options provide maximum flexibility to meet the changing needs of students and their employers. For students interested in pursuing advanced research, M.S. and Ph.D. degrees are offered. Several degree options allow for specialization and graduate or professional school preparation. A brief description of each option and the educational opportunities they provide is given with the course requirements. A grade of C or better must be earned in the following courses when the courses are required in the individual option for completion of the degree: ANSC 3010, 3100, 4120, 4540, 4630; FDSC 3060, PATB 4110, PATB 4111, LIFE 1010, 2022. Students are encouraged to participate in activities related to their degree option. The university has livestock, horse and meats judging teams. Each team travels and participates in at least one major exposition a year. Each year, the Academic Quadrathlon competition is held, combining practical and classroom skills for students. Field trips, as practical teaching aids in many classes, are scheduled throughout the year. Internships are available to gain practical experience. Student organizations such as the Block and Bridle Club, Food Science Club, Microbiology Club, Range Club, the Pre-vet Club, Wyoming Collegiate Cattlemens Association, and the Ranch Horse Team provide additional educational and recreational opportunities.

Production Option

This option provides a strong background in livestock production and management. Students interested in livestock production should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 2020, 3010*, 3100*, 4120*, 4540*, 4630* (COM3) and two courses selected from ANSC 3150, 4220, 4230, or 4250; FDSC 2040, 3060*; PATB 4110*

Agricultural Sciences.....

Required courses: AGEC 1020 (H), 2020; REWM 2000

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Range Livestock Option

This option emphasizes range livestock management. Students interested in the management of livestock and range resources should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 2020, 3010*, 3100*, 4120*, 4150, 4220, and one course selected from ANSC 3150, 4230, or 4250; 4540*, 4630* (COM3); FDSC 2040, 3060*; PATB 4110*

Rangeland Ecology and Watershed Management.....

Required courses: REWM 2000, 2400, 4000, 4330; LIFE 3400

Agricultural Sciences.....

Required courses: AGECE 1020 (H), 2020

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Business Option

Students desiring a strong background in business in addition to the basic courses in animal and veterinary science should enroll in this option. Graduates will be qualified for careers in the livestock agribusiness industry.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 2020, 3010*, 3100*, 4120*, 4540*, 4630* (COM3) and two courses selected from ANSC 3150, 4220, 4230, or 4250; FDSC 3060*; PATB 4110*

Agricultural Economics and Business.....

Required courses: AGECE 1010 (H), 1020 (H), 3860 or 4880; AGECE 4060 or MGT 3210; AGECE 4050 or MKT 3210; ACCT 2010

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Communication Option

Students in this option obtain a basic education in animal and veterinary science and also acquire in-depth communication skills. Students interested in careers in agriculture communications with emphasis on the livestock industry should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses:

ANSC 1010, 2020, 3010*, 3100*, 4120*, 4540*, 4630* (COM3) and two courses selected from ANSC 3150, 4220, 4230, 4240, or 4250; FDSC 3060*; PATB 4110*

Communication.....

Required courses: COMM 2010* (COM2), plus 14 additional credit hours in COJO/COMM

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Animal Biology Option

This option within the major requires more complete and stringent basic sciences. Students may complete premedical requirements or other pre-professional allied health requirements while completing a B.S. degree that prepares them for alternate career choices. Selected courses provide opportunity for more complete exposure in both biological sciences and pathobiology. Possible alternatives to professional schools include graduate school admission or employment by government or industry in research, promotion or sales. Because of the variation in pre-professional requirements for different professional programs, students are encouraged to determine the specific requirements of the programs in which they are interested.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 3010*, 3100*, 4120*, 4630* (COM3); FDSC 3060*

Agricultural Sciences.....

Required courses: MICR/ MOLB 2021 or 2240; MOLB 3610; MOLB 4100 or MOLB 4600 and 4610

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1020 (PN), 1030 (PN), 2300 or CHEM 2420 and 2440; PHYS 1050 or PHYS 1110 and PHYS 1120; ZOO/PSYC 3600; MATH 1400 (Q) and 1405 (Q) or MATH 1450 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Meat Science and Food Technology Option

Students taking this option will have an excellent background for entering the meat industry. The food industry is the largest employer in this country and offers a wide variety of career opportunities.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 3010*, 3100*, 4050, 4630* (COM3); PATB 4110*

Food Science.....

Required courses: FDSC 1410, 2040, 3060*, 3062, 3063, 3720, 4090, 4100, 4900

Agricultural Sciences.....

Required courses: AGECE 1020 (H), AGECE 3860, MICR/MOLB 2021

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN); CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); Stat 2050 (Q) or 2070 (Q)

Suggested courses.....

FDSC 3061

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Pre-Veterinary Medicine Option

This option is especially designed to prepare students for application to colleges of veterinary medicine. There is a strong emphasis on the biological, biomedical and physical sciences. This curriculum is also appropriate for students wishing to pursue graduate school opportunities, other professional school applications, or careers in many areas of agribusiness. A minimum of three years of formal course work is required before one can apply to a college of veterinary medicine. Students accepted before completion of their B.S. degree can transfer credits back to UW to complete their degree requirements. Wyoming does not have a college of veterinary medicine. Faculty advisers insure that students meet the variable preveterinary requirements for application to colleges of veterinary medicine in their home state or region.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 3010*, 3100*, 4120*; one course selected from ANSC 3150, 4220, 4230, or 4250; ANSC 4630* (COM3) or PATB 4130* (COM3); PATB 4110*, 4500, 4710, PATB/MOLB 4400

Agricultural Sciences.....

Required courses: MICR/MOLB 2021, MICR/PATB 2220; MOLB 3610

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1020 (PN), 1030 (PN), 2420, 2440; PHYS 1110, 1120; MATH 1400 (Q) and 1405 (Q) or MATH 1450 (Q); STAT 2050 (Q) or 2070 (Q)

Suggested courses.....

ANSC 4050, 4132, 4150, 4260, 4540; FDSC 3060; PATB 4001, 4130, 4170, 4360; ANSC/PATB 4111

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Equine Science Option

This option provides a strong background in equine production and management. Students interested in equine should enroll in this option.

University Studies Program.....

Courses with 2015 University Studies Program designations of FYS, COM1, COM2, COM3, Q, PN (2 courses), H (2 courses), and V are required. Note that some USP requirements may be satisfied upon completion of required courses as denoted below.

Animal and Veterinary Science.....

Required courses: ANSC 1010, 1030, 3010*, 3100*, 3150*, 3250, 4120, 4132, 4250*, 4540*, 4630* (COM3); ANSC/ PATB 4111*; FDSC 3060*

Agricultural Sciences.....

Required courses: AGECE 2020; REWM 2000

Other math/science courses.....

Required courses: LIFE 1010* (PN), 2022* (PN), 3050; CHEM 1000 (PN), ANSC 2010 or CHEM 2300, MATH 1400 (Q); STAT 2050 (Q) or 2070 (Q)

Required credits 128**

*A grade of C or better must be earned in these courses for successful completion of degree. **Required credits: 128 total credit hours, 42 credit hours or more at the 3000-level or above.

Agriculture Education with Concentration in Animal and Veterinary Science

This program consists of 128 total hours. Minimum 2.750 cumulative GPA and minimum 2.500 content GPA required. This major will be advised in the College of Education with a secondary adviser in Animal Science. Refer to the College of Education for specific curriculum requirements.

Undergraduate Minors

The Departments of Animal Science and Veterinary Sciences offers two minors: a minor in animal and veterinary science for non-majors and a minor in Equine Science.

Animal and Veterinary Science Minor

The courses required for this minor must be taken for a letter grade and the student must receive a grade of C or better in each course. Courses required are: ANSC 3010, 3100, 4120, 4540; FDSC 3060; PATB 4110 and at least one of the following: ANSC 3150, 4220 or 4230. The Department of Animal Science may be contacted by students needing assistance or having questions.

Equine Science Minor

The courses required for this minor must be taken for a letter grade and the student must receive a grade of C or better in each course. Courses required are: ANSC 1030, 3150, 3250, ANSC/PATB 4111 (12 credit hours), and a minimum of 3 courses (minimum of 8 credits) chosen from ANSC 2020, 3555, 3560 (max 3 credits allowed), 4132, 4250. The Department of Animal Science may be contacted by students needing assistance or having questions.

Graduate Study

The Departments of Animal Science and Veterinary Science offer programs leading to the M.S. (Plan A and Plan B) and Ph.D. degrees in animal and veterinary science. A M.S. degree in food science and human nutrition is offered in cooperation with the Department of Family and Consumer Sciences. The Department of Animal Science also participates in the interdisciplinary M.S./Ph.D. The Department of Animal Science also participates in the interdisciplinary M.S./Ph.D. Biomedical Science. Program.

Program Specific Degree Requirements

Master's Program - Plan A (thesis)

The student, major professor, and graduate committee determine the program of study and research project, which meets the needs of the individual student. The candidate's graduate committee should be established and functioning by the time the student has completed 12 semester hours of formal coursework. The master of science program should be approved and filed by the end of the student's second semester of graduate study in animal science. This committee shall also determine if the student is making satisfactory progress to be advanced to a candidate for a master's degree or continued in a doctoral program by the end of the student's third semester following matriculation. The student can specialize in breeding, food science and human nutrition, nutrition, physiology, meat science, reproduction or wool for coursework and thesis/dissertation project. In addition, supporting coursework is available in agricultural economics, biochemistry, microbiology, range management, genetics, statistics, and other areas of interest to the individual. In certain cases it is possible to develop a joint research project between animal science and another department. Students may use the research facilities and herds of beef cattle, sheep, and swine at the university livestock center near the university or at one of the university research and extension centers in the state. Research laboratories are located on campus and include a modern meat processing facility. The Thesis program is a 30 hour program, 26 hours of coursework and 4 hours of thesis research.

Master's Program - Plan B (non-thesis)

The Non-thesis program requires a coursework-intensive, non-thesis master of science program for those students whose career paths may not require a thesis research program. The program requires 32 hours of coursework in addition to an acceptable non-thesis research paper as defined by the student's graduate committee.

Doctoral Program

The program requires 72 hours. Students must follow minimum graduate requirements.

Food Science

Food science is the application of basic sciences to the processing, quality control, storage, distribution and consumer use of food products. The microbiological, chemical and physical characteristics of foods as related to food processing and product quality are studied. Major emphasis is placed in the area of animal food products.

Major

Animal and Veterinary Science, B.S.

The Depts of Animal Science and Veterinary Sciences jointly offer the B.S. degree in Animal and Veterinary Science. Courses in animal science, food science, and pathobiology form eight degree options tailored to the student's interests/career goals.

Options

- Animal and Veterinary Science, Production Option, B.S.
- Animal and Veterinary Science, Range Livestock Option, B.S.
- Animal and Veterinary Science, Business Option, B.S.
- Animal and Veterinary Science, Communication Option, B.S.
- Animal and Veterinary Science, Animal Biology Option, B.S.
- Animal and Veterinary Science, Meat Science and Food Technology Option, B.S.
- Animal and Veterinary Science, Pre-Veterinary Medicine Option, B.S.
- Animal and Veterinary Science, Equine Science Option, B.S.

Additional Information

Agriculture, in its broadest definition, is the nation's largest industry. Livestock production is Wyoming's largest agricultural enterprise. Animal agriculture and its associated industries offer many opportunities for the interested student. Whether a student is interested in production livestock, allied fields such as meat science, business or animal health, or wants to apply to a college of veterinary medicine or graduate school, the degree tracks offered will form the basis for a challenging career in animal agriculture/biology. The various options provide maximum flexibility to meet the changing needs of students and their employers. For students interested in pursuing advanced research, M.S. and Ph.D. degrees are offered.

A grade of C or better must be earned in the following courses when the courses are required in the individual option for completion of the degree: ANSC 3010, ANSC 3100, ANSC 4120, ANSC 4540, ANSC 4630; FDSC 3060, PATB 4110, PATB 4111, LIFE 1010, LIFE 2022.

Students are encouraged to participate in activities related to their degree option. The university has competitive livestock, horse, wool, and meat judging teams that travel to and participate in at least one major exposition a year. Laboratories and field trips, as practical teaching aids in many classes, are scheduled throughout the year. Internships are available to gain practical experience. Student organizations such as the Block and Bridle Club, Food Science Club, Pre-vet Club, Wyoming Collegiate Cattlemen's Association, Microbiology Club, Range Club, and the Ranch Horse Team provide additional educational and recreational opportunities.

Minor

Animal and Veterinary Science, Animal and Veterinary Science Minor

This minor provides a foundational background in animal and veterinary science for students interested in livestock and equine production, but with a primary degree program outside of ANVS.

Courses Required:

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of

farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4540 - Principles of Animal Breeding

Credits: 3

Discusses genetic principles underlying animal improvement; introductory population genetics; heritability; systems of mating; and selection.

Dual Listed ANSC 5540.

When Offered (Normally offered fall semester)

Prerequisite: STAT 2050 or STAT 2070.

FDSC3060 - Principles of Meat Science and Muscle Biology

Credits: 3

Principles of muscle, adipose, and connective tissue growth, structure and metabolism; conversion of muscle into meat; fresh meat properties and quality; chemical properties of meat; meat microbiology, preservation and storage; meat by-products; HACCP.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000 and LIFE 1010.

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

At Least One of the Following:

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

ANSC4220 - Advanced Beef Production and Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in beef production management schemes. Emphasizes analysis and decision making. Consists of two hours of lecture and two hours of lab, with approximately one-half of labs meeting at Animal Science Livestock Center.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120 , ANSC 4540 .

ANSC4230 - Advanced Sheep Production & Management

Credits: 3

Integrates animal breeding, nutrition and reproductive physiology in sheep production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 3100, ANSC 4120, ANSC 4540.

ANSC4250 - Advanced Equine Production and Management

Credits: 3

A capstone course for students wanting to pursue a career in the equine industry with main focus on equine management. Business applications, health, facilities, and management will be explored in depth. Integrates equine breeding, nutrition, and reproductive physiology in equine production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3100 , ANSC 4120, and ANSC 4540 .

Animal and Veterinary Science, Equine Science Minor

This minor provides a foundational background in equine science and its application to equine production and management for students interested in the horse industry, but with a primary degree program outside of Equine Science.

Core Courses

12 total credit hours

ANSC1030 - Equine Management

Credits: 3

An overview of the horse industry and proper way to manage horses.

When Offered (Normally offered spring semester)

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

ANSC3250 - Equine Behavior and Welfare

Credits: 3

To familiarize students with an equine interest about behavior, learning, and welfare issues associated with management and training of equine.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 1030, ANSC 3150.

ANSC4111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed PATB 4111.

Dual Listed ANSC 5111.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3150.

OR

PATB4111 - Equine Health and Disease

Credits: 3

To familiarize students with identification, prevention and treatment of diseases in horses through proper health management techniques.

Cross Listed ANSC 4111

Dual Listed PATB 5111

Prerequisite: ANSC 1030

Electives

Must choose 3 courses minimum (minimum of 8 credits) - 8 to 10 total credit hours

*Maximum of 3 credits allowed in ANSC 3560

ANSC2020 - Feeds and Feeding

Credits: 4

Nutrient classification and use, feed value, ration formulation and feeding domestic animals.

When Offered (Normally offered spring semester)

ANSC3555 - Equine Evaluation and Selection

Credits: 3

Objectively evaluate equine for performance and breeding purposes according to breed standards and or discipline. Emphasis will be placed on learning how conformation relates to overall function and longevity of equine. Competitive horse judging team criteria will be used to build organizational skills, equine terminology, and communication skills.

Prerequisite: ANSC 1010 and ANSC 1030.

ANSC3560 - Advanced Equine Evaluation and Selection

Credits: 1-2

Max Credit (Max. 3)

Objectively evaluate equine for halter and performance according to breed standards and or discipline. Competitive horse judging team criteria will be used to build organizational skills, equine terminology, and communication skills. Students will compete as members of the Collegiate Horse Judging Team and represent University of Wyoming at national horse judging competitions.

Prerequisite: ANSC 3555.

ANSC4132 - Equine Reproduction

Credits: 2

Introduces methods of manipulating reproduction within equine management systems. Includes artificial insemination, diagnosis of pregnancy, induction and control of estrus and ovulation, parturition, embryo transfer, and control and prevention of equine reproductive diseases.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 4120 and ANSC 1030

ANSC4250 - Advanced Equine Production and Management

Credits: 3

A capstone course for students wanting to pursue a career in the equine industry with main focus on equine management. Business applications, health, facilities, and management will be explored in depth. Integrates equine breeding, nutrition, and reproductive physiology in equine production management schemes.

When Offered (Normally offered spring semester)

Prerequisite: ANSC 1030, ANSC 3100 , ANSC 4120, and ANSC 4540 .

Graduate

Animal and Veterinary Science, M.S.

Both Plan A (Thesis) and Plan B (Non-thesis) options are available.

Plan A (Thesis)

The student, major professor, and graduate committee determine the program of study and research project, which meets the needs of the individual student. The candidate's graduate committee should be established and functioning by the time the student has completed 12 semester hours of formal coursework. The master of science program should be approved and filed by the end of the student's second semester of graduate study in animal science. This committee shall also determine if the student is making satisfactory progress to be advanced to a candidate for a master's degree or continued in a doctoral program by the end of the student's third semester following matriculation.

The student can specialize in breeding, food science and human nutrition, nutrition, physiology, meat science, reproduction or wool for coursework and thesis/dissertation project. In addition, supporting coursework is available in agricultural economics, biochemistry, microbiology, range management, genetics, statistics, and other areas of interest to the individual. In certain cases it is possible to develop a joint research project between animal science and another department.

Students may use the research facilities and herds of beef cattle, sheep, and swine at the university livestock center near the university or at one of the university research and extension centers in the state. Research laboratories are located on campus and include a modern meat processing facility.

The Thesis program is a 30 hour program, 26 hours of coursework and 4 hours of thesis research.

Plan B (Non-thesis)

The Non-thesis program requires a coursework-intensive, non-thesis master of science program for those students whose career paths may not require a thesis research program.

The program requires 32 hours of coursework in addition to an acceptable non-thesis research paper as defined by the student's graduate committee.

Options

Program Specific Degree Requirements

A minimum of 30 credit hours including 4 thesis hours must be earned in 4000-5999 level courses.

The program of study is arranged with the student's graduate committee.

Animal and Veterinary Science, Ph.D.

A 72 hour program.

Students must meet the university minimum requirements.

Department of Ecosystem Science and Management

2013 Agriculture Building

(307) 766-2263

FAX: (307) 766-6403

Web site: uwo.edu/esm

Department Head: Scott N. Miller

Professors:

JEFFREY L. BECK, B.S. Brigham Young University 1993; M.S. 1996; Ph.D. University of Idaho 2003; Professor of Rangeland Ecology and Watershed Management 2018, 2007.

THIJS KELLEENERS, B.S. Wageningen University, The Netherlands 1988; M.S. 1993; Ph.D. 2001. Professor of Soil Science 2018, 2012.

SCOTT N. MILLER, B.S. Brown University 1991; M.S. University of Arizona 1995; Ph.D. 2002; Professor of Rangeland Ecology and Watershed Management 2017, 2002.

VIRGINIA B. PAIGE, B.A. Colorado College 1984; M.S. University of Massachusetts 1992; Ph.D. University of Arizona 2000; Professor Rangeland Ecology and Watershed Management 2019, 2004.

SCOTT R. SHAW, B.S. Michigan State University 1977; M.S. University of Maryland 1981; Ph.D. 1984; Professor of Entomology 1998, 1989.

PETER D. STAHL, B.S. Oklahoma State University 1978; M.S. University of Wyoming 1982; Ph.D. 1989; Professor of Restoration Ecology 2009, 2000; Director, Wyoming Reclamation and Restoration Center.

TIMOTHY R. COLLIER, B.S. University of California-Riverside 1987; Ph.D. University of California-Santa Barbara 1994; Associate Professor of Entomology 2008, 2002.

KRISTINA HUFFORD, B.A. University of California-Berkeley 1993; Ph.D. University of Georgia 2001; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

MELANIE MURPHY, B.S. University of Idaho 1998; M.S. 2001; Ph.D. Washington State University 2008; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

MENGQIANG ZHU, B.E. North China Electric Power University 2002; M.S. Chinese Academy of Sciences 2005; Ph.D. University of Delaware 2010; Associate Professor of Soil and Environmental Biogeochemistry 2019, 2013.

Associate Professors:

DAVID CHRISTIANSON, B.S. Montana State University 2003; Ph.D. 2008; Assistant Professor of Rangeland Ecology and Watershed Management 2019.

TIMOTHY R. COLLIER, B.S. University of California-Riverside 1987; Ph.D. University of California-Santa Barbara 1994; Associate Professor of Entomology 2008, 2002.

KRISTINA HUFFORD, B.A. University of California-Berkeley 1993; Ph.D. University of Georgia 2001; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

MELANIE MURPHY, B.S. University of Idaho 1998; M.S. 2001; Ph.D. Washington State University 2008; Associate Professor of Rangeland Ecology and Watershed Management 2017, 2010.

J. DEREK SCASTA, B.S. Texas A&M University 2004; M.S. 2008; Ph.D. Oklahoma State University 2014; Assistant Professor of Rangeland Ecology and Watershed Management 2014.

LINDA VAN DIEPEN, B.S. Hogeschool IJsselland, Deventer 1999; M.S. Wageningen University 2002; Ph.D. Michigan Technological University 2008; Assistant Professor of Soil Microbiology 2015.

KAREN L. VAUGHAN, B.S. University of Delaware-Newark 2001; M.S. University of Maryland-College Park 2004; Ph.D. University of Idaho-Moscow 2008; Assistant Professor of Pedology 2015.

MENGQIANG ZHU, B.E. North China Electric Power University 2002; M.S. Chinese Academy of Sciences 2005; Ph.D. University of Delaware 2010; Associate Professor of Soil and Environmental Biogeochemistry 2019, 2013.

Assistant Professors:

FABIAN NIPPGEN, M.S. Albert-Ludwigs University 2007; Ph.D. Montana State University 2014; Assistant Professor of Rangeland Ecology and Watershed Management 2017.

KEVIN WILCOX, B.S. Central Washington University 2008; Ph.D. Colorado State University 2015; Assistant Professor of Rangeland Ecology and Watershed Management 2018.

Academic Professionals:

SCOTT SCHELL, B.S. University of Wyoming 1991; M.S. 1994; Senior Extension Entomologist 2005, Associate Research Scientist 2009.

Adjunct Professors:

Justin Derner, Jack Morgan, Brenda Schladweiler, Gerald Schuman, Nancy Shaw, Ramesh Sivanpillai

Professors Emeriti:

Ann Hild, Alexandre Latchininsky, David Legg, Larry Munn, Richard Olson, Katta Reddy, J. Daniel Rodgers, Quentin Skinner, Michael Smith, Peter Stahl, John A. Tanaka, George Vance, James Waggoner, James Wangberg, Thomas Wesche, Stephen Williams

Degrees Offered

Major

- Rangeland Ecology and Watershed Management, B.S.

Minor

- Forest Resources Minor
- Insect Biology Minor
- Rangeland Ecology and Watershed Management Minor
- Reclamation and Restoration Ecology Minor
- Soil Science Minor

Graduate

- Ecosystem Science and Management/Applied Economics, Ph.D.
- Entomology, M.S.
- Entomology, Ph.D.
- Insect Biology/Entomology Graduate Study Minor
- Rangeland Ecology and Watershed Management, M.S.
- Rangeland Ecology and Watershed Management, Ph.D.
- Soil Science, M.S.
- Soil Science, Ph.D.

Certificate

- Reclamation/Restoration Ecology Graduate Certificate

Undergraduate Study

The Department of Ecosystem Science and Management offers a Bachelor of Science degree in Rangeland Ecology and Watershed Management. This degree can also be obtained as an affiliate degree in conjunction with the School of Environment and Natural Resources. Five minor degree programs are offered through the department: Insect Biology,

Rangeland Ecology and Watershed Management, Soil Science, Forest Resources, and Reclamation and Restoration Ecology. Obtaining a minor to complement a B.S. major degree program provides credentials and knowledge that can expand career opportunities.

The degree programs reflect the department's diverse expertise in natural resource and agriculture sciences. Students completing degrees offered through the department are well prepared for careers in natural resource management and sustainable agriculture (e.g., range management, watershed management, restoration ecology/reclamation of degraded land, wildlife habitat management, biocontrol/ integrated pest management, soil science and various types of environmental consulting) or other science careers.

Student Learning Outcomes

The goal of the Department of Ecosystem Science and Management is to provide students with comprehensive knowledge in several different areas in addition to their specific area of study. These expectations ensure that students may take these learned skills and successfully apply them in their post-graduate endeavors. Assessments in all areas are based on knowledge, skills, and attitude.

These areas include:

Oral communication encompasses all the abilities necessary for effective expression and sharing of information, ideas, and feelings in a format including verbal and nonverbal symbols.

Proficiency in written communication will ensure that students will be able to write for different audiences, from expressive writing to technical writing, using a range of sophistication in language.

Professional behavior involves attaining high standards of behavior and appropriate attitudes, not only through acquiring knowledge and experience but a lifelong commitment to learning and achievement.

Competency in critical thinking and problem-solving will enable students to engage in reasonable, reflective thinking focused on deciding what to believe or do.

Computer and information literacy ensures that students will be viewed as trainable and adaptable in a computerized work environment. Proficiency in this area also enables students to effectively access online information, and skillfully make use of it.

The results in these different areas will aid the department in:

- Planning instructional strategies to address student strengths and weaknesses;
- Evaluating and describing overall student achievement;
- Counseling students for academic and career options; and
- Evaluating the effectiveness of instructional programs.

Graduate Study

The Department of Ecosystem Science and Management is an interdisciplinary department made up of five disciplinary areas: entomology, rangeland ecology, soil sciences, agroecology, and watershed management. The department offers master of science and doctor of philosophy degrees in entomology, rangeland ecology and watershed management, and soil science. A water resources dual major may be obtained in conjunction with each of these master's degrees. For the rangeland ecology and watershed management degrees, thesis and dissertation problems may be developed in aspects of range ecology, wildlife habitat, reclamation of disturbed lands, watershed management, utilization and improvement of rangelands, and many other facets of range and forest ecology management. For the entomology degrees, thesis and dissertation problems may be developed in many areas of basic and applied aspects of insect ecology. For soil degrees, thesis and dissertation problems may be developed in many basic and applied aspects of soil science. The degree

programs reflect the department's diverse expertise in natural resource and agriculture sciences. Students completing degrees offered through the department are well prepared for careers in natural resource management and sustainable agriculture (e.g., range management, watershed management, restoration ecology/reclamation of degraded land, wildlife habitat management, biocontrol/integrated pest management, soil science, and various types of environmental consulting) or other science careers. A graduate certificate in reclamation and restoration ecology may be obtained after completion of a B.S. degree or in conjunction with an M.S. or Ph.D. degree.

Program Specific Admission Requirements

Admission is contingent upon a faculty member being willing to assume responsibility for working with the student as an adviser.

Applicants are encouraged to initiate correspondence with faculty who share similar research interests as part of the process of securing faculty advising commitment.

In special circumstances, and with the faculty adviser's support, a student may be admitted in a provisional status with continued enrollment dependent upon meeting performance requirements specified at the time of admission.

Program Specific Graduate Assistantship Information

Current graduate assistantship availability, subject of study, and remuneration can be determined by checking: www.uwyo.edu/esm. Prospective students are also encouraged to directly correspond about future opportunities for graduate assistantships with faculty that share similar research interests.

Courses of instruction in the department are offered in entomology, rangeland ecology and watershed management, renewable resources, and soil science.

Environment and Natural Resources Affiliate Degrees

The Bachelor of Science degree in Rangeland Ecology and Watershed Management offered through the Ecosystem Science and Management Department may also be obtained as an affiliate degree with the School of Environment and Natural Resources (i.e., the degree titles would be Environment and Natural Resources/Rangeland Ecology and Watershed Management). The additional coursework requirements necessary for obtaining an affiliate degree are described in the School of Environment and Natural Resources section of this publication.

Interdisciplinary Programs

Water Resources (WARE)

College of Agriculture and Natural Resources

Department of Ecosystem Science and Management

2013 Agriculture Building

Phone: (307) 766-4274

E-mail: smiller@uwyo.edu

Web Address: www.uwyo.edu/ware/

Program Director: Scott N. Miller

M.A. or M.S. in (Program Name)/Water Resources

Academic departments across the university cooperate to provide master of arts or master of science degree programs that contain multidisciplinary training in water resources. The master's degree offered through these affiliations is awarded as a major with each of the sponsoring department's graduate programs. The water resources interdisciplinary major will be acknowledged on the graduate transcript and thereby certify to potential employers that the candidate has completed an in-depth multidisciplinary course program in the broad area of water resources.

The educational underpinnings of this program include the following: The purpose of the program is to provide multidisciplinary education and to impart a multidisciplinary perspective to candidates. Training is to be consistent with the rigor of professional water resources demands. The interdisciplinary major program is flexible so as to meet the candidates' individual professional objectives.

Primary responsibility for student guidance and graduate program formulation resides with the sponsoring department and sponsoring major professor. Please refer to latest updated information on the website listed above. Upon acceptance to the program, the sponsoring department must assign a member of the Water Resources Curriculum Committee to the candidate's graduate committee. The Water Resources Curriculum Committee's representatives on the candidate's graduate committee shall aid in formulating deficiency requirements, course program design, academic performance criteria, and research objectives throughout the candidate's tenure in the program.

Program Specific Admission Requirements

University application and fee; Application fee is valid for three years; Official documentation indicating bachelor's degree earned (not necessary if UW is the most recent institution attended); Potential candidates are encouraged to apply for admission to this program by contacting the participating department and by specifying at the initiation that they desire admission to the water resources interdisciplinary major. Their credentials will be evaluated by the sponsoring department and the department recommends admission of the individual into the program to the UW Admissions office.

Program Specific Degree Requirements

The academic program of study undertaken by the candidate must be designed to enhance the student's background and expertise through formal graduate-level coursework in the areas of: (1) technical hydrology, (2) natural resources economics and/or law, and (3) water quality. To ensure a minimum multidisciplinary character, the course program must contain nine hours of coursework with at least 3 hours from each of the aforementioned areas and at least 6 of those credit hours must be from outside the student's sponsoring department, along with a 1 credit hour seminar on water resources organized through the Department of Ecosystem Science and Management. Only Plan A master's degree programs, which require the writing of a thesis in the water resources area, are acceptable for the water resources degree option.

Each student in the water resources interdisciplinary major program will be required to complete this course once during their graduate program. As part of the requirements for the seminar: (a) students will be required to present a seminar on a current water resource issue in Wyoming and to develop an executive summary of their issue to distribute to class participants. Each student is also required to participate in a discussion group following each seminar which stresses the interdisciplinary nature of the issue; (b) during the course of a student's graduate program, he/she will be required to present one seminar for the seminar series (preferably on some aspect of their thesis research). This presentation does not have to occur during the semester that the student is officially signed up for seminar credit.

WARE Degree Programs

Majors

- Agricultural Economics/Water Resources, M.S. (Department of Agricultural and Applied Economics)
- Civil Engineering/Water Resources, M.S. (Department of Civil and Architectural Engineering)
- Entomology/Water Resources, M.S. (Department of Ecosystem Science & Management)
- Geology/Water Resources, M.S. (Department of Geology and Geophysics)
- Geophysics/Water Resources, M.S. (Department of Geology and Geophysics)
- Rangeland Ecology and Watershed Management/Water Resources, M.S. (Department of Ecosystem Science & Management)
- Soil Science/Water Resources, M.S. (Department of Ecosystem Science & Management)
- Water Resources, M.A.
- Water Resources, M.S.

Additional Interdisciplinary Degree Programs

- Ecology, Ph.D. (Program in Ecology, PiE)
- Hydrologic Sciences, Ph.D. (WRESE)

Major

Rangeland Ecology and Watershed Management, B.S.

Rangeland Ecology and Watershed Management provides you with knowledge, skills, and abilities to understand and manage wildlands. You will explore rangeland ecology, watershed management, soil science, and a diversity of landscapes.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Course Requirements

- First-Year Seminar Credits: 3
- US and WY Government Credits: 3
- Electives Credits: 28-29

REWM Courses: 37 Hours

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Prerequisite: LIFE 2022 or LIFE 2023.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

Resource Management: 14-15 Hours

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGECE 1020 or equivalent.

Choose One From

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

- BOT 4111 *
- BOT 3150 *

Physical and Natural World: 8 Hours

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

Biological Sciences: 7 Hours

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Communication Skills: 6 Hours

Quantitative Reasoning: 7 Hours

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Human Culture: 6 Hours

- Human Culture

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Total Hours: 120

*Course must be completed with a C or better.

Minor

Forest Resources Minor

In Forest Resources, you will develop a working knowledge of the processes that influence forest ecology, sustainability, and provision of the key products derived from forests.

Minimum Requirements: 20 Hours

RNEW2100 - Forest Management

Credits: 3

Principles of forest management. Topics include the laws affecting forest management, methods of harvesting wood from forests, fire and insect management, the effects of disturbances on stream flow and nutrient cycling, and the challenges of developing management plans for forests.

Cross Listed ENR 2100.

Prerequisite: LIFE 1101 or LIFE 1010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence

plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

RNEW4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed BOT 4775.

Prerequisite: LIFE 3400.

REWM4540 - Problems

Credits: 1-4

Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

Choose One From

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

- GEOG 4420

Choose One From

REWM4103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of public and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Students prepare public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 5103.

When Offered (Normally offered spring semester)

Former Course Number [3103]

Prerequisite: C or better in REWM 2000 and CS course.

Choose One From

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations.

Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

RNEW3000 - Tropical Ecology

Credits: 3

Examines the characteristics of tropical ecosystems, how they evolved, their value to humans, their present status, and current issues relating to biodiversity, deforestation, extinction, and conservation.

Prerequisite: LIFE 1101 or LIFE 1010.

GEOG4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG/GEOL 4470/5470

Former Course Number [G&R 4470]

Prerequisite: Some basic knowledge of Earth processes GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

Insect Biology Minor

In Insect Biology, you will learn in-depth information about insects including their basic biology, ecology, and evolution.

Minimum Requirements: 13 Hours

Choose One From

ENTO1000 - Insect Biology

Credits: 3

Introduces insects and related arthropods. Introduces aspects of insect biology, behavior, life history and diversity, as well as many ways that insects affect humans.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

OR

ENTO1001 - Insect Biology

Credits: 4

Covers same lecture material as ENTO 1000, but includes a laboratory.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Choose From

Then choose from the list below to meet the minimum 13 credit hour requirement.

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

ENTO4682 - Insect Anatomy and Physiology

Credits: 5

Studies structure and function of the insect body, particularly emphasizing the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 5682.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: ENTO 1000.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

ENTO4686 - Problems in Entomology

Credits: 1-3

Max Credit (Max. 6)

Individual library, laboratory or field study of insects.

Prerequisite: 4 hours of biological science and 3 hours of entomology.

ENTO4687 - Insect Evolution

Credits: 3

Examines major events of insect evolution including origins, fossils, wings and flight, metamorphosis, extinct orders, diversification patterns of modern orders, climate change, plate tectonics, coevolution with plants, parasitism, social behavior, and origin of modern faunas.

Dual Listed ENTO 5687.

Prerequisite: ENTO 4684 required; ENTO 4670, ENTO 4682 recommended.

ENTO4884 - Insect Behavior

Credits: 3

Examines the behavior of insects, including foraging, mating and social behavior. The course focuses on the applied as well as the fundamental aspects of behaviors, and both the strategic and physiological bases of behavior.

Dual Listed ENTO 5884.

Prerequisite: ENTO 1000.

Insect Biology/Entomology Graduate Study Minor

This minor is designed to complement a related graduate degree with an understanding of insect biology and entomology. Understanding the biology, ecology and classification of insects is crucial to understanding the widespread effects they have on agriculture, human health, and ecosystems.

Rangeland Ecology and Watershed Management Minor

Rangeland Ecology and Watershed Management provides you with an introduction to knowledge, skills and abilities to understand and manage wildlands. You will explore rangeland ecology, watershed management, soil science and a diversity of landscapes.

Required Courses

The required courses for the minor are:

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

- REWM 2500 Credits: 2

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

- 6 hrs. selected from other REWM upper-division (3000 or 4000 level) courses.

Additional Requirements

The number of hours required is 22.

Reclamation and Restoration Ecology Minor

This program covers the use of basic and applied ecological concepts to rehabilitate and restore processes and functions to disturbed ecosystems.

Required Courses: 14 Hours

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

REWM4990 - Undergraduate Teaching Practicum

Credits: 1

Max Credit (Max. 2)

Teaching experience in classroom or laboratory assisting faculty instructor.

When Offered (Offered based on sufficient demand and resources)

Planning and Policy: 3 Hours

(choose one)

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECE 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making. Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

- GEOG 4750

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

Below-Ground Processes: 3-4 Hours

(choose one)

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

- CE 4820

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.
Dual Listed SOIL 5140.
Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.
When Offered (Normally offered fall semester)
Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.
When Offered (Normally offered fall semester of odd-numbered years)
Prerequisite: SOIL 2010.

Above-Ground Processes: 2-4 Hours

(choose one)

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.
When Offered (Normally offered fall semester)
Prerequisite: LIFE 3400.

- BOT 4111

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: ENTO 1000, ENTO 1001.

- ENTO 4685

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4540 - Problems

Credits: 1-4

Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

- ZOO 4550

Total: 22-25

Soil Science Minor

This program is designed to enhance soil expertise for students majoring in agricultural, natural resources, and environmental sciences degree programs.

Course Requirements: 15 Credit Hours

Course requirements (15 credit hours) for a Soil Science minor are:

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

- plus 11 credits of upper-division soil science courses for a total of 15 credits.

Additional Requirements

Undergraduate students minoring in Soil Science will enhance their job prospects with federal land management or conservation agencies (e.g., Forest Service, Bureau of Land Management, Natural Resources Conservation Society), state and federal regulatory agencies (e.g., Wyoming Department of Environmental Quality), mining and oil companies, environmental consulting companies, or scientific research organizations.

Graduate

Ecosystem Science and Management/Applied Economics, Ph.D.

The course requirements for this program are highly flexible to accommodate a wide variety of student backgrounds and interests. Students can major in any PhD program within ESM including Rangeland Ecology and Watershed Management, Soil Science, and Entomology.

Additional Requirements

A minimum of 72 credit hours of coursework. The credit hour requirement can include:

Up to 48 credit hours transferred from approved graduate courses earned while pursuing an M.S. degree (no more than 4 credit hours of thesis);

A minimum of 12 credit hours of approved ESM (REWM, SOIL, ENTO) courses;

A minimum of 18 credit hours of approved AGECE or ECON courses, with at least 12 credit hours at the 5000-level.

At least 42 of the 72 credit hour requirement must be earned in formal coursework.

No more than 12 credit hours of 4000-level courses can count towards the 72 credit hour requirement.

Entomology, M.S.

The M.S. program is geared toward teaching graduate students the tools necessary to conduct robust scientific research. Entomology graduate students study a variety of scientific issues related to insects across the globe.

Plan A (Thesis)

The master of science degree normally is offered under Plan A which requires at least the university minimum degree requirements and an oral examination.

Plan B (Non-thesis)

Requires 30 hours of graduate credit to include 9 hours of required courses, 11 hours of required electives, and 10 hours of other electives.

Plan B project - follows format of Plan A thesis.

A Plan B master of science will be a terminal degree program in the Department of Ecosystem Science and Management. Students completing this option will not qualify for a subsequent Ph.D. program in Department of Ecosystem Science and Management at the University of Wyoming.

Additional Requirements

This program requires 30 credit hours (at least 12 from Entomology) approved by the student's graduate advisory committee and an approved research plan.

Entomology, Ph.D.

The Ph.D. program allows graduate students to use the research-oriented tools learned during a master's program to conduct research on a major question surrounding entomology. Entomology graduate students study a variety of scientific issues related to insects across the globe.

Additional Requirements

This program requires 72 credit hours (at least 12 from Entomology) that include credits earned during a master's degree that are approved by the student's graduate advisory committee and an approved research plan.

Candidates must complete the minimum requirements for the doctor of philosophy degree, plus a preliminary examination (written and oral) covering knowledge related to the discipline (taken after most coursework complete) and an oral final examination.

Entomology/Water Resources, M.S.

The purpose of this program is to enhance the cross-disciplinary linkage between entomology and water resources and to provide students with an entomology degree program that emphasizes the important issues in water resources.

Coursework and Thesis

Each student must complete a minimum of 26 credit hours of graduate level coursework and 4 thesis credit hours of ENTO 5960 to qualify for a master of science degree in entomology/water resources. Specific coursework will be determined by the student's graduate committee; however, each student is required to enhance his/her background and expertise in the water resources area through specialized coursework and a seminar as shown below.

- A. ENTO 5678 Aquatic Entomology (3)
- B. Interdisciplinary component 9 hours (see Water Resources degree requirements)

Plan A Thesis Requirement

Only Plan A thesis students are eligible for the master of science in entomology/water resources. In addition to coursework and a Plan A thesis, students must pass a final written and oral examination. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee to help ensure adherence to the master of science in entomology/water resources degree requirements and that research efforts are in the water area.

Hydrology, Ph.D.

Join a cutting-edge PhD program to gain expertise in technical, philosophical, and methodological aspects of hydrology related to above- and below-ground systems. We foster research and learning on critical water-related science and social topics.

Additional Information

Hydrologic Sciences (WRESE), Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/wrese>
E-mail: wrese@uwyo.edu

Program Director: Andrew D. Parsekian, Ph.D.

Degree Offered

Ph.D. in Hydrologic Sciences

The Water Resources/Environmental Science and Engineering (WRESE) program facilitates Ph.D. level course offerings in water-related disciplines, and coordinates offerings of these courses. Furthermore, the WRESE program serves as a focal-point for water-related graduate research and education at the University of Wyoming.

This interdisciplinary degree program encourages cross-department and inter-college coordination for research and education in hydrology and water resources.

The WRESE Program grants a PhD in Hydrological Sciences.

Program Specific Admission Requirements

Ph.D. in Hydrologic Sciences

The WRESE Program only admits students seeking a doctoral degree.

Those interested in graduate study in this program, are encouraged to contact the WRESE program (wrese@uwyo.edu) for more information and guidance regarding applying. In order to apply, please submit an application to the program via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>). Prospective students applying to the WRESE program must satisfy the minimum criteria for admission of their advisor's home department (i.e., number of reference letters required; minimum GRE scores, if requested; other supporting documents, if requested; etc.). Similarly, applicants should adhere to the submission deadline indicated by their advisor's home department.

Minimum criteria for admission to the WRESE Program are:

- Minimum undergraduate GPA of 3.000
- Agreement by a faculty member affiliated with the WRESE program to sponsor the student
- Admission to a home department at the University of Wyoming

Typically, students admitted into the program will have previously obtained a Masters-level degree. Under certain circumstance, students may be admitted directly after an undergraduate degree if they show exceptional promise and commitment. Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the WRESE program.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Program Specific Degree Requirements

Students in the WRESE Program are expected to create their graduate committee within the first year of study. The committee should be composed of three faculty members within the PhD program in Hydrology and 2 should be from the student's departmental home. A committee shall be composed of no fewer than 5 members, of which only one may be from outside the University. Additional committee members may be added to support the student's learning and objectives on the discretion of the committee and WRESE Program chair.

Program of Study

Students enrolled in the Program should complete their Program of Study within the first 3 semesters. The student shall work with his/her research advisor and committee to determine the appropriate course of study relative to the student's research agenda. Students are expected to complete a rigorous course of study in quantitative hydrological sciences. Minimum requirements for the PhD include:

- Coursework credits: 42 hours (26 can be from an MS)
- Total credits: 72 hours
- Math expectations: students are encouraged to pursue a high level of math proficiency, with typical students progressing through differential equations. Individual math expectations will be determined by the committee and program chair.

A dissertation proposal should be approved by the end of the 4th semester. Students shall submit their proposal to their committee for review two weeks prior to a holding a committee meeting where the student (a) presents their proposal in a public presentation and (b) defends the proposal to the committee in a closed meeting. After the meeting, the student shall amend the proposal as required by the committee within a timely manner.

Admission to Candidacy / Preliminary Examination

Advance to candidacy is attained by passing preliminary exams within 3 years of initiating a degree program. Students should complete their preliminary exams as close to the end of their primary coursework as possible. Preliminary exams consist of two parts. The first part is a written examination wherein committee members shall submit written questions to the student. Once the student has passed their written exams, they will be administered an oral examination.

The written exam shall be administered by the student's research adviser, who will coordinate the questions so as to obtain a comprehensive review of the student's knowledge of the materials the student has learned in the classroom and needs to complete his/her research topic. Written questions should cover both conceptual and theoretical underpinnings in hydrological sciences and technical questions related to the student's research area.

The written exam will consist of a series of questions as decided upon by the committee and should take no more than two weeks to complete.

Each committee member shall grade their portion of the exam as pass/fail. The student shall be viewed as passing the written exam if no more than one person grades their portion of the exam as failing.

The oral examination will be held no sooner than two weeks after the written exams, and only after the student has passed their written examinations. The oral exam should be no less than 90 minutes long and no longer than 3 hours.

Following the exam, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Dissertation

The student will prepare a dissertation and make the document available to the committee at least two weeks in advance of an oral defense of the document. The oral defense must be at least 15 weeks after the student has been advanced to candidacy. Students shall present a public defense to the university community that is expected to be approximately 45 minutes long, with a public question-and-answer period after the presentation. If the committee determines that the student has presented a suitable oral presentation of his/her research findings, a closed session meeting will be held in which the student defends their research to the committee. At the conclusion of the defense,

each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Other information:

Students in the WRESE Program may participate from any college, with the expectation that their program of study and dissertation will focus on quantitative issues of hydrology and water resources. The Program welcomes academic diversity, and students in WRESE have entered into the Program from a wide range of academic backgrounds and have hailed from numerous home departments, including Ecosystem Science and Management, Civil and Architectural Engineering, Botany, Zoology and Physiology, and Geology and Geophysics.

Water Resources/Environmental Science and Engineering is an Interdisciplinary program that fulfills an important need by organizing a rigorous Ph.D.- level curriculum, with sufficient numbers of relevant courses to serve the needs of Ph.D. students affiliated with the program faculty.

Rangeland Ecology and Watershed Management, M.S.

The M.S. program is geared toward teaching graduate students the tools necessary to conduct robust scientific research and communicate with the public and potential clients.

Plan A (Thesis)

The master of science degree normally is offered under Plan A which requires at least the university minimum degree requirements and an oral examination.

An oral defense of the thesis is required.

Plan B (Non-thesis)

Plan B is available under special circumstances and requires 30 hours of graduate coursework.

Plan B candidates must also prepare one professional paper (i.e., content and form compatible with publication in a scientific journal) or, if the adviser requests, two professional papers in selected topic areas.

An oral defense of the paper(s) is required.

Additional Requirements

This program requires 30 credit hours (at least 12 from Rangeland Ecology and Watershed Management) approved by the student's graduate advisory committee and an approved research plan.

Rangeland Ecology and Watershed Management, Ph.D.

The Ph.D. program allows graduate students to use the research-oriented tools learned during a master's program to conduct research on a major question surrounding rangeland ecology and watershed management.

Additional Requirements

This program requires 72 credit hours (at least 12 from Rangeland Ecology and Watershed Management) that include credits earned during a master's degree that are approved by the student's graduate advisory committee and an approved research plan. Candidates must complete the minimum requirements for the doctor of philosophy degree, plus a preliminary examination (written and oral) covering knowledge related to the discipline (taken after most coursework is complete) and an oral final examination.

Rangeland Ecology and Watershed Management/Water Resources, M.S.

The purpose of this program is to enhance the cross-disciplinary linkage between range and forest management and water resources and to provide students with a degree program in Rangeland Ecology and Watershed Management, which emphasizes the important issues in water resources.

Coursework and Thesis

- Water Resources requirements Credits: 10 *
- Statistics Credits: 3
- REWM 5620 - Range Management Seminar Credits: 1
- Other recommended graduate courses or substitution courses with adviser consent Credits: 12
- Plan A thesis Credit: 4

Minimum Credits: 30

*Water Resources Requirements

- Interdisciplinary component 9 hours (see Water Resources degree requirements)

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Soil Science, M.S.

The M.S. program is geared toward teaching graduate students the tools necessary to conduct robust scientific research.

Plan A (Thesis)

Plan A requires the university minimum degree requirements and an oral final examination.

Plan B (Non-thesis)

Plan B is available and requires 30 hours of graduate coursework.

An oral defense of the paper(s) is required.

Additional Requirements

This program requires 30 credit hours (at least 12 from Soil Science) approved by the student's graduate advisory committee and an approved research plan.

Soil Science, Ph.D.

The Ph.D. program allows graduate students to use the research-oriented tools learned during a master's program to conduct research on a major question surrounding soil science.

Additional Requirements

This program requires 72 credit hours (at least 12 from Soil Science) that include credits earned during a master's degree that are approved by the student's graduate advisory committee and an approved research plan.

Candidates must complete the minimum requirements for the doctor of philosophy degree, plus a preliminary examination (written and oral) covering knowledge related to the discipline (taken after most coursework is complete) and an oral final examination.

Soil Science/Water Resources, M.S.

The purpose of this program is to enhance the cross-disciplinary linkage between soil science and water resources and to provide students a degree program in Soil Science, which emphasizes the important issues in water resources.

Coursework and Thesis

Each student must complete a minimum of 26 credit hours of graduate level coursework and 4 thesis credit hours of SOIL 5960 to qualify for a master of science degree in soil science/water resources. Specific coursework will be determined by the student's graduate committee; however, each student is required to enhance his/her background and expertise in the water resources area through specialized coursework and a seminar as shown below.

Core Courses

Students must take or have taken equivalent courses in the four soils disciplines: physics, pedology, chemistry, and microbiology.

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

SOIL5140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture, and forestry.

Cross Listed MICR 5140.

Dual Listed SOIL 4140.

Prerequisite: SOIL 2010

Enhancement Courses

Students must take at least one of the following courses:

SOIL5110 - Modeling Water and Chemical Transport in Vase Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

SOIL5160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical and biological aspects of soils which impact fertilizer fate, uptake and plant growth.

Dual Listed SOIL 4160.

Prerequisite: SOIL 2010.

- SOIL 5170 - Analytical Methods for Ecosystems Research

Interdisciplinary Component: 9 Hours

(see Water Resources degree requirements)

Seminar in Water Resources: 1 Hour

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Graduate Seminar in Soil Science: 1 Hour

Plan A Thesis Requirement

Only Plan A thesis students are eligible for the master of science in soil science/water resources. In addition to coursework and a Plan A thesis, students must pass a final oral examination. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee to help ensure adherence to the master of science in soil science/water resources degree requirements and that research efforts are in the water area.

Water Resources, M.A.

The purpose of this program is to provide multidisciplinary training in water resources. Training is to be consistent with the rigor of professional water resources demands.

Program Specific Degree Requirements

The academic program of study undertaken by the candidate must be designed to enhance the student's background and expertise through formal graduate-level coursework in the areas of: (1) technical hydrology, (2) natural resources economics and/or law, and (3) water quality. To ensure a minimum multidisciplinary character, the course program must contain nine hours of coursework with at least 3 hours from each of the aforementioned areas and at least 6 of those credit hours must be from outside the student's sponsoring department, along with a 1 credit hour seminar on water resources organized through the Department of Ecosystem Science and Management. Only Plan A master's degree programs, which require the writing of a thesis in the water resources area, are acceptable for the water resources degree option.

Hydrology (3 Hours)

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and

drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

- CE 4820 - Groundwater and Drainage Engineering Credits: 3

CE5810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 4810.

Prerequisite: CE 4800.

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5550 - Numerical Methods in Ground Water Geology I

Credits: 3

Numerical solution of ground water flow equations with emphasis on steady state and elementary time dependent finite difference techniques.

Prerequisite: GEOL 4444 or GEOL 5444, competence in FORTRAN programming.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

SOIL5110 - Modeling Water and Chemical Transport in Vasoe Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

- MATH 5110 - Modelling Flow Transport in Soil and Groundwater Systems Credits: 4

Law/Natural Resource Economics (3 Hours)

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON5400 - Advanced Resource and Environmental Economics

Credits: 3

This course examines how we use economics to sharpen natural resource use and environmental policy. We focus on the behavioral and institutional underpinnings of market success and failures, choice under risk, time, space, conflict, cooperation, incentive design, non-market valuation, and prosperity.

Prerequisite: ECON 3020, ECON 4400 or consent of instructor.

LAW6660 - Environmental Law

Credits: 3

Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6860 - Water Law and Policy

Credits: 3

Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate

conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

Water Quality (3 Hours)

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL5450 - Geochemical Modeling

Credits: 3

Modeling of geochemical processes in fluid-rock systems of the Earth's crust. Emphasizes development and application of conceptual models as well as quantitative numerical models. Reinforces and expands fundamental skills in aqueous and fluid-rock geochemistry to better understand geochemical processes and solve problems in fluid-rock systems.

Prerequisite: GEOL 4777/GEOL 5777 or GEOL 5610 or GEOL 4490.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

One-Hour Seminar in Water Issues

Each student in the water resources interdisciplinary major program will be required to complete this course once during their graduate program. As part of the requirements for the seminar: (a) students will be required to present a seminar on a current water resource issue in Wyoming and to develop an executive summary of their issue to distribute to class participants. Each student is also required to participate in a discussion group following each seminar which stresses the interdisciplinary nature of the issue; (b) during the course of a student's graduate program, he/she will be required to present one seminar for the seminar series (preferably on some aspect of their thesis research). This presentation does not have to occur during the semester that the student is officially signed up for seminar credit.

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Additional Requirements

The master's degree offered through these affiliations is awarded as a major with each of the sponsoring department's graduate programs. The water resources interdisciplinary major will be acknowledged on the graduate transcript and thereby certify to potential employers that the candidate has completed an in-depth multidisciplinary course program in the broad area of water resources.

Water Resources, M.S.

The purpose of the program is to provide multidisciplinary education and to impart a multidisciplinary perspective to candidates. Training is to be consistent with the rigor of professional water resources demands.

Program Specific Degree Requirements

The academic program of study undertaken by the candidate must be designed to enhance the student's background and expertise through formal graduate level coursework in the areas of: (1) technical hydrology, (2) natural resources economics and/or law, and (3) water quality. To insure a minimum multidisciplinary character, the course program must contain nine hours of coursework with at least 3 hours from each of the aforementioned areas and at least 6 of those credit hours must be from outside the student's sponsoring department, along with a 1 credit hour seminar on water resources organized through the Department of Ecosystem Science and Management. Only Plan A master's degree programs, which require the writing of a thesis in the water resources area, are acceptable for the water resources degree option.

Hydrology (3 Hours)

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

- CE 4820 - Groundwater and Drainage Engineering Credits: 3

CE5810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and

drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 4810.

Prerequisite: CE 4800.

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5550 - Numerical Methods in Ground Water Geology I

Credits: 3

Numerical solution of ground water flow equations with emphasis on steady state and elementary time dependent finite difference techniques.

Prerequisite: GEOL 4444 or GEOL 5444, competence in FORTRAN programming.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

SOIL5110 - Modeling Water and Chemical Transport in Vaso Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and

groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

- MATH 5110 - Modelling Flow Transport in Soil and Groundwater Systems Credits: 4

Law/Natural Resource Economics (3 Hours)

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

AGEC5630 - Advanced Natural Resource Economics

Credits: 3

An in-depth treatment of theoretical issues, quantitative techniques, and institutional arrangements in the natural resource field. Topics include welfare economics, property rights, market failure and externalities, and benefit cost analysis.

Prerequisite: ECON 3010 and ECON 3020, STAT 2050 and MATH 2350.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

ECON5400 - Advanced Resource and Environmental Economics

Credits: 3

This course examines how we use economics to sharpen natural resource use and environmental policy. We focus on the behavioral and institutional underpinnings of market success and failures, choice under risk, time, space, conflict, cooperation, incentive design, non-market valuation, and prosperity.

Prerequisite: ECON 3020, ECON 4400 or consent of instructor.

LAW6660 - Environmental Law

Credits: 3

Max Credit (Max. 3)

Provides an overview of the broad field of environmental law, with an emphasis on the major federal environmental statutes such as the National Environmental Policy Act, the Endangered Species Act, the Clean Air and Clean Water Acts, and statutes regulating both hazardous wastes and toxic chemicals in commerce. In considering these various statutes, we consider both their substantive requirements and their conceptual approaches to environmental protection. Touches briefly on issues such as the role of states in implementing these national laws, various approaches to enforcement of these laws, common-law doctrines relevant to environmental protection, and economic aspects of environmental law.

LAW6860 - Water Law and Policy

Credits: 3

Max Credit (Max. 3)

A study of the allocation and reallocation of water resources with particular emphasis on prior appropriation systems in the Western United States. Riparian systems and groundwater management are also addressed, along with interstate conflicts, federal water rights, federal-state relations, and the effect of environmental laws on water allocation and the exercise of water rights.

Water Quality (3 Hours)

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL5450 - Geochemical Modeling

Credits: 3

Modeling of geochemical processes in fluid-rock systems of the Earth's crust. Emphasizes development and application of conceptual models as well as quantitative numerical models. Reinforces and expands fundamental skills in aqueous and fluid-rock geochemistry to better understand geochemical processes and solve problems in fluid-rock systems.

Prerequisite: GEOL 4777/GEOL 5777 or GEOL 5610 or GEOL 4490.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.

Prerequisite: CHEM 1000.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

One-Hour Seminar in Water Issues

Each student in the water resources interdisciplinary major program will be required to complete this course once during their graduate program. As part of the requirements for the seminar: (a) students will be required to present a seminar on a current water resource issue in Wyoming and to develop an executive summary of their issue to distribute to class participants. Each student is also required to participate in a discussion group following each seminar which stresses the interdisciplinary nature of the issue; (b) during the course of a student's graduate program, he/she will be required to present one seminar for the seminar series (preferably on some aspect of their thesis research). This presentation does not have to occur during the semester that the student is officially signed up for seminar credit.

REWM5250 - Water Resources Seminar

Credits: 1

Objective is to develop interaction among students from the various water resource disciplines to enhance their perspectives on how water problems are addressed within an interdisciplinary environment.

Prerequisite: graduate status.

Additional Requirements

The master's degree offered through these affiliations is awarded as a major with each of the sponsoring department's graduate programs. The water resources interdisciplinary major will be acknowledged on the graduate transcript and thereby certify to potential employers that the candidate has completed an in-depth multidisciplinary course program in the broad area of water resources.

Certificate

Reclamation/Restoration Ecology Graduate Certificate

The Reclamation/Restoration Ecology (RRE) graduate certificate prepares the student to use basic and applied ecological concepts to reclaim and/or restore processes and functions to disturbed ecosystems.

Required Certificate Courses:

Reclamation and Restoration Ecology Courses: 6 Hours

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed ECOL 5580.

Dual Listed REWM 4580.

Reclamation Problems: 4 Hours

SOIL5565 - Research in Soil Science

Credits: 1-4

Max Credit (Max. 6)

Library, laboratory, and/or greenhouse investigations on select research topics. Graduate students will be required to give a presentation to the soil science group on their final product/ report.

Dual Listed SOIL 4465.

Prerequisite: Basic training in soil science research. SOIL 5565 reserved for graduate students.

OR

REWM5640 - Investigation

Credits: 1-4

Max Credit (Max. 10)

Research on specialized problems in range management. Investigations offered in the following areas of range management, habitat management, business management, range improvements and monitoring, watershed management, extension and international development.

Prerequisite: graduate standing.

Reclamation Process Course: 3 Hours

(choose one)

BOT5700 - Vegetation Ecology

Credits: 4

The ecology of major vegetation types, with emphasis on patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 4700.

Prerequisite: LIFE 3400.

BOT5730 - Plant Physiological Ecology

Credits: 4

Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms. Lecture with inclusive hands-on laboratory.

Cross Listed RNEW 5730.

Dual Listed BOT 4730.

Prerequisite: one course in ecology and one in physiology.

BOT5780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 5780.

Dual Listed BOT 4780.

Prerequisite: Consent of instructor.

PLNT5070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 4070

Prerequisite: PLNT 1000, LIFE 1010

PLNT5470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 4470

Prerequisite: 8 hours of plant biology

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

- REWM 5280

REWM5710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing and mineral and natural gas extraction on surface water and ground water quality. Emphasis is placed on water quality modeling and management.

Dual Listed REWM 4710.
Prerequisite: CHEM 1000.

RNEW5540 - Shrubland Ecology

Credits: 3

Ecology of shrub-dominated lands and shrub species in grasslands. Location, importance and environmental constraints of shrub distributions. Topics include herbivory, woody plant invasions, competitive interactions, monitoring and population dynamics. Emphasizes familiarity with scientific literature.

Prerequisite: RNEW 3000, BOT 4700.

SOIL5110 - Modeling Water and Chemical Transport in Vaso Zone and Groundwater Systems

Credits: 4

Mathematical models will be formulated and applied to simulate water flow and chemical transport in soil and groundwater systems. Soil spatial variability and heterogeneity will be considered in the modeling processes. Using and comparing models, students will obtain the capability to transfer a physical problem to a mathematical model, to use numerical methods, such as the finite element method, to solve the mathematical problem, and to correctly interpret the numerical outputs. Students will develop and program numerical solutions for select problems and will utilize existing codes for modeling a variety of comprehensive problems.

- MATH 5110

SOIL5130 - Chemistry of the Soil Environment

Credits: 3

Evaluation of the chemical and physical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter, and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability, and pedogenetic processes will be emphasized.

Dual Listed SOIL 4130.

Prerequisite: MATH 1400, CHEM 1030 or CHEM 1060 and SOIL 2010.

SOIL5140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture, and forestry.

Cross Listed MICR 5140.

Dual Listed SOIL 4140.

Prerequisite: SOIL 2010

SOIL5150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forest and ranges and soil properties, such as nutrient availability and water relations, which influence plant growth.

Dual Listed SOIL 4150.

Prerequisite: SOIL 2010 and LIFE 2020.

- ZOO 5550

Planning/Policy Courses: 3 Hours

(Choose One)

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR5900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 4900.

Prerequisite: graduate standing and ENR 5100.

Minimum Total Credits Needed: 16 Hours

Additional Requirements

The graduate certificate will be granted to students who have completed a B.S. in an appropriate science-oriented discipline or are currently enrolled in an M.S. or Ph.D. program.

The graduate certificate will also be available to professionals working in reclamation/restoration oriented fields seeking to upgrade their training in reclamation and restoration ecology. Those interested in the graduate certificate will be required to complete the course work listed below as well as write a synopsis paper with a formal presentation advertised as an open forum seminar.

Department of Family and Consumer Sciences

251 Agriculture Building, (307) 766-4145

FAX: (307) 766-5686

Web site: www.uwyo.edu/fcs

Department Head: Christine Wade

Associate Professors:

JENNIFER HARMON, B.S. Illinois State University 2009; M.S. The Ohio State University 2013; Ph.D. 2014; Associate Professor, Design, Merchandising, and Textiles 2021, 2015.

ERIN IRICK, B.S. Kansas State University 2000; M.S. 2006; Ph.D. Oklahoma State University 2013; Associate Professor, Design, Merchandising, and Textiles 2019, 2013.

JILL KEITH, B.S. North Dakota State University 2000; M.S. Capella University 2009; Ph.D. North Dakota State University 2016; Associate Professor, Human Nutrition and Food/Dietetics 2022, 2016.

ALYSSA McELWAIN, B.A. Kansas State University 2006; M.S. Purdue University 2008; Ph.D. Auburn University 2015; Associate Professor, Human Development and Family Sciences 2021, 2015.

BERNARD STEINMAN, B.A. University of Washington 1991; M.S. Mississippi State University 2004; Ph.D. University of Southern California 2010; Associate Professor, Human Development and Family Sciences 2022, 2015.

CHRISTINE WADE, B.S. Willamette University 2001; M.S. University of Wyoming 2005; Ph.D. 2008; Associate Professor, Human Development and Family Sciences 2015, 2008

Assistant Professors:

GRACE SHEARRER, B.S. University of Wyoming 2012; Ph.D. University of Texas at Austin 2016. Assistant Professor, Human Nutrition and Food/Dietetics 2020.

Academic Professionals:

SARAH LEE, B.A. and M.S. University of Wyoming 1981; 1996; Assistant Lecturer, Human Development and Family Sciences 2020.

MEGAN McGUFFEY SKINNER, B.S. University of Wyoming 2010; M.H.S. Boise State University 2014; Assistant Lecturer and Director, Didactic Program in Nutrition and Dietetics 2019.

TREVA SPROUT AHRENHOLTZ, B.S. 1993, 1997 University of Wyoming; M.S. 1995; Associate Lecturer, Design, Merchandising, and Textiles 2013, 2005.

Professor Emeritus:

Donna Brown, Bruce Cameron, Saul Feinman, Michael Liebman, Judith A. Powell, Rhoda Schantz, Virginia Vincenti, Mary Kay Wardlaw, Randolph R. Weigel, Karen Williams

Department Information

Our mission is to enhance the physical, social, and economic well-being of individuals, families, and communities, emphasizing healthy and sustainable living across the lifespan. We fulfill our mission through instructional, research, and outreach/extension efforts that challenge, motivate, and inspire.

Family and Consumer Sciences integrates the fundamental components of human life—food, shelter, clothing, human relationships, and family—with larger societal systems. Through programs in textiles, apparel and design; food and nutrition; and human development and family sciences, our department prepares learners to meet the opportunities and challenges of today's complex world.

All students pursuing the Bachelor of Science degree in Family and Consumer Sciences are required to complete a minimum of 120 credit hours that include a) University Studies requirements (USP); b) departmental core curriculum; and c) courses in one of the following concentrations: dietetics (application only), human nutrition and food, human development and family sciences, professional child development (online only), or one of the three career tracks in design, merchandising and textiles. Minors in apparel design, human development and family sciences, human nutrition, and interior design are also available.

Grade Requirements

Majors are required to pass all courses within the Department of Family and Consumer Sciences with a letter grade of C or above. Students enrolled in family and consumer sciences minors are required to complete each course for the minor with a letter grade of C or above.

Security Screening

All students applying for admission to the Professional Child Development concentration are required to complete a security screening before program entry. Students in the Human Development and Family Sciences concentration must complete their security screening upon declaration of their major. Failure to satisfactorily complete this requirement will result in the student being dropped from or denied entry to the program.

Family and Consumer Sciences Core Requirements

A core curriculum is required of all family and consumer sciences majors. This requirement is based on a common body of knowledge in family and consumer sciences which contains concepts relevant to all concentrations.

(Please click on link to review core requirements for [all](#) undergraduate majors).

Family and Consumer Sciences Core Requirements

Family and Consumer Sciences Student Learning Outcomes

Students graduating from the Department of Family and Consumer Sciences will be proficient in their concentration content as well as be able to effectively communicate (both written and orally), possess intellectual skills (such as critical and creative thinking and problem solving), and demonstrate appropriate levels of professionalism.

Family and Consumer Sciences Concentrations

Undergraduate majors must declare a concentration and follow its specific degree plan. Standards established by several professional organizations require completion of specific courses in addition to the family and consumer sciences core and USP requirements. All students are assigned to a professional advisor and a faculty mentor. Students should work closely with their advisor to be sure all degree requirements are met. All concentrations are listed below.

Family and Consumer Sciences Minors

Required courses in all Family and Consumer Sciences minors must be taken for a letter grade and completed with a grade of C or above. All minors are listed below.

Graduate Study

The Department of Family and Consumer Sciences offers a program of graduate study leading to a Master of Science in Family and Consumer Sciences with an emphasis in human development and family sciences; human nutrition and food; or design, merchandising and textiles. The department also participates in an interdisciplinary degree in Food Science and Human Nutrition.

Major

Design, Merchandising, and Textiles: Apparel Design and Product Development Career Track

The Apparel Design and Product Development career track in Design, Merchandising and Textiles allows students to develop the technical and creative skills necessary for the development of apparel and textile products from concept to finished product.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

**Meets FCSC Core Elective in Human Nutrition and Food. Grade C or above required.*

***Meets FCSC Core Elective in Human Development and Family Sciences. Grade C or above required.*

****Grade C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of

communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC1185 - Introduction to Design, Merchandising and Textile Industry

Credits: 3

Introduction to the functions of the design, merchandising and textiles industry. This course will give a base of knowledge of the industry including textile and garment production and manufacturing, design processes for apparel and interiors, and retailing. Students will also be introduced to potential career paths within the industry.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2175 - Fashion Illustration

Credits: 3

Introduces the fashion figure, light and dark contrasts, color, fabric and texture sketching techniques. Computer applications for layout of the design are also covered.

When Offered (Offered alternate fall semesters)

Prerequisite: FCSC 1180 or ART 1110; FCSC 1175.

FCSC2185 - Trend Forecasting and Analysis

Credits: 3

This course introduces concepts and techniques for color, textile, interior and fashion trend forecasting. Students will learn how to recognize current trends in lifestyle and ready-to-wear as well as signals for predicting forthcoming trends which impact retail merchandising and marketing decisions.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC2210 - Fashion Show Event Planning

Credits: 2

Provides students with a real-world, integrative experience with planning a large-scale special event, specifically, a fashion show. Opportunities include garment and model acquisition and organization, production (music planning, scheduling judges, MCs and guest speakers), promotion, budgeting and stage/runway design. Students experience the entire process of planning, setup and execution.

FCSC2270 - Advanced Apparel Construction

Credits: 3

Development of advanced apparel construction and tailoring techniques. Continued development of decision-making skills in selection, use and evaluation of materials.

Former Course Number [3170]

Prerequisite: FCSC 1170.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC3173 - Visual Merchandising and Promotion

Credits: 3

Principles of visual merchandising, consumer behavior for effective promotions, and selling techniques are discussed. Topics include brand development, advertising, visual display, publicity, fashion shows, special events, store space planning and layout. Students will have hands-on experience with several techniques.

When Offered (Offered alternating fall semesters, odd years)

Former Course Number [4173]

Prerequisite: FCSC 1180 and FCSC 2188.

FCSC3174 - Flat Pattern Design

Credits: 3

Principles and instructions for drafting and hand grading patterns using slopers through standard or individual measurements. Techniques of garment design are learned to create three-dimensional designs using the flat pattern method.

When Offered (Offered alternate spring semesters)

Former Course Number [4170]

Prerequisite: FCSC 2175 and FCSC 2270.

FCSC3175 - Apparel Design Through Draping

Credits: 3

Draping garment patterns through fabric manipulation, molding, and shaping to create three-dimensional form utilizing couture construction techniques.

Prerequisite: FCSC 2270

FCSC3185 - Product Development Through Design Thinking

Credits: 3

Students will expand their understanding of design and the strategies utilized to bring desirable and human-centered products to market. Techniques and skills for developing textile, interior and apparel products will be discussed. Students will gain understanding and recognition of the elements of design through product analysis.

Prerequisite: FCSC 1180.

FCSC4171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 5171.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4172.

FCSC4172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 5172.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4171.

FCSC4176 - Historic Clothing

Credits: 3

Surveys history of clothing in the Western World. Includes information from approximately 3000 B.C. through the 20th century. Dual listed with FCSC 5176.

Cross Listed FCSC 5176

When Offered (offered alternate spring semesters, odd years)

Prerequisite: FCSC 2165

FCSC4178 - Fiber Arts

Credits: 3

Max Credit (Max. 6)

Development and enhancement of technical and creative apparel design skills with a focus on embellishment techniques and creative pattern-making culminating in the creation of a distinctive piece of wearable art.

Dual Listed FCSC 5178.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

FCSC4182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 5182.

When Offered (Offered alternate spring semesters)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: completion of USP WB/COM2 requirement.

FCSC4185 - Product Development and Technology

Credits: 3

This course introduces students to various technologies used to bring products to market. 3-D body scanning, computer apparel pattern digitizing, grading, marker making and repeats for digitally-printed, knit and woven fabrics will be discussed. Students will complete product technical packages based on product specifications.

Prerequisite: FCSC 3185, FCSC 4171, and FCSC 4172.

FCSC4190 - Apparel Collection Development

Credits: 3

Students will utilize their pattern-making and apparel construction skills and continue to expand their knowledge of fit on live models through creation of their own apparel collection. They will be responsible for the creation of the collection from inspiration to final product. Collections will be showcased through a real-world fashion show.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4960 - International Study Tour FCS

Credits: 3

Max Credit (Max. 6)

Designed to provide students with an opportunity to learn more about food, design, and human services in international

settings. Students will visit locations relevant to the Family and Consumer Science discipline.

When Offered (Offered based on sufficient demand and resources every other spring/summer term, odd years; international destinations vary)

Prerequisite: consent of instructor.

OR

FCSC4970 - Design and Merchandising Internship

Credits: 3

Max Credit (Max. 6)

Provides practical experience in retail, interior design or apparel design settings.

Prerequisite: junior standing or consent of instructor.

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

All Design, Merchandising, and Textiles majors are required to complete a three-credit-hour internship, international study tour, or study abroad program.

Design, Merchandising, and Textiles: Interior Design Career Track

The Interior Design career track in Design, Merchandising, and Textiles prepares students to creatively, effectively, and sustainably solve design problems for professional practice in residential and commercial interior design.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

**Meets FCSC Core Elective in Human Nutrition and Food. Grade C or above required.*

***Meets FCSC Core Elective in Human Development and Family Sciences. Grade C or above required*

****Grade C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC1185 - Introduction to Design, Merchandising and Textile Industry

Credits: 3

Introduction to the functions of the design, merchandising and textiles industry. This course will give a base of knowledge of the industry including textile and garment production and manufacturing, design processes for apparel and interiors, and retailing. Students will also be introduced to potential career paths within the industry.

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC2185 - Trend Forecasting and Analysis

Credits: 3

This course introduces concepts and techniques for color, textile, interior and fashion trend forecasting. Students will learn how to recognize current trends in lifestyle and ready-to-wear as well as signals for predicting forthcoming trends which impact retail merchandising and marketing decisions.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC2210 - Fashion Show Event Planning

Credits: 2

Provides students with a real-world, integrative experience with planning a large-scale special event, specifically, a fashion show. Opportunities include garment and model acquisition and organization, production (music planning,

scheduling judges, MCs and guest speakers), promotion, budgeting and stage/runway design. Students experience the entire process of planning, setup and execution.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC3173 - Visual Merchandising and Promotion

Credits: 3

Principles of visual merchandising, consumer behavior for effective promotions, and selling techniques are discussed. Topics include brand development, advertising, visual display, publicity, fashion shows, special events, store space planning and layout. Students will have hands-on experience with several techniques.

When Offered (Offered alternating fall semesters, odd years)

Former Course Number [4173]

Prerequisite: FCSC 1180 and FCSC 2188.

FCSC3180 - Contract Design I

Credits: 3

Interior design course focused on designing sustainable contract spaces primarily for the hospitality industry. As needed, other public space design may be explored. Design development and communication through advanced design and rendering software will be utilized. Students will learn to write specifications and practice design development through evidence based design.

Prerequisite: FCSC 2188 and FCSC 3288 or concurrent enrollment, or consent of instructor.

FCSC3185 - Product Development Through Design Thinking

Credits: 3

Students will expand their understanding of design and the strategies utilized to bring desirable and human-centered products to market. Techniques and skills for developing textile, interior and apparel products will be discussed. Students will gain understanding and recognition of the elements of design through product analysis.

Prerequisite: FCSC 1180.

FCSC3188 - Interior Design Studio II

Credits: 3

Building upon skills developed in ID Studio 1, students will gain advanced knowledge of lighting, building codes and systems, specifications, materials, and space planning through more complex residential design problems. Design thinking and human centered design are emphasized. Explores design development and communication through CAD based and hand rendering techniques.

Prerequisite: FCSC 2188.

FCSC3288 - Environmental Psychology and Inclusive Design

Credits: 1

Online design primer focused on preparing students for the contract interior design series. Explores how humans interact with, experience, and behave in public spaces. Advances understanding of design inclusivity by interpreting and applying ADA regulations, along with considerations for diverse ages, circumstances, and abilities.

Prerequisite: FCSC 2180 , FCSC 2188 , or concurrent enrollment in 2188

FCSC4171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 5171.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4172.

FCSC4172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 5172.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4171.

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

FCSC4182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 5182.

When Offered (Offered alternate spring semesters)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: completion of USP WB/COM2 requirement.

FCSC4188 - Contract Design II

Credits: 3

Explores space planning and design as applied to contract interiors. Focused on healthcare and corporate design, but may survey other public spaces as appropriate. Advanced design, rendering, and visualization software used to conceptualize and present design solutions. Sustainable, accessible and functional design is highlighted.

Dual Listed FCSC 5188.

Prerequisite: FCSC 2188 and FCSC 3288 (or concurrent enrollment), or consent of instructor.

FCSC4288 - Professional Practice and Advanced Interiors Studio

Credits: 4

Explores standards of practice, project management, contract documents, portfolio development, and professional ethics and conduct in interior design. Studio based projects are focused on creating residential or contract designs through collaboration and integrated practice with interdisciplinary teams, and/or designs created for clients through service based learning.

Dual Listed FCSC 5288.

Prerequisite: FCSC 3180 or FCSC 4188.

FCSC4960 - International Study Tour FCS

Credits: 3

Max Credit (Max. 6)

Designed to provide students with an opportunity to learn more about food, design, and human services in international settings. Students will visit locations relevant to the Family and Consumer Science discipline.

When Offered (Offered based on sufficient demand and resources every other spring/summer term, odd years; international destinations vary)

Prerequisite: consent of instructor.

OR

FCSC4970 - Design and Merchandising Internship

Credits: 3

Max Credit (Max. 6)

Provides practical experience in retail, interior design or apparel design settings.

Prerequisite: junior standing or consent of instructor.

ARE1600 - Architectural Design Studio I

Credits: 3

Freshman-level architectural design in a project-based learning environment. Introduction to Building Information Modeling (BIM); architectural presentation drawings; freehand sketching; essentials of architectural design and building code compliance.

Former Course Number [ARE 2100]

ARE2410 - Fundamentals of Building Performance

Credits: 3

Introduction to building performance measures that embrace a global notion of environmental stewardship. Emphasis on passive heating and cooling systems and daylighting strategies to manage the thermal and luminous environments over the facility life cycle.

Prerequisite: PHYS 1210.

ARE2600 - Architectural Design Studio II

Credits: 3

Sophomore-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 1600, with a new emphasis on building materials and construction methods.

Former Course Number [ARE 2200]

Prerequisite: ARE 1600.

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

OR

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

All Design, Merchandising, and Textiles majors are required to complete a three-credit-hour internship, international study tour, or study abroad program.

Design, Merchandising, and Textiles: Merchandising Career Track

The Merchandising career track in Design, Merchandising and Textiles offers knowledge and application of business principles within the fashion and interior industries; including retailing, sourcing, and marketing for apparel and interior products.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

**Meets FCSC Core Elective in Human Nutrition and Food. Grade C or above required.*

***Meets FCSC Core Elective in Human Development and Family Sciences. Grade C or above required.*

****Grade C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC1185 - Introduction to Design, Merchandising and Textile Industry

Credits: 3

Introduction to the functions of the design, merchandising and textiles industry. This course will give a base of knowledge of the industry including textile and garment production and manufacturing, design processes for apparel and interiors, and retailing. Students will also be introduced to potential career paths within the industry.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and

dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2185 - Trend Forecasting and Analysis

Credits: 3

This course introduces concepts and techniques for color, textile, interior and fashion trend forecasting. Students will learn how to recognize current trends in lifestyle and ready-to-wear as well as signals for predicting forthcoming trends which impact retail merchandising and marketing decisions.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC2210 - Fashion Show Event Planning

Credits: 2

Provides students with a real-world, integrative experience with planning a large-scale special event, specifically, a fashion show. Opportunities include garment and model acquisition and organization, production (music planning, scheduling judges, MCs and guest speakers), promotion, budgeting and stage/runway design. Students experience the entire process of planning, setup and execution.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3160 - Merchandise Retailing and Buying

Credits: 3

Provides students with the knowledge involved in the buying function of the merchandising and retailing process, including merchandise planning and retail math. Gives students the necessary skills to pursue a career in retail buying.

Prerequisite: FCSC 2185 and MATH 1000 or MATH 1400.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC3173 - Visual Merchandising and Promotion

Credits: 3

Principles of visual merchandising, consumer behavior for effective promotions, and selling techniques are discussed. Topics include brand development, advertising, visual display, publicity, fashion shows, special events, store space planning and layout. Students will have hands-on experience with several techniques.

When Offered (Offered alternating fall semesters, odd years)

Former Course Number [4173]

Prerequisite: FCSC 1180 and FCSC 2188.

FCSC3185 - Product Development Through Design Thinking

Credits: 3

Students will expand their understanding of design and the strategies utilized to bring desirable and human-centered products to market. Techniques and skills for developing textile, interior and apparel products will be discussed. Students will gain understanding and recognition of the elements of design through product analysis.

Prerequisite: FCSC 1180.

FCSC4160 - Merchandising Strategies and Technology

Credits: 3

Students will be exposed to advanced merchandising strategies for retail buying and planning. Technologies used for gathering pertinent retail data, such as foot traffic and inventory management software, will be introduced. Course will expand on concepts introduced in prerequisite coursework.

Prerequisite: FCSC 3160.

FCSC4171 - Advanced Textiles and Product Evaluation

Credits: 3

Coloration is a key determinant in consumer textile purchases. This course introduces color science, dye properties and application and colorfastness evaluation. Quality control, testing standards, laboratory tests and specifications and how they are used to evaluate textiles products will also be discussed.

Dual Listed Dual listed with: FCSC 5171.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4172.

FCSC4172 - Advanced Textiles and Product Evaluation Lab

Credits: 1

Practical application of various textile science and quality assurance tests discussed in FCSC 3171 and FCSC 4171. Basic and advanced levels of testing on products in different stages of manufacture conducted. Students will use select test results to generate product specifications.

Dual Listed FCSC 5172.

Prerequisite: FCSC 3171 and concurrent enrollment in FCSC 4171.

FCSC4176 - Historic Clothing

Credits: 3

Surveys history of clothing in the Western World. Includes information from approximately 3000 B.C. through the 20th century. Dual listed with FCSC 5176.

Cross Listed FCSC 5176

When Offered (offered alternate spring semesters, odd years)

Prerequisite: FCSC 2165

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

FCSC4182 - Environmental Sustainability in Design, Merchandising and Textiles

Credits: 3

Examines the environment, the impact of the textile industry on the environment, and issues facing the textile industry to provide more environmentally friendly products.

Dual Listed FCSC 5182.

When Offered (Offered alternate spring semesters)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: completion of USP WB/COM2 requirement.

FCSC4960 - International Study Tour FCS

Credits: 3

Max Credit (Max. 6)

Designed to provide students with an opportunity to learn more about food, design, and human services in international settings. Students will visit locations relevant to the Family and Consumer Science discipline.

When Offered (Offered based on sufficient demand and resources every other spring/summer term, odd years; international destinations vary)

Prerequisite: consent of instructor.

OR

FCSC4970 - Design and Merchandising Internship

Credits: 3

Max Credit (Max. 6)

Provides practical experience in retail, interior design or apparel design settings.

Prerequisite: junior standing or consent of instructor.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

AGEC1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed ECON 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

All Design, Merchandising, and Textiles majors are required to complete a three-credit-hour internship, international study tour, or study abroad program.

A minor in Entrepreneurship or Professional and Technical Selling through the College of Business is recommended for students in this career track.

Dietetics

The nationally accredited Didactic Program in Nutrition and Dietetics provides the required coursework to pursue an approved post-graduation supervised practice experience (dietetic internship) to become a Registered Dietitian Nutritionist (RDN).

Program Introduction

The UW Didactic Program in Nutrition and Dietetics (DPND) is nationally accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics. Entrance into the DPND is made only through an application process. Each prospective DPND student will initially enter the Human Nutrition and Food concentration. It is recommended that students apply to the DPND in the spring semester of their sophomore year. The academic requirements and supervised practice experience must be completed before the student is eligible for the Registration Examination for Dietitians administered by the Commission on Dietetic Registration (CDR), the credentialing agency for the Academy.

University Studies Requirements

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Before Admission to Program

Students must complete the following courses with a minimum 3.0 grade point average (gpa) prior to DPND application.

**Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2141 - Nutrition Controversies

Credits: 2

This course expands upon nutrition concepts covered in FCSC 1141 by exploring current nutrition-related controversies. Skills related to the interpretation of research literature will be emphasized.

Prerequisite: FCSC 1141.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of

behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

After Admission to Program

In addition to USP and upper division requirements, students must complete the following courses after admission to the DPND while maintaining an overall grade point average of 3.000. Failure to maintain a grade point average of 3.000 could result in program probation and/or suspension.

**Grade of C or above required*

FCSC3142 - Geriatric Nutrition

Credits: 2

Studies nutrition requirements in elderly as effected by physiological changes with aging and the impact of nutrition and healthy lifestyle on prevention and treatment of age related conditions, diseases and social issues.

Former Course Number [4142]

Prerequisite: FCSC 1141; LIFE 1010.

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

FCSC3150 - Intermediate Foods

Credits: 2

Examines food management concepts in regards to the service of safe food, modified menu development, and understanding of federal food regulations for food and nutrition labelling.

Prerequisite: FCSC 1150; CHEM 1020; MOLB 2021; junior standing and FCSC majors and minors.

FCSC3152 - Food Systems Production

Credits: 3

Quantity food purchasing and production, along with institutional food services experience.

Former Course Number [4152]

Prerequisite: FCSC 3150 and LIFE 1010.

FCSC4044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 5044.

Former Course Number [3140]

Prerequisite: FCSC 1141; LIFE 1010; ZOO 3115.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4150 - Experimental Foods

Credits: 3

Studies physical and chemical properties of raw and processed food materials and tests for evaluation of food quality. Students develop ability to use and interpret recent research findings, as well as skills in planning, conducting and reporting food experiments.

Prerequisite: FCSC 1150, CHEM 2300, STAT 2020, ENGL 4010, FCSC major.

FCSC4210 - Therapeutic Nutrition I: Nutrition Assessment and Diagnosis

Credits: 4

Nutrition assessment and diagnosis as part of the nutrition care process; experience in dietary and nutrient assessment of the apparently healthy and sick individual with discussion of case studies.

Dual Listed FCSC 5210.

Prerequisite: ZOO 3115, MOLB 3610, and FCSC 4145 or concurrent enrollment.

FCSC4220 - Therapeutic Nutrition II

Credits: 4

Rationale for dietary modifications in pathological conditions; experience with learning and applying the nutrition care process to develop nutrition care plans for individuals with various medical conditions with discussion of case studies.

Dual Listed FCSC 5220.

Prerequisite: MOLB 4100.

FCSC4230 - Therapeutic Nutrition Counseling

Credits: 2

Course is designed to help students develop basic nutrition counseling and communication skills. Students will learn how to apply the concepts learned during lecture through interactive classroom experiences with peers and outside of the classroom experiences with an assigned client.

Dual Listed FCSC 5230

A&S College Core 2015 Dietetics students only.

Prerequisite: FCSC 4220 or concurrent enrollment.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces

statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

FCSC Core Elective in Design, Merchandising and Textiles

Complete one of the following with a grade of C or above:

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC Core Elective in Human Development and Family Sciences

Complete one of the following with a grade of C or above:

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

HDFS Career Track for Family and Consumer Sciences Teacher Certification

A career track leading to certification/licensure to teach family and consumer sciences (FCS) in secondary schools.

Program Information

This program is made possible through a partnership agreement with UW Family and Consumer Sciences, Colorado State University (CSU) Family and Consumer Sciences program and the CSU Center for Educator Preparation. While meeting the requirements for the Human Development and Family Sciences concentration, students will use electives from other FCS concentrations to prepare them to teach family and consumer sciences in middle or secondary schools. By participating in this partnership, students earn dual bachelor's degrees - one from UW and one from CSU. Students must earn a minimum of 154 credit hours between the two programs (minimum of 120 at UW and a minimum of 34 at CSU) in order to be awarded a degree from each institution. Additional semesters will be necessary to fulfill the requirements of both degrees.

Students must meet all entry requirements at UW and CSU. The CSU licensure program requires students to earn a C or above in all content courses and teacher licensing courses, and a passing score on the appropriate licensing exam. Therefore, a grade of C or above must be earned in all UW courses and an overall 2.750 GPA be maintained for transfer to CSU to fulfill their program requirements. Upon completion of the UW portion, students will then take the remaining courses needed to meet Wyoming and Colorado certification/ licensure requirements at CSU in Ft. Collins, Colorado. In their last semester, if they so choose, Wyoming students may complete their student teaching requirements in a Wyoming FCS school classroom with supervision by a licensed FCS teacher educator. In addition to earning dual degrees, students meet the requirements to apply for certification/licensure in Wyoming and in Colorado. Both licenses are reciprocal in many other states.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

Required Courses

*** *Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

OR

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3160 - Merchandise Retailing and Buying

Credits: 3

Provides students with the knowledge involved in the buying function of the merchandising and retailing process, including merchandise planning and retail math. Gives students the necessary skills to pursue a career in retail buying.

Prerequisite: FCSC 2185 and MATH 1000 or MATH 1400.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC4113 - Consumer Issues

Credits: 3

Provides research/ applied understanding of consumer rights/ responsibilities, government/business roles, legislation, advocacy, and redress. Emphasizes introductory consumer law/legal research, critical thinking, self-reflection, and cultural examination. Ethical theories and issues examined within an interdependent world. Meets requirements for certification in family and consumer sciences education. Internship opportunities possible upon successful completion. Companion web site used.

Prerequisite: ECON 1000 or SOC 1000 or PSYC 1000; WB/COM2.

FCSC4118 - Family Policy

Credits: 3

Explores the relationships between public programs/policies/laws and family functioning. The roles of family professionals in advocacy and education regarding policies will be discussed. Attention will be paid to current events relevant to family policy issues and the policy process at the state level.

Dual Listed FCSC 5118.

Prerequisite: FCSC 2131; junior standing.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4125 - Professional Practices in Human Development and Family Sciences

Credits: 3

Explores key professional and ethical issues related to professional practice in Human Development and Family Sciences. Reviews Family Life Education history, purpose, and methodology. Emphasizes skills and knowledge needed to work in various settings with individuals and families across the lifespan. This class is a prerequisite for HDFS student internships (FCSC 4130; FCSC 4131; FCSC 4132).

When Offered (Offered fall semester only)

Prerequisite: FCSC 2110, FCSC 3119, FCSC 3122, FCSC 3220 AND FCSC 2131.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

COMM1030 - Interpersonal Communication

Credits: 3

Focuses on interpersonal communication settings or face-to-face interaction. Basic unit of study is, therefore, the dyad. Also includes some work in small group settings.

USP 2015 Code U5H

Former Course Number COJO 1030

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

OR

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

OR

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

EDST3480 - Diversity & the Politics of Schooling

Credits: 3

Designed to acquaint the student with philosophical, social, and political influences on North American education, to develop an understanding of the qualities of critical thinking, to raise awareness of critical issues in education, to develop an understanding of individual differences, diversity, and multiculturalism.

USP 2003-2014 Code U3D

Prerequisite: grade C or better in EDST 2450, junior standing, 2.50 cumulative gpa.

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

OR

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

LIFE1002 - Discovering Science

Credits: 3

Integrates Biology, Chemistry, Physics, and Earth Science and is intended for non-science majors. Fundamental concepts from each discipline are discussed through lectures and in-class activities, and students learn how to understand science and its importance in larger societal issues. There is no laboratory component of this course. Meets the S requirement in USP 2003 and the PN requirement in USP 2015.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Former Course Number [BIOL 1002]

OR

LIFE1003 - Current Issues in Biology

Credits: 4

Emphasizes central themes of biology - cell biology, genetics, evolution, ecology - and scientific methodology by focusing on current issues in biology. Fundamental concepts are addressed through classroom and laboratory activities and discussions. This course is intended for non-science majors. Students cannot receive duplicate credit for LIFE 1010 or LIFE 1020.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1003]

OR

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and

vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences.

Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Additional Concurrent and CSU Coursework

After completion of UW coursework, three additional semesters are required for completion of this teacher certification option. The first semester will require concurrent enrollment at UW and CSU. Required UW course FCSC 4117 (online - 3 credit hours) will be taken while enrolled at CSU to preserve WEU eligibility. Four additional credit hours must be transferred to UW from the second and third semesters' coursework at CSU to meet UW's 120 credit hour graduation requirement.

First Semester

Concurrent Fall Semester UW/CSU

- EDUC 331 - Educational Technology Credits: 2
- EDUC 340 - Literacy and the Learner - Phase I - RL Credits: 3 (Not included in WUE tuition)
- EDUC 350 - Instruction I: Individualization/Mgt - Phase II - TL Credits: 3
- EDUC 386 - Practicum - Instruction I - Phase II - TL 1
- EDCT 451 - Methods, FCS Education Credits: 4

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

Second Semester

Spring Semester at CSU

- EDUC 450 - Instruction II: Standards/ Assessment - Phase III - T Credits: 4
- EDUC 486 - Practicum - Instruction II - Phase III - TL 1
- FACS 479 - Colloquium - FCS Credits: 2

Complete one of the following and transfer it to UW:

- A course from Art/Humanities (Choose one: E140 - The Study of Literature, PHIL100 - The Appreciation of Philosophy, or TH141 - Introduction to Theater) Credits: 3
OR
- HES 145 Health and Wellness Credits: 3

Final Semester

Fall Semester at CSU

- EDCT 485 - Student Teaching - Phase IV - TL Credits: 11
- ECDDT 492 Seminar - Professional Relations - Phase IV - TL Credits: 1 (Transfer to UW)

Total UW Degree Minimum: 120 Hours

Total CSU Degree Minimum: 34 Hours

Total for Both Degrees: 154 Hours

Additional Requirements

Upon declaring this career track, students must satisfactorily complete a mandatory security screen (background check). Advising will provide careful attention to the uniqueness of individual student situations and academic choices.

Human Development and Family Sciences

Prepares students to work in a variety of critical fields that serve individuals and families across the lifespan, including: children, youth, senior and family support programs, community and governmental agencies, and higher education.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

** Grade of C or above required.*

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicultural development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

FCSC4118 - Family Policy

Credits: 3

Explores the relationships between public programs/policies/laws and family functioning. The roles of family professionals in advocacy and education regarding policies will be discussed. Attention will be paid to current events relevant to family policy issues and the policy process at the state level.

Dual Listed FCSC 5118.

Prerequisite: FCSC 2131; junior standing.

FCSC4125 - Professional Practices in Human Development and Family Sciences

Credits: 3

Explores key professional and ethical issues related to professional practice in Human Development and Family Sciences. Reviews Family Life Education history, purpose, and methodology. Emphasizes skills and knowledge needed to work in various settings with individuals and families across the lifespan. This class is a prerequisite for HDFS student internships (FCSC 4130; FCSC 4131; FCSC 4132).

When Offered (Offered fall semester only)

Prerequisite: FCSC 2110, FCSC 3119, FCSC 3122, FCSC 3220 AND FCSC 2131.

FCSC4132 - Internship in Human Development and Family Sciences

Credits: 4-6

Max Credit 6

Students will acquire skills and gain familiarity in direct services, policy development, or program planning in a human services agency/organization. Opportunities to apply theories and knowledge gained in classroom settings to professional practice will be provided. Offered spring or summer semesters.

When Offered (Offered spring and summer semesters only)

Prerequisite: FCSC 4125

OR

FCSC4130 - Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early childhood education majors with an in-depth experience working with children from birth to age five. Students gain experience including planning lessons, teaching, assessing children and conducting parent conferences.

Prerequisite: FCSC 2121; EDEC 3000; EDEC 3220; senior standing.

OR

FCSC4131 - Administration Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early education majors with an in-depth experience working with families and staff. Students gain experience in observing and assessing early childhood programs, planning and presenting staff trainings/professional workshops, staff supervision, writing newsletters, and other professional documents and professional activities.

Prerequisite: FCSC 2121; FCSC 4127; senior standing.

FCSC4135 - Program Evaluation

Credits: 3

Explores techniques for evaluating programs in the public and/or private sectors. Includes determining need, identifying/communicating with stakeholders, developing program theory/logic models, implementation, evaluation methods/instruments, and interpreting/reporting evaluation results.

Dual Listed FCSC 5135.

Prerequisite: Junior standing.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and

research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

OR

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

FCSC Core Elective in Human Nutrition and Food

Complete one of the following with a grade of C or above:

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC Core Elective in Design, Merchandising and Textiles

Complete one of the following with a grade of C or above:

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and

as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Additional Requirements

Upon declaring this major, students must satisfactorily complete a mandatory security screen (background check).

Human Nutrition and Food

The Human Nutrition and Food concentration prepares students for careers in human nutrition and the food industry, and serves as a degree plan for pre-health (including the Didactic Program in Nutrition and Dietetics) or graduate school.

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

** Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2141 - Nutrition Controversies

Credits: 2

This course expands upon nutrition concepts covered in FCSC 1141 by exploring current nutrition-related controversies. Skills related to the interpretation of research literature will be emphasized.

Prerequisite: FCSC 1141.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3142 - Geriatric Nutrition

Credits: 2

Studies nutrition requirements in elderly as effected by physiological changes with aging and the impact of nutrition and healthy lifestyle on prevention and treatment of age related conditions, diseases and social issues.

Former Course Number [4142]

Prerequisite: FCSC 1141; LIFE 1010.

FCSC4044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 5044.

Former Course Number [3140]

Prerequisite: FCSC 1141; LIFE 1010; ZOO 3115.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4150 - Experimental Foods

Credits: 3

Studies physical and chemical properties of raw and processed food materials and tests for evaluation of food quality. Students develop ability to use and interpret recent research findings, as well as skills in planning, conducting and reporting food experiments.

Prerequisite: FCSC 1150, CHEM 2300, STAT 2020, ENGL 4010, FCSC major.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy

relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

Human Nutrition and Food Elective

Complete one of the following with a grade of C or above:

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

FCSC3150 - Intermediate Foods

Credits: 2

Examines food management concepts in regards to the service of safe food, modified menu development, and understanding of federal food regulations for food and nutrition labelling.

Prerequisite: FCSC 1150; CHEM 1020; MOLB 2021; junior standing and FCSC majors and minors.

FCSC3152 - Food Systems Production

Credits: 3

Quantity food purchasing and production, along with institutional food services experience.

Former Course Number [4152]

Prerequisite: FCSC 3150 and LIFE 1010.

FCSC Core Elective in Design, Merchandising and Textiles

Complete one of the following with a grade of C or above:

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

FCSC2180 - Housing and Residential Design

Credits: 3

Cross-cultural examination of the evolution of housing and residential design, both as artifacts of material culture, and as the setting which affects human development and well-being. Explores implications of housing construction on economic, social, and environmental health. Studies effective research and design of residential spaces in response to course concepts.

Prerequisite: WA/COM1.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC Core Elective in Human Development and Family Sciences

Complete one of the following with a grade of C or above:

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Professional Child Development

Professional Child Development prepares students for teaching and administrative positions in early childhood development and care.

Program Information

Entry into Professional Child Development must be approved by the department and advisor. Applicants must also satisfactorily complete a mandatory security screen (background check).

University Studies Program Requirements

The University Studies Program 2015

Student must complete the following USP requirements that are not incorporated into the requirements for this concentration:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses Before Entry

EDEC1020 - Introduction to Early Childhood Education

Credits: 3
Introduces students to the field of early childhood education through lecture, discussion, observation and participation. The student will be exposed to different programs currently in operation in the community and region. Special emphasis will be placed on evaluating early childhood education as a career.

Former Course Number [EDCI 1020]

PSYC1000 - General Psychology

Credits: 3
Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3
Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

ENGL1010 - College Composition and Rhetoric

Credits: 3
A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

Required Courses After Entry

**Meets FCSC Core Elective in Human Nutrition and Food. Grade of C or above required.*

***Meets FCSC Core Elective in Design, Merchandising and Textiles. Grade of C or above required.*

**** Grade of C or above required.*

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC2165 - Introduction to Fashion and Dress

Credits: 3

Course explores the system of dress, from body to garment selection, and the influences of psychology, culture and subculture on dress and self-presentation. Topics discussed include body image, society and social control, norms and dress outside the western world. Course will conclude by exploring current designers.

USP 2015 Code U5H

Former Course Number [1165]

OR

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

FCSC2050 - Safety, Nutrition and Health in Early Childhood Programs

Credits: 2

Designed to enrich students' understanding of practices which support children's health development. Issues to be explored include record keeping related to child care health and safety, use of health consultants, accident and injury prevention, immunizations, nutrition and food safety in child care settings.

When Offered (Offered alternate summers.)

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

FCSC2200 - Professionalism and Communication in FCSC

Credits: 3

An introduction to the field of Family and Consumer Sciences. Students will learn the history and approaches to problem solving using the body of knowledge in the field. The course will focus on professionalism and communication strategies using our departmental competencies.

USP 2015 Code U5C2

Prerequisite: FCSC major, FYS and COM1.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

OR

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicognitive development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4127 - Directing Preschool and Daycare Programs

Credits: 3

Effective methods for establishing and operating preschool and day-care programs for children under six years of age. Includes programming, classroom management, parent involvement and administration of food and nutrition programs.

USP 2003-2014 Code U3WC

Prerequisite: FCSC 2121, EDEC 1020 or 3210; junior standing.

FCSC4130 - Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early childhood education majors with an in-depth experience working with children from birth to age five. Students gain experience including planning lessons, teaching, assessing children and conducting parent conferences.

Prerequisite: FCSC 2121; EDEC 3000; EDEC 3220; senior standing.

OR

FCSC4131 - Administration Internship in Child Development

Credits: 6-8

Max Credit (Max. 8)

Provides professional child development and early education majors with an in-depth experience working with families and staff. Students gain experience in observing and assessing early childhood programs, planning and presenting staff trainings/professional workshops, staff supervision, writing newsletters, and other professional documents and professional activities.

Prerequisite: FCSC 2121; FCSC 4127; senior standing.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

EDEC3000 - Observing Young Children

Credits: 3

The general goal of the course is to introduce students to observation and recording techniques appropriate for assessing the growth and development of young children in the school setting. A secondary goal is to understand how observation and recording techniques can facilitate curriculum planning and parent-teacher conferences.

Prerequisite: EDEC 1020 and FCSC 2121.

EDEC3220 - Curriculum and Learning Environments in Early Childhood Education

Credits: 3

Early childhood curriculum and instructional practices will be reviewed, developed, and integrated with a focus on the role of learning environments, materials and play in supporting the teaching and learning process. Students have the opportunity to design meaningful learning experiences through practicum.

Former Course Number [EDCI 3220]

Prerequisite: EDEC 1020 and FCSC 2121 (or both PSYC 2300 and FCSC 2122).

EDEC4320 - Oral and Written Language Acquisition

Credits: 3

Introduces the student to the nature of language development as it pertains to oral and written communication in education. Recent research in the areas of oral and written language acquisition is compared and contrasted. Implications for facilitating the development of all language modes in educational settings is emphasized.

Former Course Number [EDCI 4320]

Prerequisite: EDST 3480 or equivalent, junior standing and declared Elementary Education or Family and Consumer Sciences major.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

OR

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

PSYC4310 - Developmental Psychopathology

Credits: 3

Provides basic understanding of developmental psychopathology. Examines characteristics, etiology, assessment and treatment of psychological disorders in children including autism, mental retardation, anxiety, depression, attention, learning, and conduct problems.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or FCSC 2121 or EDST 2450.

Degree Minimum: 120 Hours

Electives may be needed to meet the university requirement of 42 upper division credit hours and the degree minimum of 120 overall credit hours.

Electives should be selected in consultation with advisor and faculty mentor.

Minor

Apparel Design Minor

A minor in Apparel Design enables students to gain competency in areas expected of apparel designers; combining technical and creative skills with industry knowledge for the design and creation of fashionable and functional clothing.

Required Courses

FCSC1170 - Introduction to Apparel Construction

Credits: 3

Introduction to basic and industry production techniques applied to apparel and interior products. Development of decision-making skills in selection and use of materials.

FCSC1175 - Design Communication

Credits: 3

Explores philosophical and practical factors of the design communication process. Incorporates various methods of communicating design ideas and concepts from hand drawing and rendering to digital techniques through Adobe Creative Suite.

FCSC2175 - Fashion Illustration

Credits: 3

Introduces the fashion figure, light and dark contrasts, color, fabric and texture sketching techniques. Computer applications for layout of the design are also covered.

When Offered (Offered alternate fall semesters)

Prerequisite: FCSC 1180 or ART 1110; FCSC 1175.

FCSC2270 - Advanced Apparel Construction

Credits: 3

Development of advanced apparel construction and tailoring techniques. Continued development of decision-making skills in selection, use and evaluation of materials.

Former Course Number [3170]

Prerequisite: FCSC 1170.

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

Plus one of the following

FCSC3174 - Flat Pattern Design

Credits: 3

Principles and instructions for drafting and hand grading patterns using slopers through standard or individual measurements. Techniques of garment design are learned to create three-dimensional designs using the flat pattern method.

When Offered (Offered alternate spring semesters)

Former Course Number [4170]

Prerequisite: FCSC 2175 and FCSC 2270.

FCSC3175 - Apparel Design Through Draping

Credits: 3

Draping garment patterns through fabric manipulation, molding, and shaping to create three-dimensional form utilizing couture construction techniques.

Prerequisite: FCSC 2270

Plus one of the following

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

Plus one of the following

FCSC4178 - Fiber Arts

Credits: 3

Max Credit (Max. 6)

Development and enhancement of technical and creative apparel design skills with a focus on embellishment techniques and creative pattern-making culminating in the creation of a distinctive piece of wearable art.

Dual Listed FCSC 5178.

Prerequisite: FCSC 3174 or FCSC 3175.

FCSC4190 - Apparel Collection Development

Credits: 3

Students will utilize their pattern-making and apparel construction skills and continue to expand their knowledge of fit on live models through creation of their own apparel collection. They will be responsible for the creation of the collection from inspiration to final product. Collections will be showcased through a real-world fashion show.

Prerequisite: FCSC 3174 or FCSC 3175.

Minor Total: 24 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Human Development and Family Sciences Minor

Provides students with a foundation in the basic principles and knowledge of human development and family sciences across the lifespan that can enrich and complement their primary area of study.

Required Courses

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

FCSC2131 - Family Relations

Credits: 3

Provides an overview of current research on family relations, family theory, and family dynamics across the lifespan. An ecological and family systems approach is used, with particular focus paid to the understanding of contextual influences on families.

Prerequisite: COMM 1030 or EDEC 1020 or PSYC 1000 or SOC 1000.

FCSC2133 - Intimate Relationships

Credits: 3

Use of social science theory and research to understand psycho-socio-cultural influences in the development of personal and intimate relationships including human sexuality from development and interpersonal perspectives. Emphasizes application of current research and theory to facilitate positive individual growth, satisfaction, and stability in close relationships.

Former Course Number [3133]

Prerequisite: PSYC 1000 or SOC 1000.

Plus 12 credit hours from the following:

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

FCSC3110 - Personal Finance

Credits: 3

Acquaints students with personal budgeting and financial matters and relate these activities to financial institutions involved.

Prerequisite: junior standing.

FCSC3119 - Parent-Child Relationships

Credits: 3

Provides an overview of research and theory related to the processes of parent-child relationships across the lifespan. Emphasizes developmental and family theory and contexts that influence parent-child relationships. Introduces parent education as a method for applying parenting scholarship to professional practice.

Former Course Number [4119]

Prerequisite: PSYC 1000 or FCSC 2121 or EDST 2450.

FCSC3122 - Adolescence

Credits: 3

Studies biological, cognitive, and social/emotional development and adjustment within the adolescent and emerging

adulthood years. Emphasis on the importance of theoretically grounded research and the integration of theory, research, and practice during adolescence.

Former Course Number [4122]

Prerequisite: PSYC 1000.

FCSC3220 - Multicultural Influences on Children and Families

Credits: 3

Designed to enrich students' understanding of cultural contexts of children and families. Issues to be explored will include cultural values, learning styles, acquisition of concepts of race and ethnicity, bi-lingualism, the theory of bicultural/ bicultural development, and effective communication and problem-solving strategies that apply in multiple professional settings.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

Prerequisite: FCSC 2121 or PSYC 2300 or FCSC 2131.

FCSC4112 - Family Decision-Making and Resource Management

Credits: 3

Utilizes theories to facilitate understanding of problem-solving and resource management in various family structures/contexts across the life span. Emphasizes internal family dynamics, global interdependence, critical thinking, cultural examination, ethical decision-making, and self-reflection.

Dual Listed FCSC 5112.

Prerequisite: PSYC 1000 or SOC 1000 or COMM 1030 or COMM 1040; WB/COM2.

FCSC4113 - Consumer Issues

Credits: 3

Provides research/ applied understanding of consumer rights/ responsibilities, government/business roles, legislation, advocacy, and redress. Emphasizes introductory consumer law/legal research, critical thinking, self-reflection, and cultural examination. Ethical theories and issues examined within an interdependent world. Meets requirements for certification in family and consumer sciences education. Internship opportunities possible upon successful completion. Companion web site used.

Prerequisite: ECON 1000 or SOC 1000 or PSYC 1000; WB/COM2.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

FCSC4127 - Directing Preschool and Daycare Programs

Credits: 3

Effective methods for establishing and operating preschool and day-care programs for children under six years of age. Includes programming, classroom management, parent involvement and administration of food and nutrition programs.

USP 2003-2014 Code U3WC

Prerequisite: FCSC 2121, EDEC 1020 or 3210; junior standing.

FCSC4118 - Family Policy

Credits: 3

Explores the relationships between public programs/policies/laws and family functioning. The roles of family professionals in advocacy and education regarding policies will be discussed. Attention will be paid to current events relevant to family policy issues and the policy process at the state level.

Dual Listed FCSC 5118.

Prerequisite: FCSC 2131; junior standing.

FCSC4135 - Program Evaluation

Credits: 3

Explores techniques for evaluating programs in the public and/or private sectors. Includes determining need, identifying/communicating with stakeholders, developing program theory/logic models, implementation, evaluation methods/instruments, and interpreting/reporting evaluation results.

Dual Listed FCSC 5135.

Prerequisite: Junior standing.

FCSC4138 - Family Stress and Coping

Credits: 3

Theoretical and empirical research on family stress, coping and resiliency is emphasized as well as the study of

normative stressors and crisis in the lives of individuals and families. Attention is paid to the application of theory and research to professional practice.

Dual Listed FCSC 5138.

Prerequisite: FCSC 2131; junior standing.

Minor Total: 22 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Human Nutrition Minor

A minor in Human Nutrition and Food enhances degrees in kinesiology and health, food science, nursing, and related fields. Students learn how food choices influence health. *Does not prepare students to provide nutrition therapy or counseling.*

Required Courses

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

Plus one of the following

** Course can be used to fulfill only one category.*

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

Plus three of the following

** Course can be used to fulfill only one category.*

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

FCSC2141 - Nutrition Controversies

Credits: 2

This course expands upon nutrition concepts covered in FCSC 1141 by exploring current nutrition-related controversies. Skills related to the interpretation of research literature will be emphasized.

Prerequisite: FCSC 1141.

FCSC3142 - Geriatric Nutrition

Credits: 2

Studies nutrition requirements in elderly as effected by physiological changes with aging and the impact of nutrition and healthy lifestyle on prevention and treatment of age related conditions, diseases and social issues.

Former Course Number [4142]

Prerequisite: FCSC 1141; LIFE 1010.

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC3147 - Community Nutrition

Credits: 3

Provides an introduction to the field of community nutrition and develops an appreciation of the importance of nutrition in community health programs at the local, state, national, and international level. Topics covered include the role of the community nutritionist; the identification of nutrition problems; food insecurity; nutrition policy; nutrition education; assessing community resources; and program planning and evaluation.

Prerequisite: FCSC 1141; SOC 1000 or SOC 1100.

FCSC4044 - Maternal, Infant and Adolescent Nutrition

Credits: 3

Addresses nutrition requirements prior to and during pregnancy and lactation and continuing through infancy and adolescents and the physiological and endocrine changes influencing such requirements. Discusses dietary patterns and practices and the importance of healthy lifestyles during these periods for disease prevention and treatment.

Dual Listed FCSC 5044.

Former Course Number [3140]

Prerequisite: FCSC 1141; LIFE 1010; ZOO 3115.

FCSC4145 - Advanced Nutrition

Credits: 4

Discusses functions of components of diet in human metabolism. Applies principles of nutrition.

Dual Listed FCSC 5145.

When Offered (Offered fall semester)

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology,

psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

Minor Total: 23-25 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Interior Design Minor

A minor in Interior Design enables students with career interests in this field to gain experience in the competency areas expected of interior designers.

Required Courses

FCSC2188 - Interior Design Studio I

Credits: 3

Beginning interior design course in which students practice design principles and the design process to create functional, sustainable, and aesthetically pleasing residential interior spaces. Explores effective space planning and innovation for small footprint spaces. Emphasizes design development through hand drawing and rendering techniques. Sophomore standing or consent of instructor.

Prerequisite: FCSC 1180 or consent of instructor.

FCSC3288 - Environmental Psychology and Inclusive Design

Credits: 1

Online design primer focused on preparing students for the contract interior design series. Explores how humans interact with, experience, and behave in public spaces. Advances understanding of design inclusivity by interpreting and applying ADA regulations, along with considerations for diverse ages, circumstances, and abilities.

Prerequisite: FCSC 2180 , FCSC 2188 , or concurrent enrollment in 2188

FCSC3171 - Introduction to Textile Science

Credits: 3

Textiles are part of your everyday life. This course introduces fiber and polymer manufacturing, fiber properties, yarn properties, yarn manufacturing, fabric properties, fabric manufacturing, and coloration/ finishing of textile materials. Understanding of the science behind fabric and clothing care instructions, quality indicators and new developments on the horizon for textiles will be gained.

USP 2015 Code U5PN

Former Course Number [2171]

Prerequisite: Completion of USP Q requirement.

ARE1600 - Architectural Design Studio I

Credits: 3

Freshman-level architectural design in a project-based learning environment. Introduction to Building Information Modeling (BIM); architectural presentation drawings; freehand sketching; essentials of architectural design and building code compliance.

Former Course Number [ARE 2100]

ARE2600 - Architectural Design Studio II

Credits: 3

Sophomore-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 1600, with a new emphasis on building materials and construction methods.

Former Course Number [ARE 2200]

Prerequisite: ARE 1600.

Plus one of the following

FCSC3180 - Contract Design I

Credits: 3

Interior design course focused on designing sustainable contract spaces primarily for the hospitality industry. As needed, other public space design may be explored. Design development and communication through advanced design and rendering software will be utilized. Students will learn to write specifications and practice design development through evidence based design.

Prerequisite: FCSC 2188 and FCSC 3288 or concurrent enrollment, or consent of instructor.

FCSC4188 - Contract Design II

Credits: 3

Explores space planning and design as applied to contract interiors. Focused on healthcare and corporate design, but may survey other public spaces as appropriate. Advanced design, rendering, and visualization software used to conceptualize and present design solutions. Sustainable, accessible and functional design is highlighted.

Dual Listed FCSC 5188.

Prerequisite: FCSC 2188 and FCSC 3288 (or concurrent enrollment), or consent of instructor.

Plus one of the following

FCSC1180 - Applied Design

Credits: 3

A study of design principles and elements and their relation to the design of marketable consumer goods. Emphasizes developing creative thinking and proper fabrication techniques in solving both 2-D and 3-D design problems.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ARE3600 - Architectural Design Studio III

Credits: 3

Junior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). This course builds upon skills learned in ARE 2600, with a new emphasis on the complexities that accompany mid-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 2410 and ARE 2600.

Plus one of the following

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Minor Total: 21 credit hours

All courses required for this minor must be completed with a letter grade of C or above.

Additional Requirements

The Interior Design minor is sponsored jointly by the Departments of Family and Consumer Sciences and Civil and Architectural Engineering. Students who hope to use this minor to prepare for professional certification examination following graduation should consult the sponsoring departments to receive an advisor for the minor.

Graduate

Family and Consumer Sciences - Master of Science

The master's program in family and consumer sciences offers three specialized and very different areas of emphasis for a variety of pathways and careers.

General Requirements

All emphasis areas listed below require a minimum of 30 credit hours of coursework at the 4000/5000 level. Only nine credit hours of 4000-level courses are allowed in this master's program. The student may be required to complete more than the minimum credit hours to satisfy prerequisites or because the student's committee determines additional coursework is required for the student to reach their professional objective.

The student is responsible for meeting all deadlines, submitting all required forms, and for fulfilling all requirements for the degree.

Design, Merchandising and Textiles

This program offers the study of textiles, merchandising of textile and apparel products, various aspects of apparel design and product development including creative and functional design options, and various aspects of interior design.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

14 credit hours of Family and Consumer Sciences courses

6 credit hours of supporting courses from arts, humanities, natural or social sciences

6 credit hours of supporting research courses

4 credit hours of FCSC 5960 Thesis Research

Human Development and Family Sciences

This program is designed for professionals who are currently working in human services fields and would like to further their education. This is an entirely online degree program that allows students to progress at their own pace.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

FCSC 5122 Developmental Contexts Across the Lifespan

FCSC 5123 Positive Youth Development

FCSC 5135 Program Evaluation

EDRE 5530 Introduction to Research or EDRE 5550 Action Research

14 credit hours of supporting courses

4 credit hours of FCSC 5960 Thesis Research

Human Nutrition and Food

This program increases the understanding of food and nutritional science and how to apply that knowledge to disease prevention and enhancement of human potential.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

18 credit hours of courses from food and nutritional sciences, biological, natural and social sciences

6 credit hours of supporting research courses

2 credit hours of graduate research seminars

4 credit hours of FCSC 5960 Thesis Research

Application and Admission Requirements

Admission to this graduate program and selection for department-funded assistantships is highly competitive. Faculty review the applications for their program area. Priority consideration is given to applicants who meet or exceed admission requirements and possess research interests that parallel those of the faculty. We do not offer conditional admission.

The application must include the following:

- A bachelor's degree based on a four year curriculum from an accredited institution with a grade point average of 3.0 or higher (on a 4.0 scale). Transcripts from all institutions attended must be submitted.
- Graduate Record Exam (GRE) score. In the past, successful applicants have typically had scores at or above the 50th percentile on two of the three subtests (verbal, quantitative, and analytical writing). Official scores must be submitted.
- Letters of recommendation -- Applicants must submit names and contact information for at least 3 people who will provide letters of recommendation and evaluation of the applicant's preparedness and/or qualifications for the desired graduate degree program.
- A statement of purpose (letter of intent) that includes applicant's preparation for the desired degree, research interests, future goals related to the program of interest, and if they wish to be considered for a graduate assistantship.
- A current professional resume or curriculum vitae.
- For international students, a minimum TOEFL score of 540 (76 iBT), IELTS score of 6.5, or Duolingo score of 105 average of the Conversation and Production sections. Official scores must be submitted.
- International students must also provide evidence of adequate financial resources.

To ensure full review for fall semester admission, applications must be received no later than March 1. Notification of application decisions will be made by May 1. Applications received at other times of year will be reviewed only if space in the desired program area is available.

Final approval of program entry for an international graduate student receiving an assistantship is contingent upon demonstrated English language oral proficiency.

Financial Support

Financial support is never guaranteed.

Graduate assistantships are awarded after applicants are selected for program entry.

Graduate assistantships require teaching and/or research. Students awarded an assistantship involving any type of teaching responsibility including labs, lectures, paper grading and interpretation to students are required to successfully complete the mandatory Graduate Teaching and Learning Symposium prior to assuming their duties. The department will define teaching responsibilities prior to the student attending the teaching symposium.

A full-time assistantship provides a stipend, health insurance, and a tuition/fee reduction.

- The stipend is payable in installments over an academic year (September through May).
- Health insurance will be paid for the calendar year. **Student medical insurance is mandatory for international students.**
- The tuition/fee reduction will cover up to 9 graduate credit hours of tuition per semester and most mandatory fees. Some incidental fees are the responsibility of the student. Anyone receiving a full-time graduate assistantship must be registered as a full-time student in 9 credit hours per semester.
- If a student is awarded less than a full-time assistantship, the stipend, and tuition and fee reduction will be adjusted to the percentage rate of the assistantship.
- Graduate students who receive a full assistantship are required to work an average of 20 hours per week for the stipend.

Renewal of a graduate assistantship is contingent on acceptable progress towards degree completion and maintenance of a grade point average of 3.0 or above.

Financial support is not given for more than two academic years.

Food Science and Human Nutrition Interdisciplinary Master of Science

An interdisciplinary program where students gain expertise in theory as well as combined research in the areas of human nutrition and metabolism, food product development, community nutrition, food microbiology, meat science and food chemistry.

General Information

You can earn your master's degree in food science and human nutrition through the Department of Animal Science or Family and Consumer Sciences.

Applicants indicate the research experience they prefer and faculty member they are interested in working with. In this highly competitive graduate degree program, students gain direct experience with data collection, analysis, writing and publication through laboratory and classroom learning experiences. Program faculty are actively conducting research in the areas of eating behaviors, indigenous/traditional diets, micronutrient needs and deficiencies, food product development, sensory characteristics of food products, health and physical performance of active individuals, nutrition and disease, brain-reward pathway in animals, microbial diagnostics, rumen microbiome, nitrogen/protein metabolism, lipid analysis and alternative feed/forages.

General Requirements

A minimum of 30 credit hours of coursework at the 4000/5000 level is required. Only nine credit hours of 4000-level courses are allowed in this master's program. The student may be required to complete more than the minimum credit hours to satisfy prerequisites or because the

student's committee determines additional coursework is required for the student to reach their professional objective.

Student may choose Plan A - Thesis or Plan B - Non-Thesis Project.

An oral defense of thesis or project is required.

Student must complete the following (approved by graduate committee):

18 credit hours of courses from food and nutritional sciences, biological, natural and social sciences

6 credit hours of supporting research courses

2 credit hours of graduate research seminars

4 credit hours of FCSC 5960 Thesis Research

The student is responsible for meeting all deadlines, submitting all required forms, and for fulfilling all requirements for the degree.

Recommended Prerequisites

The following are recommended for students applying to the program:

- One semester of organic chemistry
- Human or animal nutrition, anatomy and physiology
- Introductory statistics

Application and Admission Requirements

Admission to this graduate program and selection for department-funded assistantships is highly competitive. Faculty review the applications for their program area. Priority consideration is given to applicants who meet or exceed admission requirements and possess research interests that parallel those of the faculty. We do not offer conditional admission.

The application must include the following:

- A bachelor's degree from an accredited institution with a grade point average of 3.0 or higher (on a 4.0 scale). Transcripts from all institutions attended must be submitted.
- Graduate Record Exam (GRE) score. In the past, successful applicants have typically had scores at or above the 50th percentile on two of the three subtests (verbal, quantitative, and analytical writing). Official scores must be submitted.
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- If a student is awarded less than a full-time assistantship, the stipend, and tuition and fee reduction will be adjusted to the percentage rate of the assistantship.
- Graduate students who receive a full assistantship are required to work an average of 20 hours per week for the stipend.

Renewal of a graduate assistantship is contingent on acceptable progress towards degree completion and maintenance of a grade point average of 3.0 or above.

Financial support is not given for more than two academic years.

Department of Molecular Biology

Department of Molecular Biology

203 Animal Science/Molecular Biology Bldg.

(307) 766-3300

Web site: www.uwyo.edu/MolecBio/

Department Chair: Jesse "Jay" Gatlin

Modern biology is based on a fundamental understanding of molecular processes essential in living organisms. Recent advances in molecular biology have led to an explosion of knowledge about gene expression and the role gene products play in cell function. Undergraduate programs in molecular biology offer learning opportunities at the forefront of modern biology.

The molecular biology degree programs are designed to prepare students for the future by combining a foundation in basic sciences and humanities with a broad selection of courses in molecular biology, biochemistry, genetics and microbiology. Advanced undergraduates attend an outside speaker's program that includes some of the world's best-known scientists. Modern, well-equipped teaching and research laboratories contribute significantly to the educational experience of a student. All junior- and senior-level undergraduates are encouraged to participate in research projects with individual faculty members. Involvement in an active research program provides the student with an additional dimension of learning beyond what is assimilated in courses. A student learns to plan experiments, solve technical problems and experience scientific advances first hand. An undergraduate research project also promotes close interaction between the undergraduate and graduate students, postdoctoral researchers, staff and faculty.

Many molecular biology majors continue their education beyond the bachelor's level by going to graduate school or to medical, dental or veterinary school. Some students choose to use their education to gain employment in biotechnology, clinical or basic research laboratories. Other career choices include teaching, medical technology, law and business. In addition, the Department of Molecular Biology offers the Ph.D., M.S. and M.A. degrees for students who wish to do graduate work in molecular biology, in preparation for careers in academia, the biotechnology and biopharmaceutical industry, medicine, or other professions.

Professors

DAVID FAY, B.S. Tufts University 1988; Ph.D. Yale University 1995; Professor of Molecular Biology 2010, 2001.

JESSE "JAY" C. GATLIN, B.S. University of Colorado-Boulder 1995; Ph.D. University of Colorado-Aurora 2005; Professor of Molecular Biology 2021, 2010.

MARK GOMELSKY, B.S. Moscow Institute of Chemical Technology 1986; M.S. 1988; Ph.D. Institute of Genetics and Selection of Industrial Microorganisms 1991; Professor of Molecular Biology 2011, 1999.

DONALD L. JARVIS, B.S. Idaho State University 1978; M.S. 1980; Ph.D. Baylor College of Medicine 1986; Professor of Molecular Biology 2000, 1998.

DANIEL L. LEVY, B.S. California Institute of Technology 2000; Ph.D. University of California San Francisco 2006; Professor of Molecular Biology 2021, 2011.

DANIEL WALL, B.A. Sonoma State University 1988; Ph.D. University of Utah 1994; Professor of Molecular Biology 2018, 2007.

CYNTHIA WEINIG, B.A. Brown University 1991; Ph.D. Indiana University 1999; Professor of Botany and Molecular Biology 2013, 2007.

Associate Professors

GRANT BOWMAN, B.S. University of Rochester 1997; Ph.D. University of Chicago 2004; Associate Professor of Molecular Biology 2019, 2012.

JASON GIGLEY, B.S. University of New Hampshire 1994; Ph.D. Dartmouth Medical School 2007; Associate Professor of Molecular Biology 2019, 2012.

PAMELA J. LANGER, B.S. Indiana University-Bloomington 1973; Ph.D. Massachusetts Institute of Technology 1980; Associate Professor of Molecular Biology 1994, 1987.

Assistant Professors

THOMAS BOOTHBY, B.S. Tulane University 2008; Ph.D. University of Maryland 2013; Assistant Professor of Molecular Biology, 2019.

EUNSOOK PARK, M.S. Seoul National University 2001; Ph.D. University of Tennessee, Knoxville 2010; Assistant Professor of Molecular Biology 2019.

TODD SCHOBORG, B.S. Murray State University 2008; Ph.D. University of Tennessee 2013; Assistant Professor of Molecular Biology, 2019.

Associate Lecturer

BRIDGET DECKER, B.S. Colorado State University 1998; Ph.D. Dartmouth College 2006; Associate Lecturer Molecular Biology, 2021, 2015.

Assistant Lecturer

KASSANDRA WILLINGHAM, B.S. University of Wyoming 2010, B.S. University of Wyoming-Casper 2017; M.S. Colorado State University 2016; Assistant Lecturer Molecular Biology 2020.

Instructional Teaching Laboratory Coordinator

HOLLY STEINKRAUS, B.A. Ripon College 1987; Ph.D. University of Wyoming 1993; Instructional Teaching Laboratory Coordinator, 2015.

Adjunct Professor

ANNE W. SYLVESTER, B.S. University of Washington 1980; M.S. 1982; Ph.D. 1987; Professor of Molecular Biology 2010, 2006.

Professors Emeritus

Dale Isaak, Randy Lewis, Nancy Petersen, Don Roth, Mark M. Stayton, Peter E. Thorsness, Jordanka Zlatanova

Major

Molecular Biology, B.S.

The Molecular Biology B.S. degree program builds on basic sciences with courses focusing on molecular, cellular, genetic and microbiological principles. Research opportunities prepare students for postgraduate studies in research and health sciences.

Molecular Biology, B.S. Additional Information

The Molecular Biology B.S. degree program includes molecular biology, biochemistry, microbiology, genetics, and cell biology courses. Research opportunities also develop skillsets for graduate school, biotechnology employment and professional health programs.

To obtain a B.S. degree in molecular biology, a student, with the aid of a molecular biology adviser, designs a program of study that includes courses from the Molecular Biology General Science Core and Elective Requirements listed below. Additional course lists are provided as an aid in developing an individualized program of study in key Emphasis Areas such as Cell Biology and Molecular Genetics, Microbiology, and Preprofessional Health Sciences. Courses listed under the Emphasis Areas are optional, and the student and adviser will design a unique curriculum suited to the student's personal interests. Flexibility in course selection also permits students to fulfill various requirements for postgraduate and professional schools. In order to fulfill course prerequisites in a timely manner, a recommended sequence of courses is available from the student's molecular biology adviser. Completion of a B.S. in Molecular Biology provides a student with the tools needed to open the door to exciting futures in science, medicine and agriculture.

We expect that our graduating students will have a strong foundation in basic science, biochemistry and molecular biology that will enable them to:

1. understand the basis of multiple molecular mechanisms central to gene expression;
2. utilize molecular and microbiological laboratory techniques in future jobs or programs and trouble-shoot experimental challenges;
3. apply for graduate programs in molecular biology, microbiology or other life sciences;
4. begin employment as a laboratory research assistant in academia or the medical or agricultural biotechnology industries;
5. utilize a background in biochemistry and cell and molecular biology to promote success in the basic science curriculum in medical or other health professional schools;
6. integrate a background in biochemistry and cell and molecular biology into career development in professions such as law, genetic counseling, or public health policy;
7. employ evidence-based scientific reasoning skills in evaluating the use of molecular genetics in the prevention, diagnosis and treatment of medical disorders.

Requirements for Molecular Biology Majors

General Requirements

- Total credits (college requirement): 120
- 3000-level or above credits (university requirement): 42
- Fulfillment of University Studies Program (consult adviser)
- Fulfillment of molecular biology general science, core and elective requirements listed below

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an

opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

MOLB 1101

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

MOLB 4053

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

MOLB Requirements

General Science Requirement

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Total: 36 Credits

*The alternative math courses MATH 1450 or MATH 1400 and MATH 1405 may be substituted with adviser approval.

MOLB Core Requirement

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3320 - Molecular Biological Methods

Credits: 4

Integrated discussion and hands-on experience with modern bioinformatic and wet lab-based molecular, genetic and biochemical methods. Completion of the course should provide students with enhanced theoretical understanding and practical knowledge of many crucial modern computational and molecular biological techniques.

When Offered Spring

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

OR

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

MOLB4053 - Communications in Molecular Biology

Credits: 3

Students will explore current topics in molecular biosciences and their applications in biotechnology and medicine. The course will develop student's abilities to read and discuss scientific literatures and present the topics in different oral/written for public, research proposals and research-based business plans.

When Offered Spring

USP 2015 Code U5C3

Prerequisite: MOLB 4600 and LIFE 3050 or MOLB 3000

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

OR

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4051 - Departmental Seminar

Credits: 1

Max Credit 15

Attend a series of weekly seminars on a diverse set of research topics presented by visiting faculty or research scientists and will participate in a discussion following the seminar.

Dual Listed MOLB 5051.

Former Course Number [4050]

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600.

OR

MOLB4052 - Summer Seminar

Credits: 1

Max Credit 5

Consists of one week of lectures, presented by a renowned scientist from either academics or industry. The material presented is taken from the research program of the speaker.

Dual Listed MOLB 5052.

Former Course Number [4050]

Total: 28-29 Credits

MOLB Elective Requirement (6 credits)

Courses from the following list that were not used to fulfill the MOLB Core Requirement may be applied to the MOLB Elective Requirement; a maximum of 3 credits of MOLB 4010 may be counted toward the MOLB Elective Requirement.

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3
Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4100 - Clinical Biochemistry

Credits: 4
Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring
Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4260 - Quantitative Microscopy

Credits: 1
Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.
When Offered Fall
Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4400 - Immunology

Credits: 4
Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4460 - Microbial Physiology and Metabolism

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MICR 4460.

Dual Listed MOLB 5460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on

molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021 , and MOLB 3610 or MOLB 3000

Total: 6 Credits

Molecular Biology Emphasis Areas

After discussing individual interests with a molecular biology adviser, a student should enroll in additional courses that will enhance preparation for a chosen career objective. Listed below are recommended courses that are not required but will further develop a student's skills and understanding in three Emphasis Areas.

Cell Biology and Molecular Genetics

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software.

Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 5610

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021 , and MOLB 3610 or MOLB 3000

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

Microbiology

MICR2220 - Pathogenic Microbiology

Credits: 3

This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed PATB 2220.

Prerequisite: MOLB 2021 or MICR 2021.

MICR4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed PATB 4130.

Dual Listed MICR 5130.

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

MICR4220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scoped objective is to assist students in gaining an understanding of principles and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principles and concepts through knowledge of experimental approaches.

Cross Listed PATB 4220

Dual Listed MICR 5220.

Prerequisite: PATB 2220 or MICR 2220, and statistics (or epidemiology).

MICR4360 - Medical Entomology and Parasitology

Credits: 4

Emphasis on medically important arthropods, protozoa, and worms; clinical effects of infection epidemiology avoidance/control and identification/diagnosis.

Prerequisite: 8 hours of biological science

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4440 - Microbial Genetics

Credits: 3
Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4460 - Microbial Physiology and Metabolism

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MICR 4460.

Dual Listed MOLB 5460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021, and MOLB 3610 or MOLB 3000

MICR4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed PATB 4710.

Prerequisite: MICR 2220 or PATB 2220 or MOLB 2240 or MICR 2240.

Preprofessional Health Sciences

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 5610

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600

MICR2220 - Pathogenic Microbiology

Credits: 3

This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed PATB 2220.

Prerequisite: MOLB 2021 or MICR 2021.

MICR4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed PATB 4710.

Prerequisite: MICR 2220 or PATB 2220 or MOLB 2240 or MICR 2240.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

PSYC2340 - Abnormal Psychology

Credits: 3

Provides a general overview of abnormal behavior, emphasizing types, etiology and treatment methods.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: A grade of C or better in PSYC 1000.

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

Minor

Molecular Biology Minor

A Molecular Biology minor includes courses in basic sciences, molecular biology, biochemistry, microbiology, genetics and upper level electives and research opportunities, preparing students for postgraduate studies in research and health sciences.

Molecular Biology Minor Additional Information

Students wishing to minor in molecular biology should discuss their plans with an adviser. Formal declaration of molecular biology as a minor requires 1) submission of a form approved by the Department of Molecular Biology and the College of Agriculture and Natural Resources Dean's Office, 2) appointment of an adviser for the Department of Molecular Biology.

To receive a minor in molecular biology, a student must complete courses listed in the following areas:

General Science Requirement

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

OR

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring,

theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

AND

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MOLB Core and Elective Requirement

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3320 - Molecular Biological Methods

Credits: 4

Integrated discussion and hands-on experience with modern bioinformatic and wet lab-based molecular, genetic and biochemical methods. Completion of the course should provide students with enhanced theoretical understanding and practical knowledge of many crucial modern computational and molecular biological techniques.

When Offered Spring

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021

OR 3 credits of

MOLB4010 - Laboratory Research in Molecular Biology

Credits: 1-3

Max Credit 12

Undergraduate student will conduct a laboratory or computational research project under the guidance of a Molecular Biology Department faculty member, who will serve as the student's research adviser.

Prerequisite: LIFE 1010 or concurrent enrollment, and consent of instructor.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

OR

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

- **MOLB elective requirement:** 6 credits of 4000-level MOLB courses, excluding MOLB 4010, MOLB 4050, MOLB 4051, MOLB 4052, MOLB 4850

Graduate

Molecular Biology, M.A.

The Molecular Biology M.A. program includes advanced courses in molecular sciences with a focus on a research project, preparing students for a Ph.D. program, biotechnology research or other professional postgraduate program.

Molecular Biology, M.A. Additional Information

An applicant for the M.A. degree in Molecular Biology is generally expected to have an equivalent of a B.S. degree in a field related to Molecular Biology. Prior to admission to the program, an applicant needs to contact the Molecular Biology department professor directly to determine if they may be interested in serving as the student's potential adviser. Once a future graduate adviser agrees to accept a student into their lab, an applicant can apply to the Molecular Biology Graduate program. Admissions to the program are allowed in the Fall, Spring and Summer semesters.

Additional information on graduate student regulations and policies, including transfer credit and credit reserved from undergraduate courses, is located here: https://www.uwyo.edu/registrar/graduate_students/resources.html

The pursuit of an M.A. degree in Molecular Biology is suitable for students interested in obtaining a master's degree that does not necessarily include laboratory work. Students who intend to pursue education in medical, dental, veterinary or law schools may choose to pursue an M.A. in Molecular Biology before continuing their education. An appropriate research project is selected in consultation with the M.A. degree candidate and their graduate adviser. Student performance is monitored by a thesis committee that will evaluate a student's written thesis, public seminar, and oral thesis defense. A student pursuing an M.A. degree should not have expectations of financial support. Students pursuing the M.A. degree in Molecular Biology usually complete their program in two academic semesters plus two summer semesters.

Requirements for M.A. degree in Molecular Biology

An M.A. degree student, in consultation with their graduate committee, must design a Program of Study that includes a minimum of 30 hours of graduate credit. Specific requirements for the M.A. Program in Molecular Biology are listed below.

- 3 credits of Advanced Biochemistry MOLB 5600 with a minimum grade of B.
 - This requirement may be fulfilled if a student has already received a minimum grade of B in MOLB 4600, MOLB 5600, or transfer credits for an equivalent biochemistry course taken at another university (equivalency is determined by the student's graduate committee).

- 6 credits minimum of a 5000-level MOLB course from the following list: MOLB 5400, MOLB 5440, MOLB 5450, MOLB 5460, MOLB 5610, MOLB 5670, MOLB 5680.
- 4 credits of the seminar presentation course MOLB 5050 (2 credits of MOLB 5050 must be taken the first semester a student enrolls in the graduate program)
- Students are required to enroll in the departmental seminar course each semester: MOLB 5051 during the academic year; MOLB 5052 in the summer semester
- Other credits as determined by the student in consultation with their graduate committee

Molecular Biology, M.S.

The M.S. in Molecular Biology program provides training with advanced courses in molecular sciences and conducting a research project, with the goal of providing a foundation for pursuing a Ph.D. program, employment or other postgrad program.

Molecular Biology, M.S. Additional Information

The M.S. is a research-intensive degree. An applicant is generally expected to have an equivalent of a B.S. degree in a field related to Molecular Biology. Prior to admission to the program, an applicant must contact the Molecular Biology department professor directly to determine if they may be interested in serving as the student's potential adviser. Once a future graduate adviser agrees to accept a student into their lab, an applicant can start an application to the Molecular Biology Graduate program. Admissions to the program are allowed in the Fall, Spring and Summer semesters. An M.S. candidate will conduct a research project as well as present at the departmental seminars and at scientific meetings. Student performance is monitored by a thesis committee that evaluates a student's research proposal, seminar presentations, written thesis, final public seminar, and final oral defense of the thesis. In consultation with the faculty research adviser, a student may elect to serve as a teaching assistant. Graduate assistantships for M.S. degree students are at the discretion of their graduate adviser. Students pursuing the M.S. degree in Molecular Biology usually complete their program in two to three years.

Additional information on graduate student regulations and policies, including transfer credit and credit reserved from undergraduate courses, is located here: https://www.uwyo.edu/registrar/graduate_students/resources.html

Requirements for M.S. degree in Molecular Biology

An M.S. degree student, in consultation with their graduate committee, must design a Program of Study that includes a minimum of 30 hours of graduate credit, including 26 credits of formal coursework and 4 credits of thesis research MOLB 5960 . Specific requirements for the M.S. degree in Molecular Biology are listed below.

- 3 credits of Advanced Biochemistry MOLB 5600 with a minimum grade of B.
 - This requirement may be fulfilled if a student has already received a minimum grade of B in MOLB 4600 , MOLB 5600 , or transfer credits for an equivalent biochemistry course taken at another university (equivalency is determined by the student's graduate committee).
- 6 credits minimum of a 5000-level MOLB course from the following list: MOLB 5400, MOLB 5440, MOLB 5450, MOLB 5460, MOLB 5610, MOLB 5670, MOLB 5680.
- 4 credits of MOLB 5050 Advanced Student Seminar; 2 credits of MOLB 5050 must be taken the first semester a student enrolls in the graduate program
- Students are required to enroll in the departmental seminar course each semester: MOLB 5051 during the academic year; MOLB 5052 in the summer semester
- Other credits as determined by the student in consultation with their graduate committee
- MOLB 5960 Thesis Research (4 credits)

Molecular Biology, Ph.D.

The Ph.D. program in Molecular Biology provides training for students interested in pursuing advanced courses and conducting an extensive laboratory research project in molecular and cellular biology or microbiological research areas.

Molecular Biology, Ph.D. Additional Information

The Ph.D. in Molecular Biology is a research-intensive degree. Prior to admission to the program, an applicant must contact the Molecular Biology department professor directly to determine if they may be interested in serving as the student's potential adviser. Once a future graduate adviser agrees to accept a student into their lab, an applicant can start an application to the Molecular Biology Graduate program. Admissions to the program are allowed in the Fall, Spring and Summer semesters.

An application to the Ph.D. program should include a curriculum vitae (CV), a 2-page statement of research interests and career plans, contact information for three references, transcripts from previous institutions, and GRE scores. Those students with an M.S. degree may be excluded from the GRE requirement. Following admission, a student will conduct a guided research project in the laboratory into which they have been accepted. The faculty research adviser is responsible for financial support of the student. A research project is expected to result in publications in peer-reviewed journals as well as presentations at the departmental seminars and scientific meetings.

Throughout the degree program, a graduate student is guided and evaluated by their research adviser and graduate committee. A student must develop a Program of Study approved by the student's graduate committee. Student performance is monitored by a dissertation committee that evaluates a student's seminar presentations, research proposal, preliminary exam, written dissertation, final public seminar, and final oral defense of the dissertation. In consultation with the faculty research adviser, a student may elect to serve as a teaching assistant. Students pursuing the Ph.D. degree in Molecular Biology usually complete their program in approximately five years.

Requirements for Ph.D. degree in Molecular Biology

A Program of Study for the Ph.D. in Molecular Biology must include a minimum of 72 semester hours of credit at the 4000 level or above from UW or equivalent levels from another approved university. This 72-hour requirement may include graduate credits earned while working toward the master's degree in the same area, but at least 42 hours (of the 72) must be earned in formal coursework, including the specific requirements for the program detailed below. Additional credits toward the 72-hour requirement may include additional formal course credits, Dissertation Research credits (MOLB 5980), or MOLB 5960 credits or Internship credits (MOLB 5990). The Program of Study must be on file in the Office of the Registrar before the preliminary examination can be scheduled. Additional information on graduate student regulations and policies, including transfer credit and credit reserved from undergraduate courses, is located here: https://www.uwyo.edu/registrar/graduate_students/resources.html

Specific requirements for the Ph.D. degree in Molecular Biology are listed below. The Program of Study is determined in consultation with the student's graduate committee.

- 3 credits of Advanced Biochemistry MOLB 5600 with a minimum grade of B.
 - This requirement may be fulfilled if a student has already received a minimum grade of B in MOLB 4600, MOLB 5600, or transfer credits for an equivalent course taken at another university (equivalency is determined by the student's graduate committee).
- 6 credits minimum of a 5000-level MOLB course from the following list: MOLB 5400, MOLB 5440, MOLB 5450, MOLB 5460, MOLB 5610, MOLB 5670, MOLB 5680.
- 4 credits of MOLB 5050 Advanced Student Seminar; 2 credits of MOLB 5050 must be taken the first semester a student enrolls in the graduate program

- Students are required to enroll in the departmental seminar course each semester: MOLB 5051 during the academic year; MOLB 5052 in the summer semester
- Other course credits as determined by the student in consultation with their graduate committee
- MOLB 5980 Dissertation Research (number of credits to be determined in consultation with the student's graduate committee)

Department of Plant Sciences

Room 50 Agriculture Building

PHONE: (307) 766-3103

Website: www.uwyo.edu/plantsciences

Department Head: Andrew Kniss

Professors:

JIM HEITHOLT, B.S. Western Illinois University 1978; M.S. University of Missouri 1980; Ph.D. University of Kentucky 1984; Professor of Crop Physiology 2014.

ANOWAR ISLAM, B.S. Bangladesh Agricultural University 1990; M.S. Institute of Postgraduate Studies in Agriculture, Bangladesh 1996; Ph.D. University of Sydney, Australia 2003; Professor of Forage Agronomy 2019, 2008.

ANDREW R. KNISS, B.S. University of Wyoming 2001; M.S. University of Nebraska-Lincoln 2003; Ph.D. University of Wyoming 2006; Professor of Weed Ecology and Management in Cropping Systems 2018, 2007.

URSZULA NORTON, B.S. Warsaw Agricultural University 1988; M.S. 1990; M.S. Iowa State University 1995; Ph.D. University of Montana 2000; Professor of Agroecology and Soil Science 2022, 2009.

Associate Professors:

RANDA JABBOUR, B.S. Rochester Institute of Technology 2003; Ph.D. Pennsylvania State University 2009; Associate Professor of Agroecology 2019, 2013.

BRIAN A. MEALOR, B.S. North Georgia College and State University 1999; M.S. University of Wyoming 2003; Ph.D. 2006; Director, Sheridan Research and Extension Center; Associate Professor of Rangeland Restoration and Weed Science 2015, 2009.

WILLIAM STUMP, B.S. Purdue University 1981; M.S. Colorado State University 1984; B.F.A. 1991; Ph.D. 1997; Associate Professor of Plant Pathology 2020, 2014.

Assistant Professors:

KELSEY BROCK, B.S. University of Alberta 2010; M.S. 2014; Ph.D. University of Hawai'i - Mānoa 2021; Assistant Professor, Extension Weed Specialist (Invasive Plants) 2022.

DONNA HARRIS, B.S. University of Georgia 1998; M.S. 2001; Ph.D. 2014; Assistant Professor of Plant Breeding and Genetics 2020.

Academic Professionals:

CHRIS HILGERT, B.S. Oregon State University 2001; M.S. 2003; Extension Horticulture Specialist, Master Gardener Coordinator 2011.

JENNA MEEKS, B.S. Colorado State University 2010; M.S. University of Wyoming 2016; Assistant Research Scientist 2021.

ELIZABETH MOORE, B.S. West Texas A&M University 2001; M.S. 2004; Assistant Lecturer of Horticulture and Plant Production 2021.

KAREN PANTER, B.S. Colorado State University 1979; M.S. University of Nebraska 1981; Ph.D. Colorado State University 1985; Extension Horticulture Specialist 1998; Senior Extension Educator 2012.

Emeritus/Retired Faculty:

Rollin H. Abernethy, James Cook, Ron Delaney, Mark Ferrell, Alan Gray, Robin W. Goose, Bernie Kolp, James M. Krall, Stephen D. Miller, Thomas D. Whitson, David Wilson

Plant Production and Protection Major (B.S.)

The Department of Plant Sciences offers a Bachelor of Science degree in Plant Production and Protection (Plant Production and Protection, B.S.), with four optional concentrations and four minors. Optional concentrations for Plant Production and Protection majors are:

- Agronomy
- Horticulture
- Integrated Pest Management
- Agroecology and Evolution

Minors available for students pursuing other majors at UW are: Agronomy, Agroecology, Horticulture, and Plant Protection. These minors allow students within many bachelors programs to obtain an added emphasis in areas that enjoy strong employment opportunities.

A B.S. degree in Plant Production and Protection prepares students for careers in agriculture, natural resources, environmental and life sciences and for advanced graduate studies in specific subdisciplines within these areas. It is a broad, interdisciplinary, undergraduate curriculum that combines and integrates courses in the crop, horticulture, disease, weeds, soil, and insect sciences and is supported by a science-based curriculum and general education. Flexibility is built into the curriculum to readily accommodate students seeking to pursue an emphasis or obtain a minor in a specific discipline. To that end the breadth of the curriculum is balanced with greater depth in biology, chemistry, crop science, entomology, environmental studies, natural resource management, soil science, plant pathology, weed science, horticulture, turf management, pre-veterinary medicine, rangeland ecology and watershed management, animal science, microbiology, and molecular biology. A liberal number of electives permits design of a program that best meets individual career and educational objectives. The Plant Production and Protection program is well suited for students who possess a strong interest in, and an aptitude for, science, agriculture, the environment, life sciences, or natural resources.

The core curriculum is comprised of freshman- through senior-level courses that illustrate dynamic and complex interactions of plants, soils, and plant pests (diseases, insects, weeds) with the environment. Academic training is enhanced with experiential learning through research apprenticeships, internships, field studies, and a special Plant Sciences Capstone course. Special emphasis is given to development of critical thinking and communication skills, problem solving, and application of science. It is an interdisciplinary and highly practical degree program designed to prepare students for "real world" situations.

Plant Production and Protection B.S. degree recipients are prepared for careers with private and public institutions and agencies in such areas as: agricultural consulting, production or sales, research, product development, education, extension education, international programs, and scientific and technological support. These careers include but are not limited to: soil scientist, conservationist, entomologist, consultant, plant scientist, integrated pest management specialist, ecologist, research associate or technician, agronomist, biotechnician, and agroecologist. Degree recipients are also prepared for graduate education in biological and environmental sciences.

The combined Plant Sciences, B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. Please see additional information under the QuickStart Program section below or online at <https://www.uwyo.edu/plantsciences/graduate-studies/quickstart-program.html>.

Agronomy Minor (Agronomy Minor)

Minimum Requirements: 19 Hours

Agroecology Minor (Agroecology Minor)

Minimum Requirements: 20 Hours

Horticulture Minor (Horticulture Minor)

Minimum Requirements: 20 Hours

Plant Protection Minor (Plant Protection Minor)

Minimum Requirements: 19 Hours

Plant Production and Protection/Environment and Natural Resources Program, B.S.

(ENR and Plant Sciences)

Students interested in the environment and natural resources may choose to pursue the B.S. in Plant Production and Protection/ENR. This degree is offered in conjunction with the Haub School of Environment and Natural Resources. See the ENR Information and Advising Guide for details.

Graduate Study (M.S. and Ph.D.)

The Department of Plant Sciences offers curricula leading to the master of science and doctor of philosophy degrees in Plant Sciences. Courses within the department are offered in crop science, horticulture, plant pathology, weed science, and agronomy. Interdisciplinary coursework and research projects are common for Plant Sciences graduate students.

Program Specific Admission Requirements

In addition to university minimum requirements, a majority of the department faculty and department head must approve the admission. To be considered for admission, candidates must establish a faculty member willing to serve as advisor.

In order to apply, please submit the following via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>): a statement of purpose that describes your professional objectives and scientific interests, a current Curriculum Vitae, current academic transcripts, proof of English proficiency (if English is not your primary language) - TOEFL, IELTS, or Duolingo tests are currently accepted, and three letters of recommendation (to be submitted directly by references through the online application). Our regular deadline for fall semester admission is February 15, although we will accept applications any time during the year (including for spring semester admission as well).

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information, or visit UW's Graduate Education website at <http://www.uwyo.edu/uwgrad/>.

Program Specific Graduate Assistantship Information

M.S. assistantships include a stipend, plus tuition and fee waiver, and health insurance. Ph.D. assistantships include a stipend, plus tuition and fee waiver, and health insurance. These assistantships are for the 9-month academic year, but summer support is typically available.

Program Specific Degree Requirements

Master of Science in Plant Sciences

Plan A (thesis)

Requirements for the master of science degree include 26 hours of coursework beyond the bachelor's degree numbered 4000 or above, 4 hours of thesis research, a research proposal, original research, and oral defense of the thesis.

The M.S. degree is typically completed in two years. The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

Doctoral Program

The requirements for the doctor of philosophy degree include 60 hours of coursework beyond the bachelor's degree numbered 4000 or above, 12 hours of dissertation research, a research proposal, original research, written and oral preliminary exams to be taken when most or all coursework is completed, and an oral defense of the dissertation.

Dissertations may be in a modified journal article format but must meet university formatting requirements.

The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

The student is expected to participate in the usual activities of scientific research such as attending and presenting at research seminars and professional meetings and publishing his/her research.

QuickStart Program (Plant Sciences B.S/M.S.)

The combined Plant Sciences, B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. This program allows for early planning of the M.S. portion of the student's education, along with beginning a thesis research project before the completion of the B.S. degree. It offers increased flexibility in the order in which courses are taken, and more efficient use of what would otherwise be a final semester with a light credit hour load. Up to six credit hours may be counted toward both the B.S. and M.S. degree programs.

Major

Plant Production and Protection, B.S.

The Plant Production and Protection degree prepares students for careers in agriculture, natural resources, environmental and life sciences, and advanced graduate studies in the plant sciences.

Program Information

The Department of Plant Sciences offers a Bachelor of Science degree in Plant Production and Protection, with four optional concentrations and four minors. Optional concentrations for Plant Production and Protection majors are:

- Agronomy
- Horticulture
- Integrated Pest Management
- Agroecology and Evolution

Minors available for students pursuing other majors at UW are: Agronomy, Agroecology, Horticulture, and Plant Protection. These minors allow students within many bachelors programs to obtain an added emphasis in areas that enjoy strong employment opportunities.

A B.S. degree in Plant Production and Protection prepares students for careers in agriculture, natural resources, environmental and life sciences and for advanced graduate studies in specific subdisciplines within these areas. It is a broad, interdisciplinary, undergraduate curriculum that combines and integrates courses in the crop, horticulture, disease, weeds, soil, and insect sciences and is supported by a science-based curriculum and general education. Flexibility is built into the curriculum to readily accommodate students seeking to pursue an emphasis or obtain a minor in a specific discipline. To that end the breadth of the curriculum is balanced with greater depth in biology, chemistry, crop science, entomology, environmental studies, natural resource management, soil science, plant pathology, weed science, horticulture, turf management, pre-veterinary medicine, rangeland ecology and watershed management, animal science, microbiology, and molecular biology. A liberal number of electives permits design of a program that best meets individual career and educational objectives. The Plant Production and Protection program is well suited for students who possess a strong interest in, and an aptitude for, science, agriculture, the environment, life sciences, or natural resources.

The core curriculum is comprised of freshman- through senior-level courses that illustrate dynamic and complex interactions of plants, soils, and plant pests (diseases, insects, weeds) with the environment. Academic training is enhanced with experiential learning through research apprenticeships, internships, field studies, and a special Plant Sciences Capstone course. Special emphasis is given to development of critical thinking and communication skills, problem solving, and application of science. It is an interdisciplinary and highly practical degree program designed to prepare students for "real world" situations.

Plant Production and Protection B.S. degree recipients are prepared for careers with private and public institutions and agencies in such areas as: agricultural consulting, production or sales, research, product development, education, extension education, international programs, and scientific and technological support. These careers include but are not

limited to: soil scientist, conservationist, entomologist, consultant, plant scientist, integrated pest management specialist, ecologist, research associate or technician, agronomist, biotechnician, and agroecologist. Degree recipients are also prepared for graduate education in biological and environmental sciences.

The combined Plant Sciences, B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. Please see additional information under the Plant Sciences Graduate Study section or online at <http://www.uwo.edu/plantsciences/>.

Course Requirements

Core Requirements (required of ALL degree recipients): 50 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Choose one from ANSC 1010, ENTO 1000, or ENTO 1001 (ENTO 1001 preferred if available):

ANSC1010 - Introduction to Animal Science

Credits: 4

Introduction to the field of animal science, including meat and dairy products, nutrition, reproduction, breeding and genetics, livestock selection, and diseases and health of domestic livestock species, with application to the management of beef cattle, sheep and wool, dairy cattle, swine, and horses.

When Offered (Normally offered fall semester)

ENTO1000 - Insect Biology

Credits: 3

Introduces insects and related arthropods. Introduces aspects of insect biology, behavior, life history and diversity, as well as many ways that insects affect humans.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENTO1001 - Insect Biology

Credits: 4

Covers same lecture material as ENTO 1000, but includes a laboratory.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

Choose one from STAT 2050 or LIFE 2100:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Choose one from PLNT 3000, SOIL 4140, or SOIL 4160:

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer

modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

PLNT4990 - Plant Sciences Capstone

Credits: 3

Capstone course for final integration of courses required for the Plant Production and Protection degree. Provides overall synthesis of plant sciences academic subjects following completion of a prescribed senior experience course, PLNT 4920 or PLNT 4930.

When Offered (Offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code UC3

Practical Experience (must take 6 credit hours from the following): 6 Hours

PLNT4820 - Plant Sciences Seminar

Credits: 1

Max Credit 1

Discussion in production, physiology, breeding and weed science. Undergraduates in PLNT 4820 will attend graduate seminar PLNT 5820 and participate in discussions of the current topics.

Dual Listed PLNT 5820

Prerequisite: Senior standing, PLNT 1000.

PLNT4920 - Research Apprenticeship

Credits: 1-2

Max Credit (Max. 4)

Laboratory and/or field research apprenticeship. Emphasizes individual student-faculty interactions on current topics in plant sciences.

Former Course Number [CROP 4600]

Prerequisite: Junior standing and PLNT 1000, STAT 2050.

PLNT4930 - Internship in Plant Sciences

Credits: 1-3

Max Credit (Max. 6)

Provides students with realistic views of crop science, entomology or soil science through practical, as well as work-related, experiences. Provides positive educational experience to supplement formal academic course work.

Former Course Number [CROP/ENTO/SOIL 4903]

Prerequisite: Sophomore standing or higher; 2.50 GPA

PLNT4960 - Plant Sciences Field Studies

Credits: 2

Various facets of the agroecosystem are covered by visits to agricultural research stations, agri-businesses, private farms, national monuments, historical sites and Federal Parks. Students are exposed to ongoing sustainable research projects and innovative sustainable farming operations where a variety of cropping systems are utilized. Students are usually exposed to archaeological remains of ancient American Indian farming systems. An 8-day trip.

When Offered (Offered as needed)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 1000

PLNT4900 - Undergraduate Teaching Practicum

Credits: 1-2

Max Credit (Max. 4)

Supervised participation of undergraduates in the teaching of laboratory sections offered by the Department of Plant

Sciences. Provides opportunity for students to gain teaching experience in agroecology, horticulture, or life science.

Prerequisite: PLNT 1000 and junior or senior standing

AGRI4520 - Field Practicum: Extension Work

Credits: 1-4

Max Credit (Max. 8)

Provides practical experiences to those wanting to pursue a career with Cooperative Extension Service. Interns are matched with county-based personnel for hands-on learning experiences across the state. Develop working knowledge of CES's mission to provide the citizens of Wyoming with education and applied research.

Dual Listed AGRI 5520.

Prerequisite: must pass volunteer screening process.

Plant Sciences Electives: 15 Hours

(Select 15 credit hours from PLNT courses, at least 12 of which are upper division)

Supporting Electives: 9 Hours

Select 9 hours of upper division courses from those with the following course prefixes:

- AGEC (Agricultural Economics)
- ANSC (Animal Science)
- BIOL (Biology)
- BOT (Botany)
- ENR (Environment and Natural Resources)
- ENTO (Entomology)
- FDSC (Food Science)
- GIST (Geospatial Information Science and Technology)
- LIFE (Life Sciences)
- MICR (Microbiology)
- MOLB (Molecular Biology)
- REWM (Rangeland Ecology and Watershed Management)
- SOIL (Soil Science)

Additional University Studies: 15 Hours

- First-Year Seminar (FY): 3
- U.S. and Wyoming Constitutions (V): 3
- Communications 1 (C1): 3
- Communications 2 (C2): 3
- Human Culture (H): 3

Free Electives: 25 Hours

Total Required: 120 Hours

Optional Concentrations

Although not required, students may choose to specialize in any of the four optional concentrations below as part of their B.S. in Plant Production and Protection. In order for the concentration to be official, students must "opt in" and add the desired concentration to their degree evaluation.

Agronomy Concentration: 24 Hours

The Agronomy concentration focuses on the intricacies of agronomic crop production along with pest management, genetics, soil science, and other related topics. This is a broad area of study that can be tailored to the student's particular interests. Careers in production, consulting, and pest management abound in the public and private sectors of agriculture. Students learn the ultimate goal of promoting more efficient and sustainable agronomic crop production practices. Skills learned include written and oral communication; sciences such as ecology, chemistry, and genetics; and practical applications such as computer technologies, geographic information systems, soil and water analyses, plant health diagnostics, and general best management practices.

Required: 16 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4700 - Forage Crop Science

Credits: 3

The course focuses on major aspects of forage crop production and biology. Cultural practices, adaptation, sustainable agriculture and alternative use, seed production, harvest, livestock utilization and storage of forages. This course will have in-depth emphasis on characteristics of important grasses and legumes and utilization of forages for livestock production.

Dual Listed PLNT 5700

Former Course Number [CROP 2200, 3200; PLNT 3200]

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

PLNT2200 - Field Crop Production

Credits: 3

Provides students with a fundamental understanding of production cropping systems. Students will gain basic knowledge of major food crops, tillage systems, crop rotations, fertilization, irrigation, crop development, pest management, and other topics related to field crops.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 1000 or concurrent enrollment

OR

PLNT4220 - Crop Yield Physiology

Credits: 3

Physiological processes underlying crop growth and development. The effect of crop management practices on physiology and yield will also be discussed.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 1000, CHEM 1000

At least 8 additional credit hours from the following: 8 Hours

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT3300 - Horticultural Plant Propagation

Credits: 3

Emphasis on sexual and asexual propagation of various plants including herbaceous and woody crops. Seed propagation discussions include anatomy, physiology, dormancy, and enhancing seed viability and germination. Asexual propagation discussions center on anatomy and physiology of cuttings, adventitious root formation, budding, grafting, and tissue culture.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 2025

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

PLNT4180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 5180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

AGEC4050 - Agribusiness Marketing

Credits: 3

Students develop a strategic marketing plan for an agricultural and food product. Content includes study of aspects of the global food industry influencing consumer demand; contemporary topics in food marketing and policy; agricultural supply marketing; marketing research methods; marketing profitability measures; pricing; new product introduction; branding, and industry competitive analysis.

When Offered (Normally offered fall semester)

Prerequisite: AGECEC 1020 or ECON 1020 and MATH 1400.

AGEC4060 - Agribusiness Management

Credits: 3

Applies quantitative, economic, financial and managerial analysis to agribusiness sector.

When Offered (Normally offered spring semester)

Prerequisite: AGECEC 1020 and MATH 1400.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil

water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

Horticulture Concentration: 21 Hours

Students in the Horticulture concentration learn about the various horticultural commodities and growing operations. Choose from classes including greenhouse crop production, plant propagation, seed technology, organic food production, plant breeding, and allied subjects such as irrigation technology and pest management including plant pathology and weed science. Students may be surprised at the number of career opportunities available in horticulture! These include vegetable and small fruit production, greenhouse management, controlled environment crop production, landscape plants and management, new variety breeding and production, and urban tree care, among many others.

Required: 15 Hours

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Prerequisite: PLNT 1000 or LIFE 1010

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT3300 - Horticultural Plant Propagation

Credits: 3

Emphasis on sexual and asexual propagation of various plants including herbaceous and woody crops. Seed propagation discussions include anatomy, physiology, dormancy, and enhancing seed viability and germination. Asexual propagation discussions center on anatomy and physiology of cuttings, adventitious root formation, budding, grafting, and tissue culture.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 2025

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 5180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

OR

PLNT4200 - Greenhouse Design and Management

Credits: 3

Emphasis on greenhouse structural and functional design concepts of economy, efficiency and energy conservation. Primary emphasis is on the limitations and advantages of greenhouses in the Rocky Mountain region, including alternative energy concepts. The management and operational concerns associated with private, commercial, educational and public greenhouses will be included.

Dual Listed PLNT 5200

Prerequisite: PLNT 2025 and a USP Q course

At least 6 additional credit hours from the following: 6 Hours

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

Prerequisite: PLNT 1000 or LIFE 1010.

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

Integrated Pest Management Concentration: 25 Hours

IPM as it is commonly known, melds all aspects of plant pest management under one umbrella. It uses the sciences of plant pathology, entomology, and weed science under the broader plant diagnostics field. The IPM concentration emphasizes understanding pest biology and ecology of the ecosystem as the foundation for making pest management decisions that minimize negative impacts on health and the environment. Students in the IPM concentration will find careers in private consulting, field diagnostics, research and demonstration, and product sales, as well as public sector work in invasive species management.

Required: 16 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

Choose at least one of the following:

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a

Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

BOT4680 - Taxonomy of Vascular Plants

Credits: 4

A study of classification principles, nomenclature rules and systematic botany literature. Plants of the Rocky Mountain region are used primarily as examples, but the course gives a comprehensive view of the characteristics and relationships of the principal plants families.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2023.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

REWM4300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 5300.

When Offered (Normally offered spring semester)

Former Course Number [3320]

Prerequisite: REWM 2500 or LIFE 2023.

At least 9 additional credit hours from the following: 9 Hours

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

ENTO4884 - Insect Behavior

Credits: 3

Examines the behavior of insects, including foraging, mating and social behavior. The course focuses on the applied as well as the fundamental aspects of behaviors, and both the strategic and physiological bases of behavior.

Dual Listed ENTO 5884.

Prerequisite: ENTO 1000.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

Agroecology & Evolution Concentration: 21 Hours

Students in this concentration are trained in the ways plants and associated organisms evolve in response to human-impacted environments, and how agroecosystems may change as a result of plant management. Courses include genetics, plant breeding, agroecology, and crop production along with ecology, soil sciences, and others. This concentration provides excellent preparation for graduate school in plant sciences, and also prepares students for careers in conservation, sustainable agriculture, and crop production.

Required: 13 Hours

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

At least 8 additional credit hours from the following: 8 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

Plant Production and Protection/Environment and Natural Resources Program, B.S.

Students interested in the environment and natural resources may choose to pursue the B.S. in Plant Production and Protection/ENR. This degree is offered in conjunction with the Haub School of Environment and Natural Resources.

Additional Information

See the ENR Information and Advising Guide for details.

Minor

Agroecology Minor

The Agroecology minor is ideal for students interested in how plant production systems interact with the surrounding ecosystem. This minor complements many majors related to land management and ecology.

Minimum Requirements: 20 Hours

Required: 11 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

Choose two from PLNT 3030, LIFE 2023, or SOIL 2010:

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

9 additional credit hours from the following: 9 Hours

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design.

Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

Agronomy Minor

The Agronomy minor trains students for careers in crop production and management, consulting, sales, and other areas of modern agriculture. Courses include crop & soil management, weed, insect, and disease management, among others.

Minimum Requirements: 19 Hours

Required: 11 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them.

Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

8 additional credit hours from the following: 8 Hours

PLNT2200 - Field Crop Production

Credits: 3

Provides students with a fundamental understanding of production cropping systems. Students will gain basic knowledge of major food crops, tillage systems, crop rotations, fertilization, irrigation, crop development, pest management, and other topics related to field crops.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 1000 or concurrent enrollment

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4020 - Sustainable Agriculture

Credits: 3

Focuses on the sustainability of agroecosystems and the human communities that maintain them in the context of regional, national and global food and fiber requirements. Topics include: the scale of agriculture, low-input systems, current energy and transportation challenges, markets, and integrated crop and livestock production.

Dual Listed PLNT 5020

Prerequisite: 8 hours of Life Sciences

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4220 - Crop Yield Physiology

Credits: 3

Physiological processes underlying crop growth and development. The effect of crop management practices on physiology and yield will also be discussed.

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 1000, CHEM 1000

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

PLNT4700 - Forage Crop Science

Credits: 3

The course focuses on major aspects of forage crop production and biology. Cultural practices, adaptation, sustainable agriculture and alternative use, seed production, harvest, livestock utilization and storage of forages. This course will have in-depth emphasis on characteristics of important grasses and legumes and utilization of forages for livestock production.

Dual Listed PLNT 5700

Former Course Number [CROP 2200, 3200; PLNT 3200]

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

Horticulture Minor

Students in the Horticulture minor learn landscaping, plant materials, propagation, organic food production, and crop production in greenhouses and controlled environments. Students who want to get their hands dirty are welcome.

Minimum Requirements: 20 Hours

Required: 8 Hours

PLNT2025 - Horticultural Science

Credits: 3

Propagation, growth, development and utilization of horticultural plants. Students gain an understanding of plant classification, anatomy, interactions with the environment, production and utilization.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Prerequisite: PLNT 1000 or LIFE 1010

PLNT2026 - Horticultural Sciences Laboratory

Credits: 1

Offers hands-on experience in many areas of horticulture. Students learn basic horticultural plant structures and functions, propagation methods, growing media and fertilizers, landscaping, pruning, etc.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SB

Prerequisite: PLNT 1000 or LIFE 1010.

Choose one from PLNT 1000 or LIFE 1010:

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

12 additional credit hours from the following: 12 Hours

PLNT3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed SOIL 3000.

Prerequisite: MATH 1400, SOIL 2010.

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT3300 - Horticultural Plant Propagation

Credits: 3

Emphasis on sexual and asexual propagation of various plants including herbaceous and woody crops. Seed propagation discussions include anatomy, physiology, dormancy, and enhancing seed viability and germination. Asexual propagation discussions center on anatomy and physiology of cuttings, adventitious root formation, budding, grafting, and tissue culture.

When Offered (Normally offered spring semester of even-numbered years)

Prerequisite: PLNT 2025

PLNT4050 - Plant Biotechnology

Credits: 3

Introduces students to the science and applications of plant cell, tissue and organ culture, and regeneration. Topics include in vitro techniques used for developing new genotypes. Successful completion will enhance knowledge and

understanding of plant tissue culture techniques and their applications in crop improvement.

Dual Listed PLNT 5050

Prerequisite: LIFE 2023 or equivalent

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4180 - Greenhouse Crop Production

Credits: 4

Production methods for a wide range of herbaceous plants including bedding plants, perennials, vegetables, flowering potted plants, and foliage plants. Emphasis is placed on current production techniques in controlled environments and in the field.

Dual Listed PLNT 5180

When Offered (Normally offered spring semester of odd-numbered years)

Prerequisite: PLNT 3300

PLNT4200 - Greenhouse Design and Management

Credits: 3

Emphasis on greenhouse structural and functional design concepts of economy, efficiency and energy conservation. Primary emphasis is on the limitations and advantages of greenhouses in the Rocky Mountain region, including alternative energy concepts. The management and operational concerns associated with private, commercial, educational and public greenhouses will be included.

Dual Listed PLNT 5200

Prerequisite: PLNT 2025 and a USP Q course

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

PLNT4520 - Plant Breeding

Credits: 3

Principles and methods for genetic improvement of all kinds of plants including agronomic, horticultural, forest and range species. Emphasizes fundamental concepts of quantitative genetics and integration of classical plant breeding with emergent biotechnology.

Former Course Number [CROP 4520]

Prerequisite: MATH 1000 or statistics course; LIFE 4000

Plant Protection Minor

A combination of weed science, plant pathology, and entomology, the Plant Protection minor provides training for many careers in invasive species management, plant diagnostics, horticulture, and agronomy, among others.

Minimum Requirements: 19 Hours

Required: 19 Hours

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

Choose one from ENTO 1000 or ENTO 1001 (ENTO 1001 preferred if available):

ENTO1000 - Insect Biology

Credits: 3

Introduces insects and related arthropods. Introduces aspects of insect biology, behavior, life history and diversity, as well as many ways that insects affect humans.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENTO1001 - Insect Biology

Credits: 4

Covers same lecture material as ENTO 1000, but includes a laboratory.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Choose one from PLNT 4070 or PLNT 4400:

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, RNEW 5400, PLNT 5400

Prerequisite: LIFE 3400

Choose one from the following:

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

PLNT4120 - Organic Food Production

Credits: 3

A complete review of the federal organic production guidelines, methods and applications for organic production facilities, alternative marketing principles, concepts of organic fertilizer use, organic pest control and concepts for using environmentally friendly methods to reduce chemical, petroleum and synthetic inputs for more sustainable crop and livestock agricultural systems.

Dual Listed PLNT 5120

Prerequisite: 8 hours of LIFE and/or CHEM

PLNT4470 - Seed Science and Technology

Credits: 3

Presents aspects of seed biology and processing including development, physiology, ecology, germination, viability, dormancy, production, conditioning, storage, certification and marketing.

Dual Listed PLNT 5470

Former Course Number [CROP 4470]

Prerequisite: 8 hours of plant biology

Graduate

Plant Sciences, M.S.

The Plant Sciences M.S. program emphasizes sustainable management of agronomic, horticultural, and forage crops, plant breeding, and invasive species management. Students are trained for scientific careers in academia, public and private sectors.

Plan A (Thesis)

Requirements for the master of science degree include 26 hours of coursework beyond the bachelor's degree numbered 4000 or above, 4 hours of thesis research, a research proposal, original research, and oral defense of the thesis.

The M.S. degree is typically completed in two years. The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

Plant Sciences, Ph.D.

A Ph.D. in Plant Sciences is a research-based terminal degree focusing on specific areas of plant production and management. Scientific training in plant production and vegetation management for careers in academia, public and private sectors.

Program Information

The requirements for the doctor of philosophy degree include 60 hours of coursework beyond the bachelor's degree numbered 4000 or above, 12 hours of dissertation research, a research proposal, original research, written and oral preliminary exams to be taken when most or all coursework is completed, and an oral defense of the dissertation.

Dissertations may be in a modified journal article format but must meet university formatting requirements.

The student's coursework is selected to fit the student's individual needs by mutual consultation among the student, his/her major professor, and graduate committee.

The student is expected to participate in the usual activities of scientific research such as attending and presenting at research seminars and professional meetings and publishing his/her research.

QuickStart Program

Plant Sciences, B.S./M.S. QuickStart

The Plant Sciences B.S./M.S. QuickStart program enables students to work toward both the B.S. and M.S. degrees simultaneously. Accepted students earn a B.S. in Plant Production and Protection and an M.S. in Plant Sciences.

Program Information

The combined Plant Sciences B.S./M.S. QuickStart program enables highly-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter toward both the B.S. and M.S. degrees. Accepted students would earn a B.S. degree in Plant Production and Protection and the M.S. degree in Plant Sciences. This program allows for early planning of the M.S. portion of the student's education, along with beginning a thesis research project before the completion of the B.S. degree. It offers increased flexibility in the order in which courses are taken, and more efficient use of what would otherwise be a final semester with a light credit-hour load. As many as 6 credit hours of undergraduate coursework at the 5000 level (or 4000 level for courses in which no 5000-level course is available) may be counted toward both the B.S. and M.S. degree programs. Additionally, students retain the existing right to reserve up to 6 hours of graduate credit that may be taken during their undergraduate degree program. These 6 reserved credits will NOT count toward both the B.S. and M.S. degrees, but only toward the M.S. degree.

Admission to the program

Minimum requirements for admission to the accelerated program are:

1. completion of sophomore year, 60 credit hours,
2. a minimum overall GPA of 3.0,
3. a minimum GPA of 3.0 in PLNT courses,
4. a minimum of three letters of recommendation (at least two must be from faculty at UW),
5. a DPS faculty member willing to serve as M.S. advisor, and
6. a research proposal submitted to, and approved by, the student's M.S. advisor and at least one other Plant Sciences faculty member as a presumptive graduate committee member.

Transfer students must have also completed at least 15 credit hours of coursework at UW to be eligible for admission to this program.

If interested in this program, please visit our website at <http://www.uwyo.edu/plantsciences/> for further information on additional requirements.

Department of Veterinary Sciences

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Department Head: Jonathan Fox

Professors:

HOLLY ERNEST, B.Sc. Cornell University 1980; M.S. Ohio State University 1982; D.V.M. 1986; Ph.D. University of California, Davis 2001; Professor of Veterinary Sciences, Wyoming Excellence Chair in Disease Ecology 2014.

JONATHAN H. FOX, B.Sc., B.VSc. University of Liverpool, UK 1993; Ph.D. Virginia Tech 2002; Associate Professor of Veterinary Sciences 2008; Professor of Veterinary Sciences 2016.

WILLIAM W. LAEGREID, B.S. Washington State University 1980; M.S. Washington State University 1984; D.V.M. Washington State University 1985; Ph.D. Washington State University 1988; Professor, Director of the Wyoming State Veterinary Laboratory 2012.

Associate Professors:

GERARD P. ANDREWS, B.S. Pennsylvania State University 1980; M.S. University of New Hampshire 1983; Ph.D. Uniformed Services University of Health Sciences 1993; Associate Professor of Veterinary Sciences 2011, 2004.

TODD E. CORNISH, B.S. University of California–Davis 1990; D.V.M. 1994; Ph.D. University of Georgia 1999; Associate Professor of Veterinary Sciences 2005, 1999.

MYRNA M. MILLER, B.S. Colorado State University 1980; D.V.M. 1984; Ph.D. Cornell University 2005; Associate Professor of Veterinary Sciences 2016, 2010.

KERRY SONDGERTH, B.A. University of New Hampshire 1997; D.V.M. Colorado State University 2006; Ph.D. Washington State University 2013; Assistant Professor of Veterinary Sciences 2014. Associate Professor of Veterinary Sciences 2020.

BRETT T. WEBB, B.S. University of Southern Colorado 2002; D.V.M. Colorado State University 2007; Ph.D. Colorado State University 2012; Associate Professor of Veterinary Sciences 2022.

Assistant Professors:

BERIT BANGOURA, D.V.M. Leipzig University 2003; Ph.D. 2008; Ph.D. 2015; Diplomate EVPC 2014; Assistant Professor of Veterinary Sciences 2017.

JENNIFER L. MALMBERG, B.S. Doane University 2004; M.A. Chadron State University 2013; Ph.D. Colorado State University 2018; Assistant Professor of Veterinary Sciences 2019.

ELIZABETH CASE, B.S. Oklahoma State University 2002; Ph.D. University of California–Irvine 2010; Assistant Professor of Veterinary Sciences 2020.

Clinical Assistant Professor:

JACQUELINE P. KURZ, B.S. Cornell University 2006; B.V.M.&S. Royal (Dick) School of Veterinary Studies, University of Edinburgh, UK 2010; Ph.D. Utah State University 2018; Clinical Assistant Professor of Veterinary Sciences 2020.

Adjunct Professor:

GEOFFREY J. LETCHWORTH, B.S. Trinity College 1965; D.V.M. New York State College of Veterinary Medicine 1972; Ph.D. Cornell University 1980; Adjunct Professor of Veterinary Sciences 2001.

SAMANTHA ALLEN, BSc and MSc University of Guelph 2007 and 2010; DVM Ontario Veterinary College 2014; PhD University of Guelph 2021; Adjunct Professor of Veterinary Sciences 2021.

Professors Emeritus

E. Lee Belden, Francis D. Galey, Bill Jolley, Merl Raisbeck, Lynn Woodard

The Department of Veterinary Sciences and the Department of Animal Science have combined their efforts to offer B.S., M.S., and Ph.D. degrees in animal and veterinary science (see listing under this title). Several options within the major are available including preveterinary medicine and animal biology. Undergraduate course offerings of the Department of Veterinary Sciences are listed under the title of pathobiology. They were designed to familiarize students with the principles of animal disease and the basic biological and biomedical sciences.

The department operates the Wyoming State Veterinary Laboratory, an animal disease diagnostic laboratory (wyovet.uwyo.edu). This laboratory provides valuable hands-on experience for students interested in laboratory animal care, laboratory procedures, and research. Excellent faculty mentors are available for students interested in preveterinary medicine, microbiology, and animal biology.

Animal and Veterinary Sciences

The Department of Animal Science and the Department of Veterinary Sciences have combined their efforts to offer several degree options leading to the bachelor of science degree in animal and veterinary science. Courses in animal science, food science, and pathobiology are the core offerings in the various options. Agriculture, in its broadest definition, is the nation's largest industry. Livestock production is Wyoming's largest agricultural enterprise. Animal agriculture and its associated industries offer many opportunities for the interested student. Whether a student is interested in production livestock, allied fields such as meat science, business or animal health, or wants to apply to a college of veterinary medicine, the degree tracks offered will form the basis for a challenging career in animal agriculture/biology. The various options provide maximum flexibility to meet the changing needs of students and their employers. For students interested in pursuing advanced research, M.S. and Ph.D. degrees are offered.

Several degree options allow for specialization and graduate or professional school preparation. A brief description of each option and the educational opportunities they provide is given with the course requirements. A grade of C or better must be earned in the following courses when the courses are required in the individual option for completion of the degree: ANSC 3010, 3100, 4120, 4540, 4630; FDSC 3060, PATB 4110, PATB 4111, LIFE 1010, 2022.

Students are encouraged to participate in activities related to their degree option. The university has livestock, horse and meats judging teams. Each team travels and participates in at least one major exposition a year. Each year, the Academic Quadrathlon competition is held, combining practical and classroom skills for students. Field trips, as practical teaching aids in many classes, are scheduled throughout the year. Internships are available to gain practical experience. Student organizations such as the Block and Bridle Club, Food Science Club, Microbiology Club, Range Club, the Pre-vet Club, Wyoming Collegiate Cattlemens Association, and the Ranch Horse Team provide additional educational and recreational opportunities.

Graduate Study

The Department of Veterinary Sciences offers advanced study leading to the master of science and doctor of philosophy in animal and veterinary science. Areas of emphasis include: pathology, molecular diagnostics, bacteriology, virology, parasitology, epidemiology, immunology, and toxicology of wild and domestic animals.

Program Specific Admission Requirements

Open to students with a bachelor of science degree who meet the requirements set forth in this Catalog.

Recommended prerequisites include: chemistry, biochemistry, animal anatomy and physiology, biology, microbiology, and introductory statistics.

Preferred Requirements

Competitive applicants for either degree program will have a GPA 3.250 or higher and high GRE scores (153 verbal, 149 quantitative, 302 total using best composite scores).

Microbiology Program: Interdepartmental major

Microbiology Program

5004 Agriculture Building, (307) 766-3139

FAX: (307) 766-3875

E-mail: gandrews@uwyo.edu

Program Director: Dr. Gerard Andrews

Microbiology is the study of life forms too small to be observed without the aid of magnification; major groups of microbes include the bacteria, fungi (yeasts and molds), protozoa, and algae, as well as the viruses. In addition, related disciplines such as immunology and molecular biology are included because of their historical origins within microbiology.

As such, the science of microbiology is divided into numerous subspecialty areas that reflect not only the individual groups of microbes (e.g., bacteriology, virology, mycology, etc.), but also their significance in applied areas (e.g., medical microbiology/infectious diseases, microbial ecology, food microbiology, industrial microbiology, biotechnology, etc.) or in areas of basic science (e.g., molecular genetics). Throughout its history, microbiology has played a key role in the development of our understanding of basic biochemical and genetic processes, control of infectious diseases, production of increased and improved food supplies, and the production of numerous commercial products. With the development of molecular techniques to construct genetically engineered microbes, microbiologists will continue to make expanding contributions in these and other areas.

Because microbiology is a diverse science, individuals trained as microbiologists find exciting career opportunities in many areas of the basic and applied sciences. Typically, microbiologists are employed in five major sectors: private industry; clinical laboratories; government agencies; universities; and various other settings such as water treatment, food production/inspection facilities, and other public health-related areas. Recent manpower assessment studies at both the national and regional levels have provided evidence for a continuing and expanding need for microbiologists such that successful undergraduate students completing this program may look forward to exciting careers. In addition, undergraduates trained in the microbiological sciences are well prepared for competitive application to graduate school programs and professional programs in human or veterinary medicine, optometry or dentistry.

The bachelor of science degree program in microbiology is organized as an interdepartmental major involving the collaborative teaching, advising, and research expertise of more than 20 microbiology faculty from the Colleges of Agriculture and Natural Resources, Arts and Sciences, and Health Sciences. The program is administered by a Program Director and the Interdepartmental Microbiology Steering Committee, representing each of the participating colleges. Students obtain their degree in the College of Agriculture and Natural Resources. Additional information about the

microbiology program may be obtained at the following website address and by contacting the Program Director or one of the members of the Interdepartmental Microbiology Steering Committee listed below.

www.uwyo.edu/agcollege/micro/microhome.htm

- GERRY ANDREWS, Veterinary Sciences
- BERIT BANGOURA, Veterinary Sciences
- BLEDAR BISHA, Animal Sciences
- GRANT BOWMAN, Molecular Biology
- ELIZABETH CASE, Veterinary Sciences
- BRIDGET DECKER, Molecular Biology
- JASON GIGLEY, Molecular Biology
- MARK GOMELSKY, Molecular Biology
- MYRNA MILLER, Veterinary Sciences
- EUNSOOK PARK, Molecular Biology
- BRANT SCHUMAKER, WWAMI Medical Education Program
- KERRY SONDGEROTH, Veterinary Sciences
- HOLLY STEINKRAUS, Molecular Biology
- LINDA VAN DIEPEN, Ecosystem Science and Management
- DANIEL WALL, Molecular Biology
- RACHEL WATSON, Chemistry
- JOHN WILLFORD, WWAMI Medical Education Program
- KASSANDRA WILLINGHAM, Molecular Biology

Major

Microbiology, B.S.

This interdepartmental program is comprised of core and elective courses in the basic sciences, general microbiology, genomics/proteomics, medical, and environmental microbiology. Students may also participate in faculty-mentored research projects.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Information

The curriculum is designed to prepare graduates for the future by combining a firm foundation in the basic sciences with a central core of microbiology classes, followed by the opportunity for students to specialize in areas of microbiology suiting their individual interests via the selection of electives.

Prior to graduation, microbiology majors must complete the basic requirements and all microbiology core course requirements as listed below. Finally, to assure breadth of exposure in microbiology, students must complete 6 semester hours of microbiology electives. The microbiology curriculum is organized to provide students with the maximum flexibility in meeting their university studies program requirements.

Students pursuing the B.S. degree in microbiology who wish to pursue a dual major in both microbiology and molecular biology must satisfy the basic science/math and core/elective requirements in microbiology as well as those specified for the B.S. degree in molecular biology PLUS an additional 9 credits of electives in microbiology and/or molecular biology at the 4000/5000 level.

Basic Course Requirements for Microbiology Majors

- Total credit hours: 121 hours
- 3000-level or above credits (university requirements): 42 hours
- Completion of University Studies 2015 Program Requirements: 30-36 hours

Basic Sciences and Quantitative Reasoning

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

OR

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

AND

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

Microbiology Core Course Requirements

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

PATB2220 - Pathogenic Microbiology

Credits: 3

This course serves as an introduction to bacterial pathogenesis and disease using taxonomy and categorical approaches. Material presented in the course includes maintenance, transmission, molecular mechanisms of virulence factors, pathogen-host interactions, disease process, and treatment and prevention of disease of pathogenic bacteria and fungus.

Cross Listed MICR 2220

When Offered (Offered spring semester)

Prerequisite: MICR 2210

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

PATB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed MOLB 4400

Dual Listed PATB 5400

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

OR

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4440 - Microbial Genetics

Credits: 3

Max Credit 3

Discusses molecular approaches to understand the fundamental basis of genetics and gene function. Additionally, the course builds on a molecular biology foundation of how cellular processes work and are experimentally investigated with a focus on bacteria.

Cross Listed MOLB 5440

When Offered (Offered spring semester)

Prerequisite: MOLB/MICR 2021 or MOLB/MICR 2240, and LIFE 3050, and MOLB 3610 or CHEM 4400 or MOLB 3000

MOLB4460 - Microbial Physiology and Metabolism

Credits: 3

Studies life processes of microbes as mediated by their structures acting in consort, in response to changing environments.

Cross Listed MICR 4460.

Dual Listed MOLB 5460.

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 2021 or MICR 2021 or MOLB 2240, and minimum grade of C in MOLB 3610 or CHEM 4400 or MOLB 4600

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

MICR4321 - Microbiology Capstone

Credits: 4

Using a problem-based student learning model, students conceptualize, propose, perform and present a microbiology research study to address a real community problem. Students maintain a lab notebook, write an NSF-style research proposal, formulate hypotheses, engage in hands-on laboratory hypothesis testing and design and present a scientific poster.

USP 2015 Code U5C3

Prerequisite: MICR majors with junior or senior standing.

Take 2 credits total of any combination of the following 1-credit seminar courses:

PATB4150 - Seminar

Credits: 1

Max Credit (Max. 4)

Preparation and oral presentation of papers on veterinary sciences topics.

Prerequisite: 8 hours of biology and consent of instructor.

OR

MOLB4050 - Student Seminar: Topics in ____

Credits: 1

Max Credit 4

Exposes students to current topics in molecular biosciences and examines primary journal literature with oral presentations and class discussions.

Prerequisite: MOLB 3000 or MOLB 3610 or CHEM 4400

OR

MOLB4051 - Departmental Seminar

Credits: 1

Max Credit 15

Attend a series of weekly seminars on a diverse set of research topics presented by visiting faculty or research scientists and will participate in a discussion following the seminar.

Dual Listed MOLB 5051.

Former Course Number [4050]

Prerequisite: MOLB 3000 or MOLB 3610 or MOLB 4600.

OR

MOLB4052 - Summer Seminar

Credits: 1

Max Credit 5

Consists of one week of lectures, presented by a renowned scientist from either academics or industry. The material

presented is taken from the research program of the speaker.

Dual Listed MOLB 5052.

Former Course Number [4050]

- MICR Elective Credits: 6

Microbiology Electives

In addition to completing the required microbiology courses listed above, students must complete 6 hours of microbiology electives from any of the following lists.

Medical Microbiology

PATB3400 - Host Defenses Against Infect.

Credits: 3

Max Credit 3

Topics will include the history of immunology in the context of infectious diseases, different infectious pathogens and their interactions with higher order life forms, and introduction to the immune system relevant to protection against invasive microorganisms.

Prerequisite: MOLB/MICR 2021 and PATB/MICR 2220

PATB4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed MICR 4001

Dual Listed PATB 5001

Prerequisite: STAT 2050 or STAT 2070

PATB4110 - Diseases of Food Animals

Credits: 3

Acquaints students with diseases of cattle, sheep, swine and poultry. The focus is on principles of disease prevention and control.

Dual Listed PATB 5110

When Offered (Offered fall semester)

Prerequisite: LIFE 2022

PATB4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed MICR 4130

Dual Listed PATB 5130

When Offered (Normally offered spring semester)

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

PATB4140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action and their effects on various organisms including man and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 5140

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: 9 hours of biological science (e.g., physiology), 4 hours chemistry, 3 hours biochemistry.

PATB4170 - Diseases of Wildlife

Credits: 3

Introduction to wildlife diseases of the Rocky Mountain region and North America. Emphasis on infectious, parasitic, traumatic, toxic, and other disease agents with coverage of mechanisms of disease, epidemiology, and disease impacts on wildlife populations and species. Significant discussion of zoonotic diseases and diseases at the wildlife/domestic animal interface.

Dual Listed PATB 5170

When Offered (Offered spring semester of even numbered years)

A&S College Core 2015 12 hours of biological or zoological sciences.

Former Course Number [4120]

MICR4200 - Diagnostic Bacteriology

Credits: 1

Practical training with emphasis on diagnostic procedures used in a clinical microbiology laboratory. Students identify bacterial pathogens of animals and humans. Taught in a clinical setting utilizing selected clinical material. Techniques employed in the processing and identification of clinically significant bacteria are used and discussed. Safe laboratory practices for working with biohazards are presented.

Cross Listed PATB 4200.

Prerequisite: junior standing and a MICR course which included a laboratory.

PATB4220 - Molecular Mechanisms of Bacterial Pathogenesis

Credits: 3

Intended as a survey of the molecular mechanisms that have evolved in pathogenic bacterial species which result in disease. The broad-scoped objective is to assist students in gaining an understanding of principals and concepts as they apply to common themes of bacterial virulence acting on higher order host organisms. In-class review/ discussion of scholarly manuscripts, historical to present day, is paramount in allowing students to gain a better appreciation and comprehension of biological principals and concepts through knowledge of experimental approaches.

Cross Listed MICR 4220

Dual Listed PATB 5220

Prerequisite: PATB 2220/MICR 2220 and statistics (or epidemiology).

PATB4240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed ENR 4240

Dual Listed PATB 5240

Prerequisite: LIFE 2022 or LIFE 2023 and STAT 2050 or STAT 2070

MICR4360 - Medical Entomology and Parasitology

Credits: 4

Emphasis on medically important arthropods, protozoa, and worms; clinical effects of infection epidemiology avoidance/control and identification/diagnosis.

Prerequisite: 8 hours of biological science

PATB4500 - Veterinary Parasitology

Credits: 4

Biology, importance, diagnosis and control of helminth and protozoan parasites of wild and domestic animals. Arthropod vectors and/or intermediate hosts of helminth & protozoan parasites are included. Diagnostic procedures and identification familiarity with agents are emphasized in lab.

When Offered (Offered fall semester of even-numbered years)

Prerequisite: 8 hours of biological science.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

Molecular and Cell Biology

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4450 - Cell and Developmental Genetics

Credits: 3

Integrates the genetic control of cell regulation and animal development in both vertebrate and invertebrate model systems such as *Drosophila*, *C. elegans* and the mouse. Includes studies of eukaryotic signal transduction, gene control, and current transgenic technologies.

Dual Listed MOLB 5450

When Offered Spring

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and LIFE 3050

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4680 - Signaling in Host-microbe Interaction

Credits: 3

Interactions of bacterial and fungal pathogens with animal and plant hosts will be discussed, including current research exploring molecular signaling mechanisms affecting innate immune receptors, the communication between organelles in host cells, and the tight communication between hosts and pathogens in relationships such as symbiosis.

Dual Listed MOLB 5680

When Offered Spring

Prerequisite: MOLB 2021 or MICR 2021 , and MOLB 3610 or MOLB 3000

Environmental and Applied Microbiology

MICR3021 - Eukaryotic Microbes

Credits: 3

Max Credit 3

This course will address the biology and ecology of lower eukaryotic life-forms. Topics include: marine phyto- and zooplankton, terrestrial and fresh water aquatic micro-algae, protists, the evolution of multicellularity, and a phylogenetic survey of microscopic multi-cellular life.

Cross Listed PATB 3021

Prerequisite: MOLB/MICR-2021, General Microbiology

MICR4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540 and SOIL 4540.

Dual Listed MOLB 5540 and SOIL 5540 and ECOL 5540.

Prerequisite: MOLB 2021 or MICR 2021.

OR

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

MICR4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed SOIL 4140.

Dual Listed MICR 5140.

Prerequisite: SOIL 2010.

BOT4200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 5200.

Prerequisite: LIFE 1010 and LIFE 2021.

PLNT3220 - Plant Pathology

Credits: 3

Study of plant diseases, their causes, nature and control, as well as pathogen biology. Study of diseases caused by fungi, bacteria, viruses, nematodes, mycoplasma-like organisms, higher plants and abiotic factors on field and vegetable crops, as well as on landscape plants. Gives students insight into the impact plant diseases have on humans.

Former Course Number [PLPA 3220]

Prerequisite: PLNT 1000 or LIFE 1010

PLNT4000 - Plant Disease Control

Credits: 3

Advanced study of plant diseases. Important diseases of field, forage and horticultural crops will be studied. Includes history and current distribution and uses of crops. Emphasis will be placed on pathogen biology and development of integrated disease management. Current and classic research papers on plant disease control will be discussed.

Dual Listed PLNT 5000

When Offered (Normally offered fall semester of even-numbered years)

Former Course Number [PLPA 4000]

Prerequisite: PLNT 3220

FDSC4090 - Food Microbiology

Credits: 3

Discusses microorganisms and theory of their growth and survival in relation to spoilage and preservation of foods and health hazards in foods.

Cross Listed MICR 4090.

Dual Listed FDSC 5090.

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021 or MICR 2021.

FDSC4100 - Laboratory Techniques in Food Microbiology

Credits: 1

Lab techniques used in food microbiology.

Cross Listed MICR 4100.

Dual Listed FDSC 5100.

When Offered (Normally offered spring semester)

Former Course Number [610]

Prerequisite: FDSC 4090 or FDSC 5090, taken concurrently.

College of Arts and Sciences

College of Arts & Sciences

113 Arts and Sciences Building

Camellia Okpodu, Dean

Phone: (307) 766-4106 FAX: (307) 766-2697

Web site: www.uwyo.edu/as

Aims and Objectives

The College of Arts and Sciences (A&S) is committed to providing a balanced education that matches cultural breadth with disciplinary depth. Students in the College of Arts and Sciences learn to address complex contemporary problems and to place them in their wider social, historical and ethical contexts. To achieve these goals, degree programs require students to develop expertise in a particular field, gain critical understanding of major areas of human knowledge and select from required courses and free electives to prepare for the challenges of the new century.

A successful student in any of the departments and programs in the College of Arts and Sciences will have an excellent foundation for professional success, graduate study, and a passion for lifelong learning.

Through hands-on research and creative projects (either on faculty projects or independently with faculty guidance and mentoring), fieldwork, internships, and study abroad, students integrate and bring coherence to their classroom learning.

Student Responsibilities

To graduate from the College of Arts and Sciences, students must satisfy all university, college, and major requirements for a given degree. These requirements apply whether the work is taken within the college or transferred from anywhere else within or outside the university (please refer to section below "Acceptance of Transfer Credit").

The college holds students responsible for knowing degree and major requirements and for completing the necessary courses. Students are also expected to know the regulations that govern the academic standards needed to continue study at the university. Students should be aware that changing majors and/or colleges may result in delays in meeting degree requirements and that requirements themselves sometimes change (see "Graduation Requirements and Procedures" section of this *Catalog*).

Academic Advising

To help plan a program of study, students are assigned an academic adviser by the department/ program of their major. Students undecided about a major are advised in the UW Advising, Career, and Exploratory Studies office (222 Knight Hall).

Students should consult regularly with their academic adviser not only for course scheduling, but also to discuss educational and career goals. Faculty and professional advisers can connect students to the many college and university resources to assist undergraduate study. Instructors are also willing to discuss concerns students may have regarding specific courses.

Changing/Declaring a Major or Minor

When ready to declare or change a major, minor, or dual/concurrent major in a department or program in the college, the appropriate form is available from the Office of the Registrar (167 Knight Hall) or the Registrar's Web page. Approval is required from the appropriate department heads/program directors. Departments/programs will assign advisors at the time of signing their approval on the form.

Programs of Study

Undergraduate Degrees

A variety of specialized concentrations are offered within many of the following degree programs. Take a look at the department sections in this *Catalog* that follow this section or the departments' Web sites. Additionally, there are several inter-college or interdisciplinary degrees/majors such as Earth System Science and the affiliated major in Environment and Natural Resources that draw courses from several disciplines. See more detailed descriptions in this *Catalog* or the University of Wyoming home page at www.uwyo.edu, click on the A-Z Directory.

Bachelor of Arts

African American and Diaspora Studies
American Studies
Anthropology
Art Education
Art History
Chemistry
Communication

Criminal Justice
English
French
Gender and Women's Studies
Geology and Earth Sciences
German
History
International Studies
Journalism
Music
Native American and Indigenous Studies
Philosophy
Physics
Political Science
Religious Studies
Sociology
Spanish
Studio Art
Theatre and Dance

Bachelor of Science

Astronomy/Astrophysics
Biology
Botany
Chemistry
Chemistry (ACS approved)
Communication
Environmental Geology/Geohydrology
Geography
Geology
Physics
Physiology
Political Science
Psychology
Wildlife and Fisheries Biology and Management
Zoology

Bachelor of Fine Arts

Studio Art
Theatre and
Dance

Visual Communication Design

Bachelor of Music

Music
Education

Music Jazz Performance
Music Performance

Graduate Degrees

Master of Arts

American Studies (*interdisciplinary*)
Anthropology
Communication
English
History
International Studies (*interdisciplinary*)
Political Science
Spanish

Master of Science

Botany
Chemistry
Geology
Geophysics
Natural Science (*interdisciplinary*)
Physics
Psychology
Zoology and Physiology

Master of Fine Arts in Creative Writing

Master of Music (In Performance)

Master of Music Education

Master of Public Administration

Master of Science in Teaching

Natural Science (*interdisciplinary*)
Physics

Doctor of Philosophy

Anthropology
Botany
Chemistry
Geology
Geophysics
Physics
Psychology
Zoology and Physiology

Minors in Arts and Sciences

The College of Arts and Sciences offers all university students systematic studies leading to recognized academic minors. Minors are available in all academic programs in the college and in a number of interdisciplinary areas.

A&S minors have two aims: to encourage students to create a focus for their course work outside their major by coordinating their elective studies; and to enhance chances of employment or graduate admission with a formally recognized field of study.

Minors consist of course requirements ranging from 18-24 credit hours of study, typically including significant work at the junior and senior level. A&S departments and programs offering minors and interdisciplinary degrees may have further conditions and restrictions regarding requirements in the minor. To be counted toward a minor, courses must be completed with a grade of C or better.

Students desiring a minor must notify the department in which the minor is offered. Forms for declaring a minor are available in the Office of the Registrar (167 Knight Hall) or on the Registrar's Web page. The department of the minor will assign an adviser.

For a description of the minors in A&S, see department offices or Web sites.

Minors available in the College of Arts and Sciences include:

African American and Diaspora Studies
American Studies
Anthropology

Biology
Botany
Chemistry

Communication and Journalism Department

Communication
Journalism
Marketing Communication
Public Relations

Creative Writing

Criminal Justice

Criminal Justice
Pre-law

English Department

Literary Studies
Professional Writing

Gender and Women's Studies

Gender and Women's Studies
Queer Studies

Geography
Geology
History

International Studies

Asian Studies
European Studies
International Studies

Latina/o Studies

Modern and Classical Languages Department

Chinese
Classical Civilization
French
German
Japanese
Latin
Spanish

Music
Native American and Indigenous Studies
Paleoenvironmental Studies (*interdisciplinary*)

Philosophy

Environmental Values
Ethics
Philosophy

Physics/Astronomy Department

Astronomy
Physics

Political Science

American Politics
International Relations and Comparative Government
Political Theory
Public Law

Psychology Department

Aging Studies
Psychology

Religious Studies
Remote Sensing
Sociology

Theatre and Dance Department

Dance
Theatre

Visual and Literary Arts Department

Art History
Ceramics

Digital Media

Drawing
Metalsmithing
Museum Studies
Painting
Photography
Printmaking
Sculpture

Zoology and Physiology Department

Human and Animal Physiology
Neuroscience

Wildlife and Fisheries Biology and Management

Zoology

College Degree Requirements- The 2015 A&S Core

Bachelor of Arts or Science Programs

Beginning fall 2015, new university and college general education curricula, the 2015 University Studies Program (USP) and the 2015 A&S Core, were implemented. Refer to the USP section of this *Catalog* for details regarding University Studies requirements.

Students who matriculate for the first time at UW or a Wyoming community college in fall 2015 or after are required to follow both the new USP and A&S Core. Students transferring from a Wyoming community college with an associate's degree and the Wyoming Core completed between May 2013 and fall 2015, may continue to complete the 2003 USP and 2003 A&S Core requirements (if there has been no interruption in their enrollment for a year or more). Students who matriculated at UW or a Wyoming community college prior to fall 2015 and choose the 2015 USP must also complete the 2015 A&S Core requirements. For additional information please refer to the sections in this *Catalog* that describe the university graduation requirements, the 2015 University Studies Program, and the policies for reenrolling at UW after an absence of a year or more.

I. College credit hour requirements

- A. **Minimum total semester hours 120**
- B. **Upper-division credit requirements (42).** Thirty of the 42 hours must be earned from UW. Courses must be taken for a letter grade unless offered for S/U only. This is an all-university requirement for all degree

programs and may come from the courses that fulfill the USP, the A&S Core, the major, the minor, and electives.

- C. **Major field of study (30-60).** Credit hours in excess of 60 in the major subject may not be used to satisfy the requirement of 120 hours for graduation. Credits in AS internship, independent study or special topics courses (AS 2400, AS 2490, AS 4400, AS 4500, AS 4510, AS 4900, and AS 4975) may not be used to fulfill these outside the major requirements. At least 30 hours of C grade or better must be earned in the major subject (the major may require more). Courses in the major must be taken for a letter grade unless offered for S/U only.

- D. **A&S Core requirements (6).** Courses must be taken for a letter grade unless offered for S/U only.

All other university and college regulations apply. See "Graduation Requirements and Procedures" section of this *Catalog* for more information. Graduate level "Enrichment" courses do not count toward the requirements for a bachelor's degree.

II. 2015 A&S Core Curriculum

Graduates of the College of Arts and Sciences are expected to be liberally educated, to have the knowledge and skills to deal with the unexpected, and to see opportunities from multiple perspectives. To develop these abilities, the college faculty implemented the A&S Core.

The approved courses for the following requirements are searchable within WyoRecords under the Browse Classes feature.

1. **U.S. Diversity (ASD).** This requirement allows students to explore the complexity of cultural identities in the U.S. and interdependence of the cultures. Students will gain an understanding of the influences of categories such as race, class, ethnicity, gender, disability, sexual orientation, religion, and age on American behaviors, institutions, values, and beliefs.
2. **Global Awareness (ASG).** Because citizens ever more frequently encounter behaviors and practices based on beliefs, conditions, and assumptions different from their own, they need to understand the nature and function of culture. Our students should have an awareness of the multiple links that affect the living conditions and range of action of peoples of the world, including international systems of commerce, art, science, technology, politics, communication, belief, and justice, among other.

College Degree Requirements Prior to Fall 2015 for Continuing and Reenrolling Students

A&S Core requirements for a student continuing a degree program in effect at the time of matriculation at UW are found in the relevant previous *Catalog*. Contact the A&S Advising Center, Ross 6, 766-4013, asadvice@uwo.edu.

Students who re-enter the university after an absence of a year or more should refer to other sections of this *Catalog* for university policies and procedures. Unless approved otherwise, reenrolling students, after a year's absence, are required to follow the University Studies and A&S Core requirements in effect the semester of their re-enrollment. However, all majors in A&S who have yet to complete the A&S Core, regardless of their initial enrollment, must refer to the current list of approved courses.

Checksheets and lists of courses that satisfy A&S college core requirements are available on the Web at www.uwo.edu/as or in the A&S Advising Center, Ross 6, 766-4013, asadvicing@uwo.edu.

Departments and programs in the College of Arts and Sciences may require reenrolling students to complete requirements in the major that meet the current expectations of the discipline.

Transfer Students and Acceptance of Transfer Credit

The College of Arts and Sciences and its departments reserve the right to grant transfer credit toward the bachelor's degree only for those courses where a grade of C or better was earned. Students transferring credits from a university or college outside Wyoming with questions about how courses taken elsewhere fulfill the A&S Core may contact the A&S Advising Center, Ross 6, 766-4013, asadvice@uwyo.edu.

Courses Taken for S/U Credit

Students may include up to 20 semester credit hours in free electives with a grade of S as part of the total hours required by the College of Arts and Sciences for graduation. However, no S/U hours may be used to satisfy university and college core general education requirements or major requirements, including the required 42 upper-division credit hours unless the course is offered for S/U grading only.

Students registering in courses for S/U grades are subject to all general regulations.

Concurrent Majors

Students may pursue two or more majors simultaneously. With careful planning, A&S students may be able to use all or most of the free elective hours for requirements in the other majors. Refer also to the section, "Graduation Requirements and Procedures" in this *Catalog*.

The A&S Core must be met only once by students whose primary major is in the College of Arts and Sciences. Students whose degree programs are in other UW colleges are welcome to earn a concurrent major in A&S. These students do not have to meet the A&S Core requirements. The student earns one degree with one diploma.

Students pursuing a concurrent major must contact both departments involved for assignments to advisers.

Dual Degrees

Students may simultaneously pursue degrees in the same or more than one UW college. In addition to requirements described in the section "Graduation Requirements and Procedures" in this *Catalog*, students in another UW college who wish to earn a degree from A&S must also complete the A&S Core. A&S students working on dual degrees in the A&S College need to meet the A&S Core just once. A diploma is awarded for each degree.

Each additional degree requires 30 more credit hours added to the 120 credits to the primary degree. Of these 30 credits, 12 have to be at the 3XXX-4XXX levels.

Second Bachelor's Degrees

For students seeking a second bachelor's degree in the College of Arts and Sciences whose **first degree is from another university**, the minimum requirements include:

- 30 semester hours earned from the University of Wyoming, 12 of which must be upper division (3XXX-4XXX level) or graduate level (credit by examination does not count as UW hours).
- Completion of the U.S. and Wyoming Constitutions requirement (V courses in the University Studies Program course list in this *Catalog*).

- If the first degree is from an institution where English is not the predominant language, the COM1 and COM2 requirements of the University Studies Program must be completed successfully.
- Students must also meet the 2015 A&S Core requirements.

For students whose **first degree is from UW**:

- The additional required 30 hours (12 of these at the 3XXX-4XXX) are added to the degree requiring the least number of hours. For example, for a first degree A&S requires 120 hours. So the total credits a UW student would have to complete for the second bachelor's degree is a minimum of 150 credits. Since the University requires a total of 42 upper division hours for a degree, for the second degree from A&S, a UW student would need to earn a total of 54 hours at the 3XXX-4XXX level. For more information, please see the Second Bachelor's Degree entry in the section, "Graduation Requirements and Procedures" in this *Catalog*.
- Students whose **first degree is from another UW college** must meet the 2015 A&S Core requirements.
- In situations in which a student is subsequently required to take coursework from another collegiate institution to fulfill major and overall hour requirements for a second degree from the university, the student's department can ask the Office of the Registrar to load selected courses into the student's record.

Concurrent Major in Environment and Natural Resources

A student majoring in any A&S department/program may earn a double major by completing the courses required for the Environment and Natural Resource (ENR) program in addition to the requirements in their A&S major and the College A&S Core. The School of ENR Web site, <http://www.uwyo.edu/enr> has detailed information, or contact the School at (307) 766-5080.

Preprofessional Studies

The College of Arts and Sciences prepares students to enter professional schools through preprofessional programs of study described below.

Prelaw Study. Students usually need a bachelor's degree prior to beginning the study of law. There is no prescribed course of undergraduate study and no restrictions as to the field in which the degree is earned. However, to prepare for this competitive profession, prelaw students are advised to select courses that help to develop those talents and skills essential to the study and practice of law. Logical and critical thinking, conflict evaluation/resolution and effective verbal/nonverbal communication skills are essential. Additionally, students should understand the political, economic, social and cultural institutions and values that characterize human society. Rigorous courses in any discipline increase abilities in these areas. Regardless of the prelaw major, courses in the broad liberal arts--the sciences, social sciences, fine arts and humanities--increase understanding of the public's diverse interests and backgrounds.

Prelaw students do not have to declare a major at the time of first enrollment if they wish to explore options. Students who are undeclared in the College of Arts & Sciences are assigned advisers in the Advising, Career, and Exploratory Studies office until they decide upon a degree program. Please note that a prelaw minor is available.

In addition to an adviser in the major, prelaw students may contact the designated UW prelaw adviser for assistance in developing a program of study, for career counseling and for guidance in applying to law schools. Contact the A&S Advising Center, Ross 6, 766-4013, asadvise@uwyo.edu for information.

Detailed information about applying to law schools, the Law School Admissions Test (LSAT) and preparation materials, and links to other web sites are at www.LSAC.org.

Library Preprofessional Study. Librarians are information professionals who research, organize, and classify materials so the public can access information. Not only do they work with printed materials, but all the technological

advances in digital media such as electronic databases and eBooks. Some librarians focus on teaching the public, scholars, and students how to access and use these materials, while others concentrate on collecting and maintaining these diverse resources. Librarianship offers many career opportunities to people of different academic backgrounds, interests, and talents. Most public, academic, and special libraries require a Master's degree in library science (MLS).

The degree programs and minors in the College of Arts and Sciences offer the variety of academic preparation expected by accredited library schools in the country. Most of the graduate schools in library science require a bachelor's degree, a good undergraduate record, and a reading knowledge of a foreign language for admission. The best undergraduate preparation includes a wide range of courses in the sciences, social sciences, and humanities along with a strong concentration in one subject area. The choice of a major will be determined by the student's academic interest and professional objective. The general education that the University Studies and the A&S Core require provide the well-rounded background graduate schools expect of their MLS candidates.

Additional information about library schools, their requirements, and programs as well as career opportunities may be obtained from the reference desk at Coe Library and the Center for Advising and Career Services. The U.S. Bureau of Labor Statistics "Occupational Outlook Handbook" at www.bls.gov/ooh/ has detailed descriptions of the varied work of librarians, working conditions, employment outlook, and sources for additional information.

Pre-Health Study. Students in several A&S majors may be working toward the following careers: athletic training, chiropractic, dentistry, medicine, occupational therapy, optometry, physical therapy, physician assistant, or public health. These professional schools are favorably impressed by a broad educational background, including a substantial number of non-science and science courses; therefore, students are well advised to look beyond the minimum requirements.

Students may select any major in which they are interested to discuss preparation for such careers. In addition to completing all university, college and departmental requirements, students must include in their curriculum the basic professional school requirements, including courses in biology, chemistry, math, and physics. Professional schools have other specific requirements and students should learn about any additional recommendations from those professional schools in which they are interested. We strongly suggest contacting the Pre-Health Advising office [College of Health Sciences, 110 Health Sciences, (307) 766-3878, or hsadvise@uwyo.edu] website: www.uwyo.edu/preprof/.

Common majors in the College of A & S for these preprofessional programs include Chemistry, Biology, Botany, Psychology, and Physiology. However, there are pre-health students in programs as diverse as theatre and dance and anthropology. Students need not declare a major immediately upon first enrollment. Advisers in individual departments can discuss options or if students wish to remain undeclared, they are advised in either the UW Advising, Career, and Exploratory Studies office or the Health Sciences Advising office.

The pre-health advisers in the College of Health Sciences have current information regarding professional school admission requirements, entrance examinations, programs in Western Interstate Commission on Higher Education (WICHE), the Wyoming Medical Contract Program WWAMI (affiliated with the University of Washington School of Medicine) and financial assistance for professional education. The website, <http://www.uwyo.edu/preprof/> includes additional information.

Internships

Many departments in the College of Arts and Sciences offer internships for academic credit, and some provide monetary compensation. Academic internships provide practical, hands-on experience in a professional job setting as a complement to classroom instruction. An internship can provide students with both insight and preparation for future jobs. All internships require a strong background in writing, organizational ability and analytic skills. Junior or senior standing is recommended.

The School of Culture, Gender, and Social Justice

African American and Diaspora Studies

108 Ross Hall, (307) 766-2481

Director: Dr. Ulrich Adelt

Web site: www.uwyo.edu/aads

Professors:

JACQUELYN BRIDGEMAN, B.A. Stanford University 1996; J.D. University of Chicago 1999; Professor of Law 2008, 2002.

DARRELL D. JACKSON, B.A. College of William and Mary 1987; J.D. George Mason University School of Law 1990; Ph.D. University of Colorado School of Education 2011; Professor of Law 2018, 2013.

TRACEY OWENS PATTON, B.A. Colorado State University 1993; M.A. 1996; Ph.D. University of Utah 2000; Professor of Communication and Journalism 2012, 2003.

Associate Professor:

ULRICH ADELDT, M.A. University of Hamburg, Germany 2000; Ph.D. University of Iowa 2007; Associate Professor of American Studies 2015, 2009.

Assistant Professor:

FREDRICK D. DIXON, B.A. Purdue University 1993; M.A. Northeastern Illinois University 2003; Ph.D. University of Illinois Urbana-Champaign 2018; Assistant Professor of African American and Diaspora Studies 2019.

Associate Academic Professional Lecturer:

MARY L. KELLER, B.A. Williams College 1987; M.A. Syracuse University 1992; Ph.D. 2002.

Lecturers:

JASCHA HERDT, B.A. University of Wyoming; M.A. 2011.

ERIC D. JOHNSON, B.A. University of Alabama 2003; MA, University of Iowa 2009; Ph.D 2021.

CHAD D. ROBINSON, B.S. Northwestern University 1992; MA, City University of New York 2006; M.S. Mercy College 2008.

The African American and Diaspora Studies Program, through an interdisciplinary course of study, examines the experiences of African Americans in the United States, in the context of Africa and its Diaspora in Europe and the Americas.

Undergraduate Studies

The population of Black America has nearly doubled in Wyoming since the year 2000. As the population becomes more diverse it is important to provide students with a background in multicultural relations so that they are prepared for the global workforce. We intend to provide students with the necessary knowledge to prepare them to participate in an increasingly interconnected world. Therefore, African American and Diaspora Studies offers a bachelor of arts (B.A.) and an undergraduate minor in African American and Diaspora Studies.

Students may access a copy of the undergraduate major and minor check sheets at www.uwyo.edu/aads/major-minor/index.html.

At present, no program for graduate degrees in African American and Diaspora Studies is offered; however, some courses may be counted at the graduate level.

American Studies

Cooper House

(307) 766-3898

Website: www.uwyo.edu/ams

E-mail: amst@uwyo.edu

Director: Frieda E. Knobloch

Professor:

ULRICH ADELT, American Studies; School of Culture, Gender and Social Justice

FRIEDA E. KNOBLOCH, American Studies; School of Culture, Gender and Social Justice; Creative Writing

Associate Professor:

LILIA SOTO, B.A. University of California - San Diego 2000; M.A. University of California - Berkeley 2003; Ph.D. 2008; Associate Professor of American Studies and Latina/o Studies 2017, 2010.

Senior Research Scientist:

ANDREA GRAHAM, American Studies; School of Culture, Gender and Social Justice;

Professors Emeriti:

John Dorst, Eric Sandeen

Adjunct Faculty:

(See Catalog section following name for academic credentials)

R. McGregor Cawley, School of Politics, Public Affairs, and International Studies

Fred Chapman, public historic preservation consultant

Catherine Connolly, The School of Culture, Gender, and Social Justice

Colleen Denney, Department of Visual and Literary Arts

Anthony Denzer, Department of Civil and Architectural Engineering and Construction Management

Michael Harkin, Department of Anthropology

Tammy Heise, Department of Philosophy and Religious Studies

Isa Helfgott, Department of History

Scott Henkel, Department of English and Wyoming Institute for Humanities Research

Mary Humstone, public historic preservation consultant

Michelle Jarman, Wyoming Institute for Disabilities (WIND)

Mary Keller, Department of Philosophy and Religious Studies

Rachel Sailor, Department of Visual and Literary Arts

Trisha Martinez, School of Culture, Gender and Social Justice

American Studies Program

American Studies explores American cultural experience past and present, through a wide range of approaches to American lives, places, arts, knowledges, communities, institutions, histories, and ideas. American Studies is an integrative field that comes from and adds to the context of our cultural lives in the U.S. and the U.S. in the world. American Studies frames present concerns with engagement with the past; expects us to engage people's experiences in the context of a diversity of experiences; and invites us to understand our own commitments and interests as valuable contributors to American cultural understanding. American Studies as a field depends on and adds to insights of scholars, artists, and scientists from virtually any field of expertise.

The American Studies program offers undergraduate B.A. and graduate M.A. degrees in American Studies, as well as courses of general interest to students in any degree.

Our program places special emphasis on studying American cultures through field experiences and internships: students apply academic knowledge and develop professional skills in community and non-profit organizations, historic preservation efforts and organizations, historic sites, museums and collections, among many possibilities. Every internship is developed in close consultation between the students and our Internship Coordinator, and frequently stems from a student's general idea about where or with whom they'd like to work, in Laramie or Wyoming, in other parts of the U.S., or sometimes abroad. Our program also highlights international perspectives, as well as the transnational context of American impacts and experiences, in course work and exchanges available to American Studies students.

American Studies puts people and their plans together building career goals in K-12 education, law, or business, work in community organizations and public institutions, or further graduate-level study.

Native American and Indigenous Studies

**Main Office: 117 Native American Education, Research and Culture Center,
(307) 766-6520**

**Director's Office: Native American Center,
(307) 766-6520**

Web site: www.uwyo.edu/nais/

Director: Dr. Christopher Caskey Russell

Professor:

Associate Professor:

Assistant Professor:

JESSICA F. NELSON, B.A. University of Michigan 2006; M.A. University of Arizona 2011; Ph.D. 2018; Assistant Professor of Native American and Indigenous Studies 2019.

Assistant Lecturer:

ROBYN LOPEZ, A.A. Central Wyoming College 2004; B.A. University of Wyoming 2007; M.A. University of Hawai'i at Mānoa; Assistant Lecturer of Native American and Indigenous Studies 2019.

Adjunct Faculty:

(See Catalog section following name for academic credentials.)

Pamela Innes, Anthropology
Jeffrey Means, History

Affiliated Faculty:

The Native American and Indigenous Studies offers an academic major at the undergraduate level and a minor at both the undergraduate and graduate level. This interdepartmental course of study examines Native North American cultural and social life, as well as Indigenous cultural and social life globally, including economic, political, and educational systems. Historical and contemporary perspectives of American Indian and global Indigenous experiences are included in this program.

Students may choose a NAIS studies minor to complement a major field of study. Related disciplines include American studies, anthropology, art, ethnic studies, geography, history, law, music, philosophy, political science, and sociology. A minor in Native American and Indigenous Studies provides excellent preparation for teachers, researchers, social workers, healthcare providers, resource managers, economic developers, and legal practitioners.

Gender and Women's Studies

108 Ross Hall, (307) 766-2733
FAX: (307) 766-2555
Web site: www.uwyo.edu/gwst

Director: Michelle Jarman

Professor:

CATHERINE CONNOLLY, B.S. State University College at Buffalo 1984; M.A. State University of New York at Buffalo 1989; J.D. 1991; Ph.D. 1992; Professor of Sociology and Women's Studies 2004, 1998, 1992.

Visiting Assistant Professor:

SAMANTHA L. VANDERMEADE, B.A., Appalachian State University, 2009; M.A., North Carolina State University, 2015; Ph.D., Arizona State University, 2020; Visiting Assistant Professor of Gender and Women's Studies 2020.

Associate Lecturer:

ALISON QUAGGIN HARKIN, B.A. Trinity College at the University of Toronto 1981; M.A. Athabasca University 2010; Assistant Lecturer of Gender and Women's Studies 2019.

Professor Emeriti:

Colleen Denney, Professor Emeritus

Janice Harris, Professor Emeritus

Susan McKay, Distinguished Professor Emeritus

Affiliated Faculty:

(see department section following name for academic credentials)

Ulrich Adelt, African American and Diaspora Studies, American Studies

Stephanie Anderson, Political Science

Cecelia Aragon, Latina/o Studies, Theatre and Dance

Ruth Olga Bjorkenwall, Politics, Public Affairs, & International Studies

Christine Boggs, Elbogen Center for Teaching & Learning

Christin Covello, Gender and Women's Studies

Danielle Renee Cover, Law

Cynthia Hartung, Psychology

Isadora Helfgott, History

Michelle Jarman, Disability Studies, WIND

Frieda E. Knobloch, American Studies

Renee Laegreid, History

Barbara Ellen Logan, History

Tracey Patton, African American and Diaspora Studies, Communication and Journalism

Chian Jones Ritten, Agricultural and Applied Economics

Nancy Shea, Gender and Women's Studies

Nathanial Smith, Gender and Women's Studies

Jamie Snyder, Criminal Justice & Sociology

Lilia Soto, American Studies, Latina/o Studies

Jennifer Tabler, Criminal Justice & Sociology

Grant Walsh-Haines, Gender and Women's Studies

Rachel Watson, Chemistry, Director, Queer Studies

Arielle Zibrak, English

The Gender and Women's Studies Program offers an interdisciplinary course of study that examines the relevance of sex, gender and sexuality in history, societies, and cultures. Students may earn a major, minor, or graduate minor in Gender and Women's Studies, or a minor or graduate minor in Queer Studies.

Program Learning Objectives

Students graduating with a degree in Gender and Women's Studies will have skills to apply in a variety of settings indicated by their ability to:

- Engage in intersectional, interdisciplinary feminist analysis.
- Analyze socio-historical and contemporary power dynamics underpinning group relations, social institutions, and systems of representation.
- Situate their analyses within various place-based contexts, including the rural, local, community, transnational, and global.
- Understand and articulate the history, strategies, and goals of interconnected movements for social justice.
- Demonstrate mastery of critical thinking skills necessary to succeed in diverse, 21st century work forces and communities.

NOTE: Gender & Women's Studies recently changed all course prefixes to GWST (from WMST). All former WMST courses will count toward Gender & Women's Studies degree programs.

Latina/o Studies

108 Ross Hall, (307) 766-4127

Web site: uwyo.edu/ltst

Director: Dr. Lilia Soto

Professor:

CECILIA ARAGON, B.S. McMurry University Texas 1991; M.A. University of New Mexico 1996; Ph.D. Arizona State University 2003; Professor of Theatre and Dance and Latina/o Studies 2017, 2005.

Associate Professor:

LILIA SOTO, B.A. University of California, San Diego 2000; M.A. University of California, Berkeley 2003; Ph.D. 2008; Associate Professor of American Studies and Latina/o Studies 2017, 2010.

Visiting Assistant Professor:

MARGARITA PIGNATARO, B.A. Florida State University; M.A. Arizona State University, Ph.D.; Visiting Assistant Professor of Latina/o Studies 2018.

Adjunct Faculty:

Jennifer Macias, Adrian Molina, Dewey Gallegos, Estella Soto, Macros Martinez

Faculty and Staff Affiliates:

Jacqueline Shinker, Geography

Mark Guiberson, Communication Disorders

Carolyn Larson, History

Conxita Domènch, Spanish Literature

Joy Landeira, Spanish

Irene Checa-Garcia, Spanish Linguistics

Rachel Sanchez, Office of the Registrar

State-Wide Advisory Board:

Connie Coca

Ana Cuprill

Linda Devine

Floyd Esquibel

Mary Elizabeth Galvan

Chris Navarro

Milton Ontiveros

Ann Redman

The Latina/o Studies program, through an interdisciplinary and comparative approach examines the history, cultures, language and contemporary experiences of Mexicans, Mexican-Americans and other Latinos/ as in Wyoming, and the United States.

Learning Outcomes

Latina/o Studies courses emphasize perspectives that are historical and contemporary, theoretical and practical, as well as critical and aesthetic. These perspectives help to develop an understanding of oppression and resistance, at the individual, institutional, and ideological levels.

Upon completion of the University of Wyoming Latina/o Studies minor curriculum, students will have an awareness and appreciation for the Latina/o experience. Particularly as the Latina/o experience is expressed in the following concepts and principles of organic insight, relational awareness, historical perspective, power for social change, intersectionality, and aesthetics.

1. *Organic Insight* - The development of a contextual framework for understanding one's own and others' experiences in relation to the Latina/o experience.
2. *Relational Awareness* - The development of a theoretical framework for understanding how institutional social structures impact individuals, families, and communities, and in turn, how individuals, families, and communities impact social structures through resistance, social agency, and change.
3. *Historical Perspective* - The development of a critical historical viewpoint for understanding how struggles around social, economic, and political forces have shaped the traditional and contemporary Latina/o Diaspora.
4. *Power for Social Change* - The development of a critical consciousness, which is necessary for a social praxis that combats oppressive racist ideologies and social structures that perpetuate individual and institutional inequalities.
5. *Intersectionality* - Gaining an awareness of the intersection of race, ethnicity, class, gender, and sexual orientation as it plays out organically, relationally, historically, and politically.
6. *Latina/o Aesthetics* - The development of an appreciation and awareness of the aesthetics evident in Latina/o art, music, theatre, literature, and other artistic expressive forms and styles.

Latina/o Studies Minor

Latina/o Studies offers an undergraduate minor. The minor in Latina/o Studies requires 18 credit hours. Two of those courses (6 hours) must include the required foundation courses, and the remaining courses (12 hours) can be selected from the other areas of studies listed below.

Major

African American and Diaspora Studies, B.A.

African American and Diaspora Studies (AADS) offers undergraduates an opportunity to engage in an interdisciplinary examination of the history, culture, and life of African Americans and the African diaspora from ancient times to the present day.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on

developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

COM1 - Communication 1

Credits: 3
College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

A&S College Core

The College of Arts and Sciences requires:

- D - Diversity (3 credits)
- G - Global (3 credits)

Major Requirements

The B.A. in African American and Diaspora Studies consists of 35 credit hours:

Core Courses

15 credit hours of core course requirements:

AAST1000 - Introduction to African American Studies

Credits: 3

Surveys African presence in America. Selected teachings are designed to give the student a concise understanding of the heritage of African people in America.

USP 2003-2014 Code U3D
A&S College Core 2015 ASD

AAST2240 - Introduction to African Studies

Credits: 3

Confronts African stereotypes by exploring the continent's complex history and current affairs, with the help of different disciplinary perspectives, such as economics, political science, and anthropology. Equipped with the basics, students will be primed to tackle more advanced courses on Africa.

Cross Listed INST 2240.
USP 2003-2014 Code U3WB
USP 2015 Code U5C2

AAST2360 - African American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed HIST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

AAST3130 - Global Impact of African Cultures

Credits: 3

Examines concepts of culture and value systems as applied to Africa and African-derived cultures and the impact on civilizations around the globe. Using the lens of the Diaspora, this course examines aspects of African culture on the African continent along with the traditions, experiences, socialization, and histories that continue for dispersed peoples of African descent.

USP 2003-2014 Code U3CS, U3G
Prerequisite: AAST 1000 or any AAST 2000-level course.

AAST4975 - Independent Research

Credits: 1-3
Max Credit (Max. 6)

Independent study in African American Studies.

Prerequisite: AAST 1000 and consent of instructor.

Lower Division Course

3 or 6 credit hours of a lower division (1000- or 2000- level) AAST course, excluding core courses. Chose one OR two of the following:

AAST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities. Enrollment preference will be given to We The People FIG students.

Cross Listed NAIS 1030 /AMST 1030 / WMST 1030/LTST 1030.
USP 2003-2014 Code A3D, U3I
A&S College Core 2015 ASD
or

AAST1101 - First-Year Seminar

Credits: 3
USP 2015 Code U5FY
or

AAST2350 - Introduction to African American Literature

Credits: 3
Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed ENGL 2350.
USP 2003-2014 Code U3D, U3WB
A&S College Core 2015 ASD
Prerequisite: WA/COM1.
or

AAST2360 - African American History

Credits: 3
Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed HIST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD
or

AAST2370 - Blues and African American Lit

Credits: 3
Max Credit 3

This course examines scholarship on blues music (the first form of African American popular music) as well as literature that employs blues themes. Specific attention is given to the discourse of authenticity

Cross Listed ENGL 2370
or

AAST2450 - Traditional African Religion

Credits: 3

Surveys traditional religions of Africa, both ancient and contemporary.

Cross Listed RELI 2450.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

or

AAST2990 - Topics:

Credits: 1-3 or 3

Accommodates seminar series and/or course offerings including those by interdisciplinary teams and visiting faculty in African American & Diaspora Studies not covered by program courses.

USP 2003-2014 Code U3D

Upper Division Courses

6 or 9 credit hours of upper division (3000- or 4000-level) AAST courses. Choose two OR three of the following:

AAST3000 - African American Studies in Music

Credits: 3

Surveys African American music from its origins in Africa to current, popular jazz, rock, soul and rap forms.

USP 2015 Code U5H

or

AAST3010 - The African American Aesthetic

Credits: 3

Examines interrelationship of the creative process with cultural and philosophical motifs, as well as the spiritual and the artistic amongst African people on the continent and Diaspora.

Prerequisite: AAST 1000 or any AAST 2000-level course.

or

AAST3130 - Global Impact of African Cultures

Credits: 3

Examines concepts of culture and value systems as applied to Africa and African-derived cultures and the impact on civilizations around the globe. Using the lens of the Diaspora, this course examines aspects of African culture on the African continent along with the traditions, experiences, socialization, and histories that continue for dispersed peoples of African descent.

USP 2003-2014 Code U3CS, U3G

Prerequisite: AAST 1000 or any AAST 2000-level course.

or

AAST3260 - African Spirits in the New World

Credits: 3

Begins with Yoruba roots in Africa travels with the African Diaspora focusing on spirit possession in Haitian Vodou, Cuban Santeria, Jamaican Revival Zion, Jamaican Rastafarianism, Brazilian Candomblé, and "Black Church" in the United States using ethnography and postcolonial theory of religious studies.

Cross Listed RELI 3260.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: AAST 1000 or any AAST 2000 level course or RELI 1000.

or

AAST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed HIST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/ HIST 2360.

or

AAST3933 - African Philosophy

Credits: 3

Examines the work of philosophers of Africa, of African descent and others who deal with the African diaspora. Topics include the nature of African philosophy and the African American struggle, African colonialism, philosophy, political philosophy and gender, traditional African thought.

Cross Listed INST 3933 /PHIL 3933.

USP 2015 Code U5H

A&S College Core 2015 ASG

Restricted Restricted to junior or senior class standing.

Prerequisite: A prior course in AAST, INST or PHIL.

or

AAST4000 - Black Freedom Movement, AAST 1955- Present

Credits: 3

Presents the struggle of African Americans for self-definition, self-development, and self-determination from the inception of the modern civil rights movements to the contemporary period.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 USD

Prerequisite: 3 hours of AAST courses.

or

AAST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed HIST 4020.

USP 2003-2014 Code U3D, U3CH

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

or

AAST4050 - Development, Africa, and Culture

Credits: 3

Focuses on the complex and checkered relationships between Western-inspired development and African cultures. Striking a balance among ethnographic case studies, theoretical lenses, and practical implications, understand what Euro-American efforts at foreign development, including contemporary globalization, look like from an African perspective. Provides an understanding of African expectations of development and developers.

Cross Listed INST 4050.

Dual Listed AAST 5050.

Prerequisite: junior standing and instructor consultation.

or

AAST4100 - African American Religious Culture

Credits: 3

Mid-level writing-intensive seminar. Comparative study of African American religious celebration, primarily in the context of Afro-Christianity, but touching on Islam, Candomble, "Voodoo," Santeria, and Rastafarianism.

Cross Listed RELI 4100.

USP 2003-2014 Code WC, D

USP 2015 Code COM3

A&S College Core 2015 ASD

Prerequisite: WB and one of the following: AAST 1000 or any AAST 2000-level course or RELI 1000.

or

AAST4160 - African American Rhetoric

Credits: 3

African American discourse and its relationship to equality and participation. Through examination of various media, music, speeches, and art this course uses the struggle of African Americans as an instructive exemplar, to come to terms with the philosophical concepts, political issues, moral complexities, and discursive characteristics of African American Rhetoric.

Cross Listed COJO 4160.

Dual Listed AAST 5160.

USP 2003-2014 Code U3D, U3CH

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 9 credit hours in AAST or COJO.

or

AAST4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society. Cross-listed with COJO 4233 and GWST 4233; dual-listed with AAST 5233.

USP 2003-2014 Code U3WC

USP 2015 Code U5WC, U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

or

AAST4250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U. S. , including Africa and the Caribbean.

Cross Listed AMST 4200.

Dual Listed AMST 5250.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Former Course Number [AAST 4200]

Prerequisite: AAST 1000, AMST 2010, AMST 2110, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

or

AAST4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed COJO 4260.

Dual Listed AAST 5260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [AAST 4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

or

AAST4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed Cross list with ENGL 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

or

AAST4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed ENGL 4455.

Dual Listed AAST 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

or

AAST4675 - USWomen of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed LTST 4675 /GWST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: junior standing and/or a combination of
or

AAST4970 - Internship in AAST

Credits: 1-12

Designed for students to utilize the knowledge and skills obtained in their program of study to be applied at an organization or institution. Students will provide a job description, sign an internship contract, keep daily work journals, provide work samples, submit a paper, and include a final evaluation by their Internship supervisor.

Prerequisite: 9 hours in AAST courses.
or

AAST4975 - Independent Research

Credits: 1-3

Max Credit (Max. 6)

Independent study in African American Studies.

Prerequisite: AAST 1000 and consent of instructor.
or

AAST4990 - Topics:

Credits: 3

In-depth study of a topic not offered as regular course.

Prerequisite: COM1.

Foreign Language

8 credit hours of a single foreign language. The courses below list some, but not all, possible options:

ARBC1010 - First Year Arabic I

Credits: 4

Introduces beginning language learners to the Arabic writing system and provides opportunities for developing the four basic language skills (listening, speaking, reading, and writing) at word, phrase and sentence levels.

USP 2015 Code U5H

and

ARBC1020 - First Year Arabic II

Credits: 4

Introduces beginning language learners to the fundamentals of Modern Standard Arabic and provides opportunities for developing the four basic language skills (listening, speaking, reading, and writing) and practicing them in a variety of academic contexts.

USP 2015 Code U5H

Prerequisite: ARBC 1010 or LANG 1010.

or

FREN1010 - First Year French I

Credits: 4

Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

and

FREN1020 - First Year French II

Credits: 4

Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: FREN 1010 or two years of high school French.

or

GERM1010 - First Year German I

Credits: 4

Explores fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

and

GERM1020 - First Year German II

Credits: 4

Examines fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: GERM 1010 or two years of high school German.
or

JAPN1010 - First Year Japanese I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered fall semester)

USP 2015 Code U5H
and

JAPN1020 - First Year Japanese II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: JAPN 1010 or equivalent.
or

LATN1010 - First Year Latin I

Credits: 4

Studies fundamentals of grammar, composition and reading.

When Offered (Offered fall semester)

USP 2015 Code U5H
and

LATN1020 - First Year Latin II

Credits: 4

Studies fundamentals of grammar, composition and reading.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: LATN 1010 or equivalent.
or

SPAN1010 - First Year Spanish I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

and

SPAN1020 - First Year Spanish II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: SPAN 1010 or two years of high school Spanish.

Additional Requirements

Grade Requirements

AAST classes applied to AAST degrees must be passed with a grade of C or better.

Additional Information

In order to provide a broader range of relevant and enriching courses, in any given year the program in AAST offers topics courses and courses cross-listed with other majors and departments.

American Studies, B.A.

Explore cultural experiences past and present through interdisciplinary study of American lives, communities, and ideas. Writing, critical thinking, and internship opportunities prepare you for careers in education, law, business, community non-profits, public institutions, or graduate study. Flexible 2nd major for any field and for transfer students.

Additional Information

Undergraduate Major

The American Studies B.A. frames and develops each student's individual interests, and allows students to include courses from any program and department that sustain a student's engagement with their particular emphasis. Individual programs of study are as varied as our students.

We value each student as a person, and understand that an education is much more than a list of courses. Our advising is central in supporting each student's path and success through the major and beyond the degree.

Examples of concentrations that draw on courses outside American Studies - interests which we then integrate in our independent studies, internships, and the senior seminar - include sports studies, popular music history, comparative ethnic studies, marketing, military history, sustainability, disability advocacy, museum studies, philosophy of science, environmental studies, public health and social justice, and the U.S. in international perspectives. Each student

develops a concentration of study with their American Studies advisor with ample room to combine courses and interests into a coherent undergraduate education.

The American Studies B.A. can be an attractive second major for students in any UW degree program where cultural context enriches and expands work in their professional or scholarly field. The flexible nature of our B.A. allows us to work effectively with students changing majors at any point in their undergraduate experience as well as transfer students.

Program Learning Outcomes

Students graduating with a B.A. in American Studies integrate study from several fields with their study in American Studies courses, in individual programs of study. The American Studies B.A. prepares students to enter graduate and professional programs, enter education certification programs, and work in community organizations and other public professional settings. Coursework in American Studies prepares students to:

- Interpret American experiences and creative expressions by applying appropriate approaches to words, narratives, images, material objects, communities, built environments, cross-cultural comparison, continuities and discontinuities with the past in a range of American cultural settings.
- Understand the processes of diversity experience including their own, through study of identity formation, performance of identity, stereotyping, contact, memory, and national identity.
- Demonstrate critical analysis, interpretation, or insight, through effective communication primarily in writing but also in speaking (when appropriate, performance or display may embody these as well), as demonstrated in analytically coherent interpretive writing, authoritative, informed oral presentation, and well-documented, visually effective performance or display (where appropriate).
- Apply American Studies methods field-based courses and/or internships, through use of Studies approaches and competencies in non-classroom settings, as demonstrated in field course or internship evaluations and students' final reports.

Internship

The internship experience is essential for students specializing in public sector American studies. The American Studies program has an active program of scholarship-supported internships that can place students in work environments in Wyoming, other parts of the U.S., or in selected foreign countries.

Language

Because American Studies is both an international field with scholars all over the world, and the U.S. has transnational significance, **we strongly encourage students to take 2 years of language study** to achieve meaningful access to skills as readers, scholars, and travelers, and consider participating in an international exchange. Some languages currently in demand by American Studies students include Spanish, Arabic, and Japanese.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an

opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

ENGL 1010

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

College of Arts and Sciences Core

College of Arts and Sciences Core

D - Diversity Credits: 3

G - Global Credits: 3

Curriculum

Through the following curriculum, students develop individual programs of study, with their advisers, to understand and engage American cultures.

Students pursuing Program Honors should also write an undergraduate thesis. Contact the Program Director for more details.

Foundation (12 credit hours)

- AMST2010 - Introduction to American Studies (3 credit hours)
- One course at the 1000- or 2000-level in an interdisciplinary field, including American History, or from departments and programs such as AADS, ENR, INST, GWST, LTST, NAIS, RELI, or appropriate courses transferred from other institutions, to be named in the program of study in consultation with an American Studies advisor. (3 credit hours)
- Two courses at any level outside AMST, from programs in The School of Culture, Gender, and Social Justice or appropriate substitutes in consultation with an American Studies advisor. (6 credit hours)

Concentration (27 credit hours)

Core (9 credit hours)

Each student must take three AMST courses at the 3000-4000 level, excluding the senior seminar. These seminars are designed to maintain an interdisciplinary view of American culture and to foster an American Studies community. (9 credit hours)

Theme (18 credit hours)

An American Studies theme is devised, in consultation with the student's adviser. Typical themes include: American diversity, environment and society, material culture and everyday life, visual culture and media, American cultural history, American institutions and public culture, the United States in international perspective. The theme must include a minimum of 6 credit hours and a maximum of 9 credit hours in a single discipline. Up to 3 credits can be granted for courses at the 1000-2000 level. (18 credit hours)

Capstone (6 Credits)

As part of the 6 credit hours of senior capstone requirements, each student must complete 3 credit hours of Senior Seminar. The additional 3 credit hours can be through either Independent Study or Internship.

AMST4985 - Senior Seminar

Credits: 3

With AMST 4010 or AMST 4970, completes the capstone coursework in AMST. Identifies a broad intellectual tradition in American Studies as foundation for student's research interests; builds a specific scholarly context appropriate to student's research; culminates in a substantial piece of written research appropriate in an identified subfield of American Studies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: senior standing in American studies or consent of program director.

AND

AMST4010 - Independent Study

Credits: 1-3

Max Credit 6

For upper division students in any major who can benefit from independent study in American Studies with minimal supervision.

Dual Listed AMST 5010.

Prerequisite: 3 hours in American Studies and approval of instructor.

OR

AMST4970 - Internship

Credits: 1-3

Max Credit (Max. 6)

Gives undergraduate students practical experience by working on a project at a public institution, agency or educational/cultural organization. Offered for S/U only.

Prerequisite: junior standing, completion of AMST 2010 and 12 hours in major and consent of instructor.

Gender and Women's Studies, B.A.

Provides foundational knowledge in historical and contemporary issues related to sex, gender, and sexuality. Upon completion, students will be able to apply intersectional feminist and gender theories to interdisciplinary research and practice.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

COM1 - Communication 1

Credits: 3
College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

A&S College Core

The College of Arts and Sciences requires:

- D - Diversity (3 credits)
- G - Global (3 credits)

Requirements

The GWST major requires 30 credit hours of GWST courses, including 9 credits of core courses and 21 credits of elective courses.

Please note, curriculum requirements reflect updates effective Fall 2022, so any courses completed under the previous requirements will still count. Details are listed below.

Introductory Core: 3 Credits

Complete ONE course from the following:

GWST1080 - Intro Gender & Women's Studies

Credits: 3

This course serves as an introduction to the field of Gender and Women's Studies. Students will examine a range of GWST topics, gain knowledge of gender, feminist, and intersectional theories, and learn to apply course concepts and frameworks to analyses of socio-political and representational issues, primarily in U.S. contexts.

Cross Listed ENGL 1080.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST2000 - Introduction to LGBTQ/NS Studies

Credits: 3

Lesbian, Gay, Bisexual, Transgender, Queer and New Sexuality Studies (LGBTQ/NS) explores the interdisciplinary study of sexuality and its importance to the organization of social relations and social institutions. Primary among its concerns is the study of the lives, the politics, and the creative work of sexual minorities.

USP 2003-2014 Code U3C, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Note: If taken prior to Fall 2022, GWST 1900, Women & Leadership can satisfy this requirement.

Interdisciplinary Theory Core: 6 Credits

Complete TWO courses from the following:

Core course required for all majors:

- GWST 3XXX: Gender, Race, Sex & Soc System
(Will be offered Spring 2023)
- Note: If taken prior to Fall 2022, these courses may satisfy this requirement: GWST 3710, Gender & Humanities; GWST 2500, Gender & Society

Choose ONE of the following:

GWST4700 - Feminist Theories

Credits: 3

Surveys contemporary feminist theories and places those theories within the framework of social, literary, and artistic criticism. Uses feminist theories to address questions such as nature of meaning in literature and artistic forms; construction of science; and identity of the individual as these phenomena are affected by gender construction.

When Offered (Offered once a year)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 12 hours of women's studies.

GWST4430 - Queer Theory

Credits: 3

Introduces students to the intellectual lens used to evaluate the messages regarding gender and sexuality of many institutions and the way in which some actual experiences fall out of line with those norms.

Cross Listed AMST 4430.

Dual Listed GWST 5430.

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: Consent of instructor.

Electives: 21 Credits

Complete SEVEN courses or 21 credit hours from among the following:

GWST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed LTST 1030/AAST 1030/AMST 1030/NAIS 1030.

USP 2003-2014 Code U3D, U3I

A&S College Core 2015 ASD

GWST1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical and cultural aspects of leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed SOWK 1900.

USP 2003-2014 Code U3L, U3O

Former Course Number [4510]

GWST2060 - Topics in Women's Studies

Credits: 1-4

Popular and current topics in women's studies.

GWST2070 - Gender and Religion

Credits: 3

Aims to help students understand how religion constructs and reinforces gender roles in religion and society. Looks at traditional gender roles in Christianity and the transformation they have undergone in the past century or so.

Cross Listed RELI 2070.

GWST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed HIST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

GWST2700 - Gender and Disability

Credits: 3

Disability studies draws upon critical theory to investigate disability as a discursive construction. Investigates how intersecting conceptions of disability and gender have shaped cultural meanings and the social positioning of specific groups, especially women with disabilities. Topics include non-normative embodiment, issues of representation and subjectivity, and the politics of health, sexuality, and care.

Cross Listed WIND 2700.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed ENR 3050/AMST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

GWST3200 - Perspectives in Chicana Studies

Credits: 3

An interdisciplinary introduction to the study of the history, culture, gender relations, and contemporary political, economic status of Chicanas/Mexican American women. Examines the origins, development of Chicana studies as a major emphasis in Chicano/ Chicana studies.

Cross Listed LTST 3200.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: LTST 1100.

GWST3300 - Psychology of Gender

Credits: 3

In this course, we will examine a variety of psychological theories and research on the experiences and behaviors of men and women. We will study attitudes about gender, theories of gender development, and research about similarities and differences between men and women.

Cross Listed PSYC 3300.

Prerequisite: A grade of C or better in PSYC 1000.

GWST3400 - Popular Music and Sexualities

Credits: 3

Looks at ways in which popular music has intersected with sexual and gendered identities as a means and expression of both oppression and liberation.

Cross Listed AMST 3400.

USP 2003-2014 Code U3CH, U3D

Prerequisite: WA.

GWST3710 - Gender and Humanities

Credits: 3

Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity and class.

Cross Listed ENGL 3710/ART 3710.

When Offered (Offered once a year)

USP 2003-2014 Code U3CH

USP 2015 Code U5C2

Prerequisite: GWST 1080 or ENGL 1010.

GWST3800 - Chicanas/os in Contemporary Society

Credits: 3

Focuses on three major movements within the Chicana/o community; labor, nationalism, and feminism. Students will assess these three movements to determine what role they have played in transforming the social conditions and political identity of the Chicana/o and Latina/o population in the US.

Cross Listed AMST/ LTST 3800.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: LTST 1100 or GWST 1080 or AMST 2010.

GWST4200 - Gender and Race in the Economy

Credits: 3

Focuses on the role gender and race play in the economy; specifically the way that gender and race affect economic outcomes for individuals in the United States.

Cross Listed AGECE 4200.

Dual Listed GWST 5200.

A&S College Core 2015 ASD

Prerequisite: AGECE 1020 or equivalent, or SOC 1000, or GWST 1080, and WB.

GWST4300 - The Politics of Sexuality

Credits: 3

Addresses issue of how sexuality has become gendered with different meanings for both males and females as to reproductive behavior, especially how women's bodies are defined in sexual terms.

When Offered (Offered every other year)

Prerequisite: GWST 1080, 3500 or GWST 3710.

GWST4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society.

Cross Listed Cross-listed with AAST 4233 and COJO 4233;

Dual Listed dual-listed with GWST 5233.

USP 2003-2014 Code U3D, U3WC

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

GWST4335 - Women and Islam

Credits: 3

Examines women's lives in Islamic societies from the seventh century to the present in the Middle East and throughout

the world. Themes include women's position in Islamic law, society and culture, Western images of Muslim women, veiling and Islamist movements, theoretical readings on power, gender and agency.

Cross Listed HIST 4335 and RELI 4335.

Dual Listed GWST 5335.

Prerequisite: 9 hours of HIST, WMST, INST, or RELI.

GWST4360 - American Indian Women

Credits: 3

Explores the lives of American Indian women in a variety of contexts through time. The complexity and diversity of Indian women's experiences throughout history are emphasized. Much of the class concerns Indian women's lives within the reality of European American colonization and its consequences for Indian peoples.

Cross Listed NAIS 4360/SOC 4360.

Prerequisite: 6 hours of 2000-level NAIS classes.

GWST4450 - Ecofeminism

Credits: 3

Focus is on issues of gender, women and ecology. Ecofeminist thinkers argue that there is no liberation for women and no solution to the ecological crisis without a fundamental shift in relationships of domination. Uniting the two movements results in a radical reshaping of modern socioeconomic relations.

Dual Listed GWST 5450.

Prerequisite: 6 hours in WMST, PHIL, and/or ENR.

GWST4500 - Special Topics in Women's Studies

Credits: 1-4

Presents current research issues by visiting and regular faculty.

Prerequisite: GWST 1080, 3500, GWST 3710 or consent of instructor.

GWST4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540.

When Offered (Offered every other year)

Prerequisite: ENGL 1080/GWST 1080, WMST/SOC 3500, or CRMJ 2400/SOC 2400 , WMST/GWST 2500

GWST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 4650/LTST 4650/INST 4650.

Dual Listed GWST 5650.

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

GWST4675 - USWomen of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed AAST 4675/LTST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: junior standing and/or a combination of

GWST4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the twentieth century.

Cross Listed ART 4780.

Dual Listed GWST 5780.

Prerequisite: ART 2010 or ART 2020 or 3 hours of Women's Studies courses; and WB.

GWST4440 - Queer Life Through Memoir

Credits: 3

This reading intensive class explores queer life in the late 20th and early 21st centuries in the United States of America. Through close reading and analysis of the texts and discussions, issues of sexuality, race, class, violence and place are explored.

Cross Listed GWST 5440

Prerequisite: GWST 2000 , GWST 4430 , or GWST 5430 or graduate standing, or permission of instructor

GWST4960 - Women's Bodies, Women's Minds

Credits: 3

Explores women's physiologic and psychologic development and the influences of patriarchal society upon the interpretation of what constitutes normalcy across the female life cycle. Historical, cultural and contemporary attitudes

of the health care system and women's perspectives on menstruation, childbearing, breastfeeding and menopause will be analyzed.

When Offered (Offered every other year)

USP 2003-2014 Code U3CS

Prerequisite: upper division status.

GWST4965 - Senior Honors Project

Credits: 3

The student consults with the director/faculty supervisor to identify a topic and (a) produces a 30-40 page research paper or (b) a shorter 15-20 page paper plus a creative or service learning component, showing originality, firm knowledge of the discipline(s), and solid research skills, with a thesis defense as culmination.

Former Course Number [4980]

Prerequisite: GWST 4700, or concurrent enrollment with instructor consent, and a 3.500 GPA.

GWST4970 - Internship

Credits: 3

Max Credit (Max. 12)

Students gain practical experience in the application of principles learned in women's studies courses. Students will work with the director of women's studies internships to select a site; will intern approximately ten hours per week in the host organization; and will complete written assignments which reflect the student's work.

Former Course Number [4000]

Prerequisite: 12 semester hours of WMST coursework,

GWST4975 - Independent Studies

Credits: 1-4

Max Credit (Max. 9)

Offers the advanced student the opportunity to pursue a topic of interest with the assistance and direction of an instructor in women's studies.

Former Course Number [4970]

Prerequisite: 6 hours in women's studies or consent of instructor.

Grading & Honors

Grading Requirements

All GWST core courses and at least 15 credit hours of GWST electives must be completed with a "C" or better.

To be eligible for internships, students must have a minimum GPA of 3.300.

Honors in Gender & Women's Studies

Honors in Gender and Women's Studies recognizes academically ambitious students who have excelled in their undergraduate careers, and who are ready for graduate school and/or employment in the public or private spheres. Requirements include an overall minimum GPA of 3.500 and the completion of GWST 4965, Senior Honors Project.

Honors in GWST also requires the completion of 3 semesters of foreign language or sign language, or a concentration in quantitative analysis and research methods, including statistics.

Students in UW Honors Program, McNair Scholars Program, or other departments that require completion of an independent research project may dovetail their honors work in GWST with those programs.

Additional Information

Students in GWST are encouraged to work with a faculty advisor to develop an individualized plan of study. Contact the program director, Dr. Michelle Jarman (mjarman@uwyo.edu), for more information.

Native American and Indigenous Studies, B.A.

The curriculum for the 30-hour Bachelor of Arts degree in Native American and Indigenous Studies will encourage students to understand and appreciate the roles of history, culture, and politics in the development of tribal world views.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

COM1 - Communication 1

Credits: 3
College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

A&S College Core

The College of Arts and Sciences requires:

- D - Diversity (3 credits)
- G - Global (3 credits)

Major Requirements

Foundation Courses

Foundation Classes 9 Hours Required. Choose from the following:

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2210 - North American Indians

Credits: 3

Comparative consideration of North American Indian culture areas at European contact period.

Cross Listed ANTH 2210.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS & Crosslisted Courses

Choose seven (7), for a total of 21 credit hours, courses from the following:

NAIS1010 - Beginning Indigenous Language

Credits: 4

Fundamentals of grammar, conversation, composition, and reading.

NAIS1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed AAST 1030/AMST 1030/GWST 1030/LTST 1030.

USP 2003-2014 Code U3I, U3L

A&S College Core 2015 ASD

NAIS2010 - Intermediate Indigenous Language

Credits: 4

Second level fundamentals of grammar, conversation, composition, and reading.

Prerequisite: NAIS 1010.

NAIS2060 - Topics

Credits: 1-4

Max Credit (Max. 6)

Popular and current topics in American Indian studies.

NAIS2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed ENGL 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA course.

NAIS2345 - American Indians in Hollywood Film

Credits: 3

Examines the ways Hollywood films have constructed various forms of racial identity for American Indians.

Cross Listed ENGL 2345.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA.

NAIS3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the Plains region of the U. S. from prehistory to the present.

Cross Listed HIST 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

NAIS3010 - Proficient Indigenous Language

Credits: 4

Emphasizes the development of listening, speaking, reading, and writing so as to help students function effectively in the tribal cultural context of which the language is a part.

Prerequisite: NAIS 2010.

NAIS3100 - Tribal Literatures of the Great Plains

Credits: 3

Familiarizes students with American Indian literatures of the Great Plains. The Great Plains region is the locus of much historical and contemporary significance in regard to American Indian cultures. The literature of Great Plains Indians allows students to confront and reexamine the national narratives surrounding American Indians.

Cross Listed ENGL 3100.

USP 2003-2014 Code U3D, U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of NAIS or ENGL.

NAIS3200 - Indigenous Peoples and the Environment

Credits: 3

Understand the historical, political, and socio-economic forces that have shaped the relationships of Indigenous peoples to their environments, and be able to discern the similarities and dissimilarities of Indigenous issues across international borders. The course may include a study abroad component.

Prerequisite: 6 hours NAIS credit.

NAIS3300 - Federal Indian Law

Credits: 3

Survey of law that applies to individual Indians and tribal governments. In particular, explores the legal relationships among, and relative jurisdictions of federal, tribal, and state governments. Specific topics include civil and criminal jurisdiction, taxation, family law, hunting and fishing, and gaming regulations.

Prerequisite: NAIS 1001 or NAIS 1350.

NAIS3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select Indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed GEOG 3400.

USP 2003-2014 Code U3CS, U3D

Prerequisite: one course in American Indian culture.

NAIS4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed HIST 4000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

NAIS4010 - Advanced Indigenous Language

Credits: 4

Stresses the usage of language through composition, conversation, oral presentation, and grammar review.

Prerequisite: NAIS 3010.

NAIS4020 - Internship

Credits: 1-12

Max Credit (Max. 12)

Requires active participation and service to an Indigenous community or organization in US or elsewhere. A written agreement among the student, the NAIS director or NAIS faculty mentor, and an on-site supervisor is required. NAIS Majors must take at least four credit hours.

Prerequisite: 9 hours of NAIS courses.

NAIS4100 - Tribal Government

Credits: 3

Examines traditional systems of tribal governance; the establishment of contemporary tribal governments; stakeholders and their goals; factors influencing tribal government operations, including the federal trust relationship, plenary power, tribal federal and tribal-state relations; powers of tribal governments; and the future of tribal governments.

Prerequisite: 6 hours of NAIS courses, including NAIS 1001, and/or NAIS 1350.

NAIS4110 - Educational Foundations in American Indian Education

Credits: 3

Examines cultural, geographical, linguistic, spiritual, political, and societal factors before, during, and after colonization of the Americas. Definitions and day-to-day realities of terms like ethnocentrism, cultural relativism, assimilation, acculturation, and institutional racism. Development of insights into positive teacher-pupil-community relationships that honor culture and language differences and enhance achievement.

Cross Listed EDCI 4110.

Dual Listed NAIS 5110.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: NAIS 1001 and 15 credit hours of NAIS or EDST.

NAIS4200 - Indigenous Communities Abroad: International Travel

Credits: 4

Devoted to study/ travel related to Indigenous peoples abroad. The specific topic will be determined each time the class is offered. Two weeks of international travel will follow sixteen hours of on-campus instruction.

Prerequisite: 6 credits in NAIS.

NAIS4340 - Natural Resource Management on Western Reservations

Credits: 3

Examines natural resource management techniques on western reservations. Focus is on the management and planning of water, grazing, extractive industries, and forestry. Fieldwork on the Wind River Indian Reservation is included.

Cross Listed GEOG 4340.

Prerequisite: 6 hours of 2000-level NAIS courses.

NAIS4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed ENGL 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

NAIS4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed HIST 4466.

Dual Listed NAIS 5466.

Prerequisite: 9 hours of HIST, NAIS, or ANTH.

NAIS4740 - Native American Languages and Cultures

Credits: 3

Demonstrates the interrelationship of language and culture in several Native American communities. Examines anthropological and linguistic theories regarding language spread and the peopling of North America, narrative performance, translation, and the connection between linguistic structures and cultural features.

Cross Listed ANTH 4740.

Prerequisite: ANTH 2000 or consent of instructor.

NAIS4975 - Independent Study

Credits: 1-4

Max Credit (Max. 8)

Directed, independent study in American Indian issues with American Indian Studies affiliated faculty. Students must initiate a project with an appropriate faculty member and have it approved by the program director.

Prerequisite: consent of instructor and 6 hours of NAIS.

NAIS4990 - Special Topics

Credits: 1-4
Max Credit (Max. 9)

Current research topics presented by regular and visiting faculty.

Prerequisite: 3 hours of NAIS courses.

Additional Requirements

Grade Requirements

NAIS classes applied to NAIS degrees must be passed with a grade of C or better. This policy applies to NAIS classes completed fall semester 2012 and beyond.

Additional Information

Cross-Listing & NAIS Courses

In order to provide a broader range of relevant and enriching courses, in any given year, the program in Native American and Indigenous Studies offers topics courses (NAIS 2060 or NAIS 4990) that are frequently cross-listed with other majors and departments. Any such courses may be counted towards a student's 21 hours of required courses beyond the foundational courses.

If a student chooses to take more than one topics course in the same semester, it may require an override within the registration system. If you seek to enroll in a topics course and have trouble doing so, please contact scgsj@uwyo.edu.

Declaring a NAIS Major/Minor

Please complete and submit the "Change of Advisor, Major, Minor, Option/Concentration, College, and or Graduate Status" form available on the Office of the Registrar's website.

Minor

African American and Diaspora Studies Minor

Thematic tracks in the major or minor are optional:

- History
- Culture & Aesthetics
- Politics & Law
- Rhetoric & English
- Religion & Philosophy
- Media Studies

Minor Requirements

The minor in African American and Diaspora Studies consists of 21 credit hours:

- 9 credit hours of core course requirements
- 9 credit hours of electives (excludes core courses)
- 3 credit hours of senior thesis seminar (AAST 4975, Capstone)

American Studies Minor

Students may minor in American Studies through a program of 24 credit hours of study, with credit hours evenly distributed between lower and upper division courses, which include at least 3 courses in American Studies (with the AMST course prefix), at any level (except AMST 1101), in consultation with and depending on approval by a faculty advisor in American Studies. Coursework for the minor may be matched with a student's major requirements in related disciplines and fields.

Gender and Women's Studies Graduate Minor

Provides advanced, interdisciplinary, intersectional training in feminist and gender theory and praxis. This minor offers crucial knowledge and skills to students pursuing a wide range of graduate degrees and professional paths.

Requirements

A total of 12 credit hours are required to complete the Graduate Minor in GWST. This includes the following:

GWST5710 - Feminist Theoretical Perspectives

Credits: 3

Intensive introduction to the epistemology and application of a wide range of trans-historical, trans-cultural, and trans-national feminist theories. Students will be asked to apply self-selected feminist theories to their own thesis work and graduate fields, as well as to current examples of sex, gender, gender performance, and gendered coding in American media.

Prerequisite: graduate standing.

- An additional 9 credit hours of GWST electives, including 6 credits at the 5000-level.
- When practical, students should include a GWST faculty member on their thesis, dissertation or Plan B committees. Students in professional programs without a culminating research project can meet this requirement through alternative means.

Additional Information

Contact the program director, Dr. Michelle Jarman (mjarman@uwo.edu), to discuss individual plans of study.

Gender and Women's Studies Minor

Provides foundational knowledge in historical and contemporary issues related to sex, gender, and sexuality. Upon completion, students will be able to apply intersectional feminist and gender theories to interdisciplinary research and practice.

Requirements

Students must complete 18 hours of GWST course work. Nine of the required hours must be 3000-level or above. At least 15 credit hours must be completed with a grade of "C" or better.

Core Course: 3 Credits

Complete at least ONE of the following core courses.

Note: some of these courses have prerequisites, so taking a lower and upper level course from this list is recommended, but not required:

GWST1080 - Intro Gender & Women's Studies

Credits: 3

This course serves as an introduction to the field of Gender and Women's Studies. Students will examine a range of GWST topics, gain knowledge of gender, feminist, and intersectional theories, and learn to apply course concepts and frameworks to analyses of socio-political and representational issues, primarily in U.S. contexts.

Cross Listed ENGL 1080.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

GWST2000 - Introduction to LGBTQ/NS Studies

Credits: 3

Lesbian, Gay, Bisexual, Transgender, Queer and New Sexuality Studies (LGBTQ/NS) explores the interdisciplinary study of sexuality and its importance to the organization of social relations and social institutions. Primary among its concerns is the study of the lives, the politics, and the creative work of sexual minorities.

USP 2003-2014 Code U3C, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

- GWST 3XXX Gender, Race, Sex & Soc Systems

Note: will be offered Spring 2023

GWST4700 - Feminist Theories

Credits: 3

Surveys contemporary feminist theories and places those theories within the framework of social, literary, and artistic criticism. Uses feminist theories to address questions such as nature of meaning in literature and artistic forms; construction of science; and identity of the individual as these phenomena are affected by gender construction.

When Offered (Offered once a year)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 12 hours of women's studies.

Note: If taken prior to Fall 2022, these courses may also satisfy this requirement: GWST 3710, Gender & Humanities; GWST 2500, Gender & Society; GWST 1900, Women & Leadership.

Electives: 15 credit hours

The additional 15 credit hours can be selected from the complete slate of GWST electives, including those listed above.

Note: a minimum of 12 credit hours in the minor must be exclusive of hours earned in the student's major.

Additional Information

Students in the GWST minor and major are encouraged to work with a faculty advisor to develop an individualized plan of study. Contact the program director, Dr. Michelle Jarman (mjarman@uwyo.edu), for more information.

Latina/o Studies Minor

Latina/o Studies offers an undergraduate minor. The minor in Latina/o Studies requires 18 credit hours. One of those courses (3 hours) must include the required foundation courses, and the remaining courses (15 hours) can be selected from the other areas of studies listed below.

Minor Requirements

3 Hours of Foundation Course

LTST1300 - Introduction to Latina/o Studies

Credits: 3

The U. S. Latina/o immigrant experience is a particular focus of this course, including its role in the incorporation of Latinos into U. S. society. Through readings, presentations, class discussion, videos, and other activities, students examine historical and contemporary issues affecting Latinos including but not limited to immigration, language, identity, national origin, education, politics, employment, and economic mobility.

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 1300]

3 Hours of History or Social Science

LTST2370 - Chicano History : Origins to 1900

Credits: 3

General survey that traces the geographic distribution and historical processes that have shaped the life experiences, socio-economic development and cultural contributions of peoples of Mexican descent in the United States from their indigenous and Hispanic origins to the end of the 19th century. Cross list with GEOG 2370/HIST 2370.

USP 2003-2014 Code U3CS, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 2370]

LTST2385 - Chicano History: 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed HIST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 2385]

LTST3800 - Chicanas/os in Contemporary Society

Credits: 3

Focuses on three major movements within the Chicana/o community; labor, nationalism, and feminism. Students will assess these three movements to determine what role they have played in transforming the social conditions and political identity of the Chicana/o and Latina/o population in the US.

Cross Listed AMST 3800/GWST 3800.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Former Course Number [CHST 3800]

Prerequisite: LTST 1100 or GWST 1080 or AMST 2010.

3 Hours of Culture, Arts, and Humanities

LTST2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanismo. Studies literature of the Hispanic Southwest, Mexican American folklore and the Chicano and post-Chicano movement.

Cross Listed ENGL 2360.

USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD
Former Course Number [CHST 2360]

Prerequisite: WA.

LTST3560 - Chicano Community Organizations

Credits: 3

Introduction to the origins, development and contemporary status of community organizations and service agencies in the Mexican American community in general and in the Wyoming and Rocky Mountain regions.

Former Course Number [CHST 3560]

Prerequisite: LTST 1100.

LTST4100 - U.S. Latina/o Theater

Credits: 3

Designed to provide an overview of United States Latina/o Theater. Through a variety of delivery methods, students are instructed on the various categories that directly impact U. S. Latina/o Theater such as political theatre, gay/lesbian theatre, border issues, race, class, gender, and sexuality.

Cross Listed WMST 4100.

Dual Listed LTST 5100.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [CHST 4100]

Prerequisite: 6 hours of LTST or WMST.

LTST4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed ENGL 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 4470]

Prerequisite: LTST 1100 and WA.

3 Hours of Gender, Race, Class, and Sexuality

LTST1030 - Social Justice in the 21st Century

Credits: 3

Appropriate for students interested in diversity and social justice. Topics covered through an interdisciplinary study of people and society range from identity, critical thinking, empowerment, role models, stereotyping, institutional discrimination, and tolerance. The key lynchpin is active participation in the development and maintenance of just communities.

Cross Listed GWST 1030/NAIS 1030/AAST 1030/AMST 1030.

USP 2003-2014 Code U3D, U3I

A&S College Core 2015 ASD

Former Course Number [CHST 1030]

LTST3200 - Perspectives in Chicana Studies

Credits: 3

An interdisciplinary introduction to the study of the history, culture, gender relations, and contemporary political, economic status of Chicanas/Mexican American women. Examines the origins, development of Chicana studies as a major emphasis in Chicano/Chicana studies.

Cross Listed GWST 3200.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Former Course Number [CHST 3200]

Prerequisite: LTST 1100 or junior standing.

LTST4650 - Women, Gender & Migration

Credits: 3

From an international context and perspective, this course examines the gendered transformations immigrant women experience. Gender, theories of international migration, assimilation, race, ethnicity, and identity transformation serve as categories of analysis. From a cross-discipline comparative approach, we focus on women's lives to examine differences and similarities to complicate notions of immigration.

Cross Listed AMST 4650/INST 4650/GWST 4650.

Dual Listed LTST 5650.

Former Course Number [CHST 4650]

Prerequisite: Junior standing and 6 hours of AMST, LTST, INST, and/or WMST coursework or instructor approval.

LTST4675 - U.S. Women of Color

Credits: 3

Examines in comparative perspective the social conditions that shape the experiences of Chicanas/Latinas in the U. S. Students gain an understanding of how the intersection of race, class, gender, and sexuality shape the lived experiences of U. S. women of color through ideological, economic, and political forces.

Cross Listed AAST 4675/GWST 4675.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Former Course Number [CHST 4675]

Prerequisite: junior standing and/ or a combination of 3-6 hours of any level of LTST, WMST, or AAST coursework.

6 Hours of Electives

(or any courses listed above not yet taken)

LTST2060 - Special Topics in:

Credits: 3

Former Course Number [CHST 2060]

LTST3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed SPAN 3080.

USP 2015 Code U5H

Former Course Number [CHST 3080]

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

LTST4485 - USLatino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U. S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives responses are stressed.

Cross Listed HIST 4485/INST 4485.

Former Course Number [CHST 4485]

Prerequisite: 9 hours of LTST, HIST, and/ or INST related coursework.

LTST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century, especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U. S. , incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed HIST 4496.

When Offered (Normally offered fall semester)

Former Course Number [CHST 4496]

Prerequisite: 9 hours of HIST or INST.

LTST4975 - Independent Studies

Credits: 1-3

Max Credit (Max 6)

Independent study in Chicano studies research.

Former Course Number [CHST 4975]

Prerequisite: junior standing.

LTST4990 - Topics in Chicano Studies

Credits: 1-3

Max Credit (Max 6)

A special topics course through which regular and visiting faculty can explore regarding specialized or new research topics regarding Chicano studies.

Former Course Number [CHST 4990]

Prerequisite: junior standing.

Native American and Indigenous Studies Graduate Minor

A graduate minor in Native American and Indigenous Studies is comprised of 12 hours with at least 6 hours at the 5000 level. It is expected that each graduate minor student and his/her graduate committee, at least one member of whom will be from NAIS, will determine the specific courses to be taken. It is recommended that one of the four classes selected be a 3 credit NAIS 5000 Independent Study. This class will provide a research experience in the discipline of Native American and Indigenous studies that may support a master's thesis or doctoral dissertation. The research

expectation in NAIS can be satisfied by the 3 credit hour Independent Study and/or by the thesis or doctoral dissertation.

Students graduating with a graduate minor degree in Native American and Indigenous studies will be able to: 1) Make apparent in masters'-level research the interdisciplinary connections between Native American and Indigenous studies and the primary field of graduate study; 2) Integrate American Indian studies research methods with the research methods used in the primary field of graduate study; and 3) Demonstrate in writing the ability to understand a variety of subjects from a tribal perspective.

Native American and Indigenous Studies Minor

Students graduating with an undergraduate minor degree in NAIS will be able to: 1) Explain the concept of tribal sovereignty and how tribal sovereignty is both restricted and acknowledged by the federal trust relationship and by relationships with states; 2) Understand the development of modern tribal governments and their functions and importance in contemporary society; 3) Understand and appreciate the roles of history, culture, and politics in the development of tribal world views, world views that relate to modern life and contemporary issues of concern for Native American and Indigenous peoples; 4) Identify historical, cultural, and political diversity and significance in Native oral traditions and written literatures; 5) Recognize stereotypes about Native American and Indigenous peoples and explain why these stereotypes were created and why they are sustained in modern society; and 6) Understand from the perspective of American Indian peoples, historical experiences and contemporary issues in North America.

Minor Requirements

The minor in Native American and Indigenous Studies requires 18 credit hours. Twelve credit hours must come from the following courses, three credit hours must be in either NAIS 1001 or NAIS 1350.

NAIS1001 - Foundations in American Indian Studies

Credits: 3

Explains the development of American Indian studies and will show how a variety of disciplines continue to inform this field and interact to facilitate the exploration of its major topics of concern, including Native histories, cultures, and contemporary lives.

USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS1350 - American Indians in Contemporary Society

Credits: 3

Examines social and cultural issues and concerns of American Indians both on and off the reservations. Additionally, the status of American Indian people within the dominant society and culture will be explored.

Cross Listed SOC 1350.
USP 2003-2014 Code U3CS, U3D
A&S College Core 2015 ASD

NAIS2210 - North American Indians

Credits: 3

Comparative consideration of North American Indian culture areas at European contact period.

Cross Listed ANTH 2210.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

NAIS2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social, and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed HIST 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

NAIS2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed ENGL 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA course.

- Plus six hours of NAIS elective courses

Queer Studies Graduate Minor

Immerses students in advanced theoretical, historical and contemporary issues related to sexuality. Upon completion, students will be able to analyze systemic exclusion/inclusion, conduct independent interdisciplinary analysis through a queer studies lens, and apply queer theory to practice.

Requirements

A graduate minor in Queer Studies requires the completion of 12 credit hours, including AMST 5430 - Queer Theory/ GWST 5430 - Queer Theory , a minimum of 6 hours at the 5000+ level, and a capstone experience or independent study. For committee-based degree programs with queer studies content, it is expected that the student will include one committee member from Queer Studies faculty.

Faculty Advisory

An interdisciplinary, independent Queer Studies committee advises the program on curriculum, scheduling and coordination. A faculty advisor is assigned to the student on declaration of the minor.

The faculty advisory committee for the minor includes:

- Rachel Watson, Director Queer Studies, Chemistry
- Ulrich Adelt, American Studies, African American & Diaspora Studies
- Ruth Olga Bjorkenwall, Politics, Public Affairs & International Studies
- Christine Boggs, Ellbogen Center for Teaching & Learning
- Catherine R. Connolly, Gender & Women's Studies
- Danielle Renee Cover, Law
- Michelle Jarman, Disability Studies, Gender & Women's Studies
- Barbara Ellen Logan, History
- Jamie Snyder, Criminal Justice & Sociology
- Lilia Soto, American Studies, Latino/a Studies
- Jennifer Tabler, Criminal Justice & Sociology

Please contact the program director, Rachel Watson (RWatson@uwyo.edu), for more information.

Queer Studies Minor

Immerses students in theoretical, historical and contemporary issues related to sexuality. Upon completion, students will be able to analyze systemic exclusion/inclusion, conduct independent interdisciplinary analysis through a queer studies lens, and apply queer theory to practice.

Requirements

The Queer Studies minor requires the completion of 18 credit hours, including GWST 2000 - Introduction to LGBTQ/NS Studies and nine or more credits at the 3000-level or above. Each semester, students, in consultation with a queer studies advisor, will choose elective courses. A capstone project or internship is required but can be variable and determined in consultation with an advisor.

Faculty Advisory

An interdisciplinary, independent Queer Studies committee advises the program on curriculum, scheduling and coordination. A faculty advisor is assigned to the student on declaration of the minor.

The faculty advisory committee for the minor includes:

- Rachel Watson, Director Queer Studies, Chemistry
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- Barbara Ellen Logan, History
- Jamie Snyder, Criminal Justice & Sociology
- Lilia Soto, American Studies, Latino/a Studies
- Jennifer Tabler, Criminal Justice & Sociology

Please contact the program director, Rachel Watson (RWatson@uwyo.edu), for more information.

Graduate

American Studies, M.A.

The American Studies M.A. is an interdisciplinary cultural studies professional development degree. M.A. graduates work in public settings, including historic preservation organizations, historic sites, museums, collections, and other non-profit organizations.

Information

Graduate Study

The American Studies M.A. is an interdisciplinary professional development degree in a committed learning community that builds on students' research interests, accomplishments, experiences, and career goals working with American cultural contexts past and present. After the M.A., our alums seek further professional specialization in law, education, writing, library and information science, and other fields; pursue Ph.D.'s in academic careers in American Studies and other scholarly areas including ethnic studies, cultural geography, literature, religious studies, anthropology, history, ethnomusicology, among others; and work professionally in public settings, including historic preservation organizations, historic sites, museums, collections, and other non-profit, community or governmental organizations.

The M.A. is a 2-year program for students enrolled full-time, culminating in a major research project, either a "Plan A" thesis, or a "Plan B" non-thesis portfolio of work. We work frequently with part-time M.A. students to accommodate other demands on students' time. We encourage the development of emergent, innovative formats and project types as valuable contributions to contemporary American studies practice, relevant to a student's professional development plans.

Because American Studies is an international field with scholars all over the world, and the U.S. has significant impacts transnationally, M.A. Students from outside the U.S. are a regular part of our M.A. cohort, and we encourage our M.A. students to consider semester exchanges abroad. The Program also supports American Studies M.A. student and faculty participation in the annual biennial international conferences.

All M.A. students complete at least 15 credit hours in American Studies courses: 2 required theory and methods courses in the Program (AMST 5500 and AMST 5510), and 3 graduate seminars in American Studies. The remainder of coursework - 12 credits for those completing a thesis, or 15 credits for those completing non-thesis portfolios - can be drawn from graduate-level coursework in any area of study. Most of our M.A. students complete 1-3 credit internships as part of their coursework, in public or organizational sites in Laramie, elsewhere in Wyoming or the U.S., and occasionally abroad as well. M.A. students' paths through their programs of study are as varied as our students.

Program Learning Outcomes

Students graduating with an M.A. in American Studies integrate their educational backgrounds, research and professional interests, and coursework at the M.A. level inside and outside American Studies, in individual programs of study, to professionally engage American cultural production and communities in preparation for professional work or advanced graduate study. Students earning the M.A. in American Studies, either completing a thesis or pursuing the non-thesis Plan B project, are prepared to:

- Interpret a variety of objects significant to the study of American cultures, including words, narratives, images, material objects, communities, built environments, identities, cross-cultural and/or international perspectives, continuities and discontinuities with the past in a range of cultural settings.
- Demonstrate professional competence in writing and speaking in error-free expository prose, authoritative oral presentation, insightful use of relevant source material reflecting critical reading skill, prose style commensurate with professional responsibility, and prose content commensurate with professional responsibility.
- Produce professional research for a well-defined community (scholarly, public, or an appropriate combination), by identifying and using primary sources, building approaches from a relevant matrix of secondary sources, and understanding scholarly traditions within the field of American Studies that supports, expands, and connects research to professional goals.
- Make effective plans for advanced graduate study or professional employment by developing competencies listed above, including the opportunity to complete appropriate internship or field course work in an area of the student's professional plans.

Program Specific Admission Requirements

Those interested in graduate study are encouraged to contact the American Studies Program (307-766-3898 or amst@uwoyo.edu) for more information.

Applicants to the M.A. program do not have to have prior majors in American Studies. The American Studies program does not require the GRE in applications to our M.A. program.

The application deadline for fall enrollment is March 1. A minimum of a 3.0 undergraduate cumulative GPA is required for admission. In addition to an application, please submit the following via the University of Wyoming's online application system (<http://www.uwoyo.edu/admissions/apply.html>):

1. Statement of Purpose
2. A significant writing sample (usually a seminar paper or, for those coming from technical fields, a major report) that demonstrates potential for graduate study
3. Three letters of recommendation that assess the student's academic and research abilities
3. Transcripts from all undergraduate institutions and graduate programs

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwoyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Financial Aid

The American Studies M.A. is generously supported by endowment funds that allow us to award significant financial aid to M.A. students enrolled full time, through teaching, research, or community organization assistantship placements, as well as scholarship support as appropriate for students' own M.A. research.

Program Specific Degree Requirements

Graduate student must successfully complete 30 hours (for Plan B non-thesis) or 31 hours (for Plan A thesis) of graduate credit including the following:

Required Courses

(3 credit hours) AMST 5500 with a grade of B or better

(3 credit hours) AMST 5510 with a grade of B or better

(9 credit hours) graduate (5000) level AMST courses

Additional Requirements

Plan A thesis:

(12 credit hours) of graduate (5000) level courses in any field

(4 credit hours) of AMST5960 - Thesis Research

Completion of a Master's Thesis

OR

Plan B non-thesis:

(15 credit hours) of graduate (5000) level courses in any field

Completion of a non-thesis project

Completion of exam

Certificate

American Studies Certificate

The certificate program allows students to choose from undergraduate and graduate courses in American Studies, literature, geography, music, art, history, philosophy, sociology, folklore, anthropology, Native American and Indigenous studies, political science, environmental studies, and media studies.

The program encompasses two semesters of full time work: a total of at least 24 semester hours, or approximately 8 courses. Of these, 6 credit hours (2 courses) must be selected from the following list:

Requirements

AMST2010 - Introduction to American Studies

Credits: 3

Introduces the interdisciplinary study of American culture. Focuses on themes, values and ideas which continue to

reverberate through U.S. cultural experience.

When Offered (Offered at least once each year)

USP 2003-2014 Code U3CH, U3WB

USP 2015 Code U5H

- Any AMST course at the 4000- or 5000-level Credits: 3
- An additional 18 hours (6 courses) are chosen in consultation with an American Studies faculty adviser. The final 3 credit hours, completed during the summer months, are devoted to an internship (AMST 4970) or field experience in American culture (AMST 4900).

Teachers of American Indian Children (TIAC) (Teaching) Endorsement/UW Certification

Through Distance Education, a Teachers of American Indian Children (TAIC) Endorsement / Graduate Certificate can be earned. This non-degree graduate program certifies that those who complete its five specialized courses possess the attitudes, knowledge, and competence necessary to effectively teach American Indian Children. Upon completion, students receive official recognition of their achievement on their transcripts and an official certificate. Visit the Distance Education Degrees and Programs Website www.uwyo.edu/distance/ for more information. All courses are cross-listed with NAIS and EDCI.

An interdepartmental Native American and Indigenous Studies Advisory Committee guides the program's development. The director advises students selecting the NAIS studies major or minor.

Complete information about the Native American and Indigenous Studies undergraduate major, undergraduate minor, and graduate minor is available in the NAIS Program office and on the program Website.

Department of Anthropology

106 Anthropology Building,

(307) 766-5136

FAX: (307) 766-2473

Web site: www.uwyo.edu/anthropology

Department Chair: Melissa Murphy

Professors:

JAMES AHERN, B.A. Beloit College 1991; M.A. Northern Illinois University 1993; Ph.D. University of Michigan 1998; Professor of Anthropology 2014, 2000.

MICHAEL E. HARKIN, B.A. University of North Carolina 1980; M.A. University of Chicago 1984; Ph.D. 1988; Professor of Anthropology 2003, 1993.

ROBERT L. KELLY, B.A. Cornell University 1978; M.A. University of New Mexico 1980; Ph.D. University of Michigan 1985; Professor of Anthropology 1997.

MARCEL KORNFELD, B.A. University of New Mexico 1974; M.A. University of Wyoming 1982; Ph.D. University of Massachusetts-Amherst 1994; Professor of Anthropology 2008, 1996.

MELISSA S. MURPHY, B.A. Haverford College 1994; Ph.D. University of Pennsylvania 2004; Associate Professor of Anthropology 2014, 2008, Professor of Anthropology 2021.

TODD SUROVELL, B.S. University of Wisconsin-Madison 1995; M.A. University of Arizona 1998; Ph.D. 2003; Professor of Anthropology 2015, 2003.

Associate Professors:

PAMELA INNES, B.A. Bryn Mawr College 1986; M.A. University of Oklahoma 1992; Ph.D. 1997; Associate Professor of Anthropology 2007, 2001.

JASON TOOHEY, B.A. University of California Santa Barbara 1995; M.A. California State University Northridge 2000; Ph.D. University of California Santa Barbara 2009; Associate Professor of Anthropology 2017, 2011.

Assistant Professors:

BRIANA DOERING, B.A. Barnard College, Columbia University, 2012; M.A. University of Michigan 2016; Ph.D. 2020, Assistant Professor of Anthropology 2020.

ALEXANDRA KELLY, B.A. University of Chicago 2004; M.A. 2005; Ph.D. Stanford University 2014; Assistant Professor of History and Anthropology 2014.

JESSICA NELSON, B.A. University of Michigan 2006; M.A. University of Arizona 2011; Ph.D. 2018; Assistant Professor of School of Culture, Gender, and Social Justice 2019.

Adjunct Faculty:

Adams, Arksey, Budowle, Clauter, Grund, Janković, Karavanić, Kitchell, Lynch, Malloy, Miller, Nicholson, Olujić, Page, Pelton, Peterson, Pierce, Raguž, Rockwell, Todd, Walker, Watson, Wilkinson

Academic Professional Research Scientist:

Rick Weathermon

Professors Emeriti:

George W. Gill, Mary Lou Larson, Lin A. Poyer, Charles A. Reher, Audrey C. Shalinsky

The department of Anthropology promotes the understanding of humankind from an integrated, holistic approach which examines past, present and future trends in cultural, biological and linguistic diversity and uniformity. Though the department serves undergraduate and graduate majors who will become professional anthropologists or will pursue other related careers, it also provides information to a large number of non-majors and to the larger community regarding cross-cultural issues. Furthermore, because of its commitment to the four field approach including biological anthropology, archaeology, cultural anthropology and linguistic anthropology, the department fosters among its students an awareness of the interrelatedness of scientific concepts, methods and theories, and the humanistic foundation of scientific inquiry. The Department of Anthropology prepares its students both to understand the cultural resources of Wyoming and to participate as informed citizens in an increasingly complex global community.

Undergraduate Major

The Anthropology B.A. program has the following learning outcomes:

1. students demonstrate knowledge about the four fields of anthropology and their interrelationship,
2. students participate in a research experience and understand its process, and
3. students demonstrate ability to analyze and synthesize in relation to anthropological issues or theories.

In addition to university and college requirements listed in this Catalog, anthropology majors must complete two semesters of foreign language. ANTH 1100 and ANTH 1300 cannot be used to fulfill the USP PN requirement. Specific requirements for a B.A. in anthropology are ANTH 1100, 1200, 1300, and 2000. Students must complete ANTH 3300 or ANTH 3310. ANTH 3300 and ANTH 3310 require an additional 1 hour of ANTH 4975. Also required are an additional 21 credits of upper division anthropology for a total of 25 upper division (3000+) credits within the major, including at least one course from three different subfields (cultural anthropology, linguistic anthropology, biological anthropology, and archaeology). Courses that can be used to fulfill upper division cultural anthropology are ANTH 4023, 4300, 4310, 4320, 4325, 4330, 4340, 4350, 4380, 4020 (with instructor's consent). Courses that can be used to fulfill upper division linguistic anthropology are ANTH 4024, 4740, 4765, 4775, 4785, 4795, 4020 (with instructor's consent). Courses that can be used to fulfill upper division biological anthropology are ANTH 4022, 4210, 4215, 4220, 4230, 4255, 4260, 4020 (with instructor's consent). Courses that can be used to fulfill upper division archaeology are ANTH 3900, 4021, 4110, 4115, 4120, 4125, 4130, 4145, 4150, 4160, 4170, 4175, 4020 (with instructor's consent), or six credits of archaeological field school (ANTH 4140 or 5180). It is recommended that anthropology majors take ANTH 1101 to fulfill the First-Year Seminar requirement, but it is not required that students take this particular First-Year course. It is also recommended but not required that students complete a course in statistics (STAT 2050 or 2070) and a third semester of foreign language. Courses required by the department for the major and minor must be completed with a grade of C- or better.

At the completion of the Bachelor of Arts degree in Anthropology, students will be able to demonstrate knowledge about the four subfields of anthropology and their interrelationships; they will have participated in a research experience and understand its process; and, they will demonstrate ability to analyze and synthesize in relation to anthropological issues or theories.

Undergraduate Minors

The Anthropology undergraduate minor has the following learning outcomes:

1. students learn sufficient subfield information to complement a variety of disciplines,
2. students learn basic methods of the discipline, and
3. students learn basic theories/ types of subfield explanation.

The minor for non-anthropology majors requires two of the introductory courses: ANTH 1100, 1200, 1300, 2000, and 11- 12 hours of electives from 2000, 3000, or 4000-level anthropology courses with no more than 3 hours at the 2000-level. See the anthropology web site for more details.

Teacher Education

Anthropology courses may be used to complete part of the requirements for teacher certification in social studies.

Graduate Study

The department offers programs of study leading to Master of Arts and Doctor of Philosophy degrees in Anthropology. Check Anthropology department web pages for any updates.

Program Specific Admission Requirements

Master's Program

The Anthropology M.A. program has the following learning outcomes:

1. students will be able to explain the content of the "four fields" of anthropology and their interrelationship in written and oral formats,
2. students will have experience in original research, and
3. students will develop skills which foster professionalism as related to their chosen field.

Deadline for application is February 15 for the following fall. See graduate admission requirements. Submit letter of intent, resume, transcripts, and an optional writing sample as digital documents to the UW online application system. A minimum of three letters of recommendation are required; a standardized recommendation form is provided through the application system.

In the letter of intent, students should describe their research interests, career goals, and how Wyoming's program will help them achieve these goals.

The Department of Anthropology requires that at least two of the recommendation letters be from academic supervisors or instructors.

Students must present evidence of a satisfactory background in anthropology, which should include coursework in all four subfields of Anthropology (socio/cultural, bio/physical, archaeology, and linguistics). Deficiencies in anthropology may require remediation. Students must have two semesters of a single foreign language or equivalent, and one semester of statistics. In those instances in which the undergraduate background of the student is deficient, the department reserves the right to prescribe course work that would correct such deficiencies.

The M.A. program is designed to be completed in two full years of graduate study. Appropriate allowance will be made for parttime students.

Students who graduate with a Master of Arts degree will be able to explain the content of the four fields of Anthropology and their interrelationship in written and oral formats; they will have an experience in original research; and, they will develop skills which foster professionalism in their chosen fields.

Doctoral Program

The Anthropology Ph.D. program has the following learning outcomes:

1. students will have professional and specialized training so they can move into careers in academic or non-academic tracks,
2. students will have a dissertation research experience that results in professional publication(s), thereby contributing to the expansion of knowledge, and

3. students will have practical experience that will promote their movement into professional careers in a reasonable amount of time.

Deadline for application is December 1 for the following fall. *See graduate admission requirements.*

Submit letter of intent, resume, transcripts, and an optional writing sample as digital documents to the UW online application system. A minimum of three letters of recommendation are required; a standardized recommendation form is provided through the application system.

In the letter of intent, students should identify whom they would like as their faculty adviser and describe their research interests, career goals, and how Wyoming's program will help them achieve these goals.

Students with a master's degree may apply directly to the Ph.D. program.

Students with a bachelor's degree may apply to the Ph.D. program. If admitted, students are expected to complete the master's degree requirements following the Plan A or Plan B option before formal admission to the Ph.D. program. At the thesis defense or hearing for the Plan B paper, the student will receive a no pass, pass-terminate at the master's degree, or a pass-admit to the Ph.D. program.

Students admitted to the department's M.A. program are not guaranteed admission to the Ph.D. program.

For admission to the Ph.D. program with the Bachelor's degree, students must have course work in the four subfields of anthropology, two semesters of a single foreign language, and statistical competency at either the B.A. or M.A. level. If these are not satisfied, the student's faculty adviser in coordination with the student's graduate committee assigns remedial work as appropriate.

Students who graduate with a Ph.D. in Anthropology will have specialized and professional training so they can move into academic or non-academic tracks; they will have a dissertation experience that results in professional publications; and they will have professional experiences that facilitate their move into careers in a reasonable amount of time.

Program Specific Graduate Assistantships

Doctoral students generally receive two years of assistantships. First semester, first year M.A. students are generally not awarded assistantships; however, the department occasionally does make exceptions. M.A. students are eligible to apply for assistantships beginning in the second semester.

Assistantships are awarded through a departmental application process. An application form, cover letter, and resume are required. Information and deadlines may be obtained in the department office.

Failure to complete steps in the M.A. program by established deadline (e.g., advisor selection, proposal presentation, etc.) means the student is not eligible for an assistantship. Failure of the Ph.D. preliminary exam means the student is not eligible for an assistantship.

Program Specific Degree Requirements

Master's Program Plan A (thesis)

See university minimum requirements.

Completion, with a grade of "B" or better of a four core-course sequence. This sequence will consist of ANTH 5010, 20th Century Anthropological Theory; ANTH 5015, Archaeological Theory and Method; ANTH 5020, Biological Anthropology; and ANTH 5030, Linguistic Anthropology.

First semester (fall): Students will submit form to the graduate advisor and department head identifying their thesis advisor BEFORE the graduate assistant allocation meeting (mid-late November).

Second semester (spring): Students will work with their advisor to select their committee, which must be formed and on-file in the department office by the end of the semester. During the core classes' final exam periods, students give a presentation to departmental faculty which outlines the general ideas for their proposed thesis.

Third semester (fall): Working closely with their advisor and committee, students complete a detailed prospectus and gain approval from thesis committee for MA thesis topic.

Fourth semester (spring): Thesis is completed and is approved by thesis committee.

Any M.A. student receiving a grade of C or less in two core classes will be expelled from the program.

Second semester research presentations are assessed by all department faculty in attendance at the presentation and evaluations will be given to the student's advisors. It is expected that students will work closely with their advisors to rectify any problems before they complete their thesis prospectus in the third semester.

If not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Plan B (non-thesis)

See university minimum requirements.

All requirements for a Plan A except thesis, if not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Doctoral Program

See university minimum requirements.

After completion of an M.A. program in anthropology.

A minimum of six content courses (18 hours) chosen by the student in conjunction with the student's committee. These courses are normally completed in the first two years of the Ph.D. program. In addition to anthropology courses, the other 4000/5000-level courses outside of the department may be required by the committee or chosen by the student in consultation with their committee. If not completed prior to admission, two semesters of a single foreign language must be completed.

Two additional courses in their first or second year: ANTH 5880, Professionalism in Anthropology and the two-semester sequence of ANTH 5890, Teaching Anthropology (3 hours total).

Teaching experience, including standalone courses, after completion of the first semester of Teaching and Learning (ANTH 5890), as well as teaching assistance to UW faculty members.

Participation in an approved internship experience (6-24 credit hours). Students pursue internships in state and federal agencies, museums, contract archaeology organizations, and other organizations that offer potential career experience.

Committee meeting and successful completion of a dissertation proposal.

Preliminary exams take place after the completion of 18 hours of content courses. ANTH 5880, and Teaching and Learning in Anthropology (ANTH 5890, or other as designated), normally before the end of the second year. If a student does not receive a passing grade on the preliminary exam, it can be repeated once. Failure to pass the preliminary examination the second time results in termination from the anthropology program.

International experience is highly recommended but not required, e.g. pre-dissertation summer fieldwork.

Student maintains a portfolio which documents teaching, internship, and research experience.

Students are encouraged to present papers at professional conferences and submit articles for publication throughout their tenure as a student. After admission to candidacy, the student is expected to research, write, and defend a dissertation based on original research (up to 48 credit hours). Students may either submit a single dissertation or a series of integrated publishable articles (30-40 pages each). The student's committee must approve this choice and decide on the number, length and content of the articles at the same time, usually at the committee hearing prior to the preliminary exams. For the final submission of the dissertation, the student must also complete an introduction and conclusion to contextualize and synthesize the integrated articles.

Major

Anthropology, B.A.

Anthropology students will be able to demonstrate knowledge about the four subfields of anthropology. They will have participated in research and will be able to analyze and synthesize in relation to anthropological issues or theories.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Specific Requirements for a B.A.

In addition to university and college requirements listed in this *Catalog*, anthropology majors must complete two semesters of foreign language. ANTH 1100 and ANTH 1300 cannot be used to fulfill the USP PN requirement. ANTH 3300 and ANTH 3310 require an additional 1 hour of ANTH 4975.

ANTH1100 - Introduction to Biological Anthropology

Credits: 4

Basic concepts relating to the origin, evolution and biological nature of the human species.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ANTH1300 - Introduction to Archaeology

Credits: 3

Explores ways in which prehistoric material remains can provide an understanding of the cultural way of life. General background in archaeological method and theory is used to examine case studies from throughout the world, based on themes such as ceramic technology and artistry development, growth of early civilizations and North American prehistory.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5PN

A&S College Core 2015 ASG

ANTH2000 - Introduction to Linguistic Anthropology

Credits: 3

Demonstrates the interrelationship of language, human biology, and culture at the introductory level. Linguistic anthropological methods and theories are used to examine linguistic behaviors used throughout the world.

USP 2003-2014 Code U3L

USP 2015 Code U5C2

Prerequisite: ANTH 1100, ANTH 1200 or ANTH 1300.

ANTH3300 - Ethnographic Methods in Anthropology

Credits: 3

Introduces anthropology majors to ethnographic fieldwork, the fundamental method in cultural anthropology. Students conduct fieldwork and discuss research problems including ethics and the role of the researcher. Open to students in related fields of humanities and social sciences.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: ANTH 1200.

OR

ANTH3310 - Introduction to Anthropology Research Methods

Credits: 3

Introduces anthropology majors to use of the discipline's scientific method through problem formation, research data acquisition and research techniques used by anthropologists.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, ANTH 1200, and ANTH 1300.

Additional Requirements

In addition to university and college requirements listed in this Catalog, anthropology majors must complete two semesters of foreign language. ANTH 1100 and ANTH 1300 cannot be used to fulfill the USP PN requirement. Specific requirements for a B.A. in anthropology are ANTH 1100, 1200, 1300, and 2000. Students must complete ANTH 3300 or 3310. Students must complete ANTH 3300 or ANTH 3310. ANTH 3300 and ANTH 3310 require an additional 1 hour of ANTH 4975. Also required are an additional 21 credits of upper division anthropology for a total of 25 upper division (3000+) credits within the major, including at least one course from three different subfields (cultural anthropology, linguistic anthropology, biological anthropology, and archaeology). Courses that can be used to fulfill upper division cultural anthropology are ANTH 4023, 4300, 4310, 4320, 4325, 4330, 4340, 4350, 4380, 4020 (with instructor's consent). Courses that can be used to fulfill upper division linguistic anthropology are ANTH 4024, 4740, 4765, 4775, 4785, 4795, 4020 (with instructor's consent). Courses that can be used to fulfill upper division biological anthropology are ANTH 4022, 4210, 4215, 4220, 4230, 4255, 4260, 4020 (with instructor's consent). Courses that can be used to fulfill upper division archaeology are ANTH 4021, 4110, 4115, 4120, 4125, 4130, 4145, 4150, 4160, 4170, 4175, 4020 (with instructor's consent), or six credits of archaeological field school (ANTH 4140 or 5180). It is recommended that anthropology majors take ANTH 1101 to fulfill the First-Year Seminar requirement, but it is not required that students take this particular First-Year course. It is also recommended but not required that students complete a course in statistics (STAT 2050 or 2070) and a third semester of foreign language. Courses required by the department for the major and minor must be completed with a grade of C- or better.

Upper Division Cultural Anthropology

Courses that can be used to fulfill upper division cultural anthropology are

ANTH4023 - Seminar in Cultural Anthropology

Credits: 3

Considers current topics of interest within cultural anthropology.

Prerequisite: ANTH 1200.

ANTH4300 - Anthropology of Religion

Credits: 3

Provides a comparative anthropological study of religious systems, emphasizing analysis of symbolism, myth and ritual.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4320 - Political Anthropology

Credits: 3

Encompasses theories and descriptions of relationships between power and society in both less formal tribal contexts and more highly structured political institutions.

Dual Listed ANTH 5320.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4325 - Symbolic Anthropology

Credits: 3

Teaches several anthropological approaches to symbolic and cultural analysis, while reading ethnographic examples of how symbolic analysis can be used to understand different cultures. Coursework assumes a basic knowledge of social science concepts.

Prerequisite: ANTH 1200 or SOC 1000.

ANTH4330 - Social Organization

Credits: 3

Provides theories of social organization, interrelations of social institutions, and current anthropological methods of interpretation.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4340 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology.

Dual Listed ANTH 5340.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ANTH4350 - Medical Anthropology

Credits: 3

Understandings of health and illness vary widely. Taking a comparative historical approach, examines how an individual's interactions with sociocultural and physical environments influence the experiences of health and illness. Topics include symbolic healing, biomedicine as a cultural system, disease and international development, global politics of AIDS and other pandemics.

Dual Listed ANTH 5350.

Prerequisite: ANTH 1200 or SOC 1000.

ANTH4380 - Visual Anthropology

Credits: 3

Offers anthropological interpretation of visual representations and media, including analysis of the development of ethnographic films and their contemporary use. Visual representations of many cultures as well as mainstream United States examples are analyzed.

Prerequisite: ANTH 1200.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

Upper Division Linguistic Anthropology

Courses that can be used to fulfill upper division linguistic anthropology are

ANTH4024 - Seminar in Linguistic Anthropology

Credits: 3

Considers current topics of interest within linguistic anthropology.

Prerequisite: ANTH 2000.

ANTH4740 - Native American Languages and Cultures

Credits: 3

Demonstrates the interrelationship of language and culture in several Native American communities. Examines anthropological and linguistic theories regarding language spread and the peopling of North America, narrative performance, translation, and the connection between linguistic structures and cultural features.

Cross Listed NAIS 4740.

Dual Listed ANTH 5740.

Prerequisite: ANTH 2000 or consent of instructor.

ANTH4765 - Language Humor and Games

Credits: 3

This course examines various forms of language play and the role of language characteristics (ambiguity, phonology, homophony, etc.) in creating humorous utterances and texts. Anthropological understandings of humor and its use also will be explored. Students will construct and analyze forms of humor throughout the course.

Dual Listed ANTH 5765.

Prerequisite: ANTH 2000 or consent of the instructor.

- ANTH 4775

ANTH4785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 5785.

Prerequisite: ANTH 1200 or ANTH 2000.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

Upper Division Biological Anthropology

Courses that can be used to fulfill upper division biological anthropology are

ANTH4022 - Seminar in Biological Anthropology

Credits: 3

Considers current topics of interest within biological anthropology.

Prerequisite: ANTH 1100.

ANTH4210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 5210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH4215 - Hominin Evolution

Credits: 3

Surveys hominin fossil record in context of evolutionary process, stressing structure-function and the dynamics of adaptive responses.

Dual Listed ANTH 5215.

When Offered (Normally offered every third semester)

Former Course Number [4200]

Prerequisite: ANTH 1100.

ANTH4220 - Human Variation

Credits: 3

Studies human biological variation as viewed from the anthropological perspective. Focuses on populational variation among humans in terms of genetic, morphological, and acclimatized characteristics with particular focus on the interaction of biology and culture in shaping these variations.

Dual Listed ANTH 5220.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1100.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

ANTH4255 - Bioarchaeology

Credits: 3

Study of the human skeleton in archaeological context to reveal the biological and cultural pasts of individuals and communities. Using case studies, covers the history of the field, ethics of working with human remains, theoretical and methodological approaches to mortuary archaeology. Gain hands-on experience by working with specimens from the UWyoming Human Remains Repository.

Dual Listed ANTH 5255.

Prerequisite: ANTH 1100 or ANTH 1300.

ANTH4260 - Anthropology of Food, Culture, and Nutrition

Credits: 3

Offers a biocultural perspective to the study of diet, nutrition, subsistence, and food systems. Study includes basic nutritional principles and diet seen in evolutionary, cross-cultural, ethnographic, and historical perspective; method and theory in nutritional anthropology; and contemporary issues in nutrition, cuisine, and foodways.

Dual Listed ANTH 5260.

Prerequisite: ANTH 1100 or ANTH 1200.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

Upper Division Archaeology

Courses that can be used to fulfill upper division archaeology are

ANTH4021 - Seminar in Archaeology

Credits: 3

Considers current topics of archaeological interest.

Prerequisite: ANTH 1300.

ANTH4110 - Zooarchaeology I

Credits: 3

Introductory level seminar in the archaeological analysis of faunal materials. Emphasis is on identification and curation of bones from archaeological and Late Pleistocene paleontological contexts, including their use in the interpretation of prehistoric and historic human behavior, the investigation of paleoenvironmental conditions and paleoecological relationships and problem-oriented taphonomic research.

Dual Listed ANTH 5110.

Prerequisite: ANTH 1300.

ANTH4115 - Lithic Analysis

Credits: 3

An overview of the analysis of stone tools and waste flakes from archaeological sites. Emphasizes appropriate use of typology and methods of debitage analysis.

Dual Listed ANTH 5115.

Prerequisite: ANTH 1300 and 9 additional hours in anthropology.

ANTH4120 - North American Archaeology

Credits: 3

Studies North American prehistory from the earliest evidence to historic times.

Dual Listed ANTH 5120.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1300.

ANTH4125 - Northwestern Plains Prehistory

Credits: 3

Northwestern Plains archaeology from the Paleoindian period to historic contact. A review of important sites and artifact types, ongoing UW research projects, regional and other expressions of ideology, Native American ethnohistory and contemporary perspectives, and historic preservation issues.

Dual Listed ANTH 5125.

When Offered (Normally offered every third semester)

Former Course Number [4100]

Prerequisite: ANTH 1300.

ANTH4130 - Old World Archaeology

Credits: 3

Surveys major archaeological sequences of the Old World.

Dual Listed ANTH 5130.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1300.

ANTH4145 - Origins of the State

Credits: 3

This course takes a comparative approach to the study of the origins of the archaic states. Focus is given to themes in complexity such as emergence of social economic inequality, private property, power, ideology, and urbanism. Comparative civilizations/regions include China, Mesopotamia, Egypt, Central Mexico, and Peru.

Dual Listed ANTH 5145.

Prerequisite: ANTH 1300.

ANTH4150 - Seminar in Prehistory

Credits: 1-3

Max Credit (Max. 9)

Covers the prehistory of a specified region or time period within that region. Emphasizes learning prehistoric sequences, material culture, and research questions associated with the topic. Topics include, but are not limited to, Paleoindian, Archaic, Siberian, Northern Plains, Great Basin, Rocky Mountain, or Southwestern Archaeology.

Dual Listed ANTH 5150.

Prerequisite: ANTH 1300.

ANTH4160 - GIS in Anthropology

Credits: 4

Introduction to how and why geographic information systems (GIS) are used in anthropology. Considers: 1) background, definitions, and concepts of geographic data and GIS; 2) Anthropological and archaeological approaches to GIS; and 3) hands-on-experience with GIS applications in archaeology through demonstrations, lectures, and structured inquiries.

Dual Listed ANTH 5160.

Prerequisite: ANTH 1200, or ANTH 1300.

ANTH4170 - Geoarchaeology

Credits: 3

Introduces students to theory and method in geoarchaeological research. Emphasis is placed upon geomorphical processes of archaeological site formation and paleoenvironmental reconstruction.

Dual Listed ANTH 5170.

Prerequisite: ANTH 1300.

ANTH4175 - South American Prehistory

Credits: 3

Intensive study of the archaeology of South America covering its entire prehistory from first peopling at perhaps 14,000 years ago, to the colonial period. The course focuses not only on the well known Andean cultures, but also on the archaeology of the entire continent.

Dual Listed ANTH 5175.

Prerequisite: ANTH 1300.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

OR

- Six credits of archaeological field school (ANTH 4140 or ANTH 5180).

Recommended

It is recommended that anthropology majors take ANTH 1101 to fulfill the First-Year Seminar requirement, but it is not required that students take this particular First-Year course. It is also recommended but not required that students complete a course in statistics (STAT 2050 or STAT 2070) and a third semester of foreign language. Courses required by the department for the major and minor must be completed with a grade of C- or better.

A&S College Core

The BA in Anthropology requires the A&S Core:

- D - Diversity (3 credits)
- G - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Minor

Anthropology Minor

Students will gain introductory training in at least two of the subfields of Anthropology combined with three or four upper division courses.

Introductory Courses

The minor for non-anthropology majors requires two of the introductory courses:

ANTH1100 - Introduction to Biological Anthropology

Credits: 4

Basic concepts relating to the origin, evolution and biological nature of the human species.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ANTH1300 - Introduction to Archaeology

Credits: 3

Explores ways in which prehistoric material remains can provide an understanding of the cultural way of life. General background in archaeological method and theory is used to examine case studies from throughout the world, based on themes such as ceramic technology and artistry development, growth of early civilizations and North American prehistory.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5PN

A&S College Core 2015 ASG

ANTH2000 - Introduction to Linguistic Anthropology

Credits: 3

Demonstrates the interrelationship of language, human biology, and culture at the introductory level. Linguistic anthropological methods and theories are used to examine linguistic behaviors used throughout the world.

USP 2003-2014 Code U3L

USP 2015 Code U5C2

Prerequisite: ANTH 1100, ANTH 1200 or ANTH 1300.

Electives

- 11-12 hours of electives from 2000, 3000, or 4000-level anthropology courses with no more than 3 hours at the 2000-level.

Graduate

Anthropology, M.A.

M.A. students receive training in the four subfields of anthropology, complete original research, and develop skills which foster professionalism as related to their chosen field.

Plan A (Thesis)

Any M.A. student receiving a grade of C or less in two core classes will be expelled from the program.

If not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Core-Course Sequence

Completion, with a grade of "B" or better of a four core-course sequence. This sequence will consist of

ANTH5010 - 20th Century Anthropology Theory

Credits: 3

Examines major thinkers and schools of thought in anthropology of the 20th century. Emphasis is on cultural theory within the context of the four-field approach.

Prerequisite: graduate standing in anthropology.

ANTH5015 - Archaeological Theory and Method

Credits: 3

Introduces the students to past and present archaeological theories through a literature survey of most significant topics. Addresses questions, such as: How do archaeologists go about identifying and solving problems? What do they perceive to be problems? What is the logic of archaeological arguments?

Dual Listed ANTH 4015.

Prerequisite: ANTH 1200, ANTH 1300, ANTH 3310, and at least one 4000 regional course.

ANTH5020 - Biological Anthropology

Credits: 3

Offers a graduate level overview of biological anthropology. Beginning with the history of relevant areas of human biology, provides extensive discussion of such areas as paleoanthropology, primatology, and human variation. Also includes detailed theoretical examinations of topics within hominid evolution, the concept of race and sociobiology.

Prerequisite: first year anthropology graduate student standing.

ANTH5030 - Linguistic Anthropology

Credits: 3

Demonstrates interrelationships between language, human biology, and culture. In particular, the relevance of the study of language to biological anthropology, archaeology, and cultural anthropology is emphasized. Examines classic approaches in anthropological linguistics and recent controversies such as the origin of language in human evolution.

First semester (Fall):

Students will submit form to the graduate advisor and department head identifying their thesis advisor **BEFORE** the graduate assistant allocation meeting (mid-late November).

Second semester (Spring):

Students will work with their advisor to select their committee, which must be formed and on-file in the department office by the end of the semester. During the core classes' final exam periods, students give a presentation to departmental faculty which outlines the general ideas for their proposed thesis.

Second semester research presentations are assessed by all department faculty in attendance at the presentation and evaluations will be given to the student's advisors. It is expected that students will work closely with their advisors to rectify any problems before they complete their thesis prospectus in the third semester.

Third semester (Fall):

Working closely with their advisor and committee, students complete a detailed prospectus and gain approval from thesis committee for MA thesis topic.

Fourth semester (Spring):

Thesis is completed and is approved by thesis committee.

Plan B (Non-Thesis)

All requirements for a Plan A except thesis, if not completed prior to admission; two semesters of a single foreign language and one statistics course must be completed.

Anthropology, Ph.D.

Provides students with training so to achieve academic or non-academic career goals. Students have a dissertation experience that results in professional publication. They will also have practical experience that will promote movement into careers.

Program Requirements

Student maintains a portfolio which documents teaching, internship, and research experience.

Students are encouraged to present papers at professional conferences and submit articles for publication throughout their tenure as a student. After admission to candidacy, the student is expected to research, write, and defend a dissertation based on original research (up to 48 credit hours). Students may either submit a single dissertation or a series of integrated publishable articles (30-40 pages each). The student's committee must approve this choice and decide on the number, length and content of the articles at the same time, usually at the committee hearing prior to the preliminary exams. For the final submission of the dissertation, the student must also complete an introduction and conclusion to contextualize and synthesize the integrated articles.

A Minimum of Six Content Courses: 18 Hours

A minimum of six content courses (18 hours) chosen by the student in conjunction with the student's committee. These courses are normally completed in the first two years of the Ph.D. program. In addition to anthropology courses, the other 4000/5000-level courses outside of the department may be required by the committee or chosen by the student in consultation with their committee.

First or Second Year:

Two additional courses in their first or second year

ANTH5880 - Professionalism

Credits: 3

Provides an opportunity for the integration of graduate training and career choice. Examines issues of professionalism in the discipline ranging from ethical conduct to the research process and publication.

Prerequisite: admission to the doctoral program in anthropology.

ANTH5890 - Teaching Anthropology

Credits: 3

Anthropology is increasingly relevant to many audiences. Provides practical insight and examination of controversial anthropological concepts

Prerequisite: admission to the doctoral program in anthropology.

Teaching Experience

Teaching experience, including standalone courses, after completion of the first semester of ANTH5890 - Teaching Anthropology, as well as teaching assistance to UW faculty members.

Internship Experience Credits: 6-24 Hours

Participation in an approved internship experience (6-24 credit hours). Students pursue internships in state and federal agencies, museums, contract archaeology organizations, and other organizations that offer potential career experience.

Dissertation Proposal

Committee meeting and successful completion of a dissertation proposal.

Preliminary Exams

Preliminary exams take place after the completion of 18 hours of content courses. ANTH 5880, and Teaching and Learning in Anthropology (ANTH 5890, or other as designated), normally before the end of the second year. If a student does not receive a passing grade on the preliminary exam, it can be repeated once. Failure to pass the preliminary examination the second time results in termination from the anthropology program.

Highly Recommended

International experience is highly recommended but not required, e.g. pre-dissertation summer fieldwork.

Department of Visual and Literary Arts

Department of Visual and Literary Arts

110 Visual Arts Building, (307) 766-3269

Web site: <https://www.uwyo.edu/vla/>

Department Head: Doug Russell

Art and Art History Program

110 Visual Arts Building, (307) 766-3269

Web site: <https://www.uwyo.edu/art/>

Program Director: Doug Russell

Professors:

ASHLEY HOPE CARLISLE, B.F.A. University of Southern Mississippi 1997; M.F.A. University of Georgia 2002; Professor of Art 2019, 2003.

LEAH HARDY, B.F.A. Kansas University 1987; M.F.A. Indiana University 1990; Professor of Art 2014, 2002.

RICKI KLAGES, B.F.A. University of Arizona 1984; M.A. University of New Mexico 1991; M.F.A. 1993; Professor of Art 2012, 1996.

MARK RITCHIE, B.F.A. University of Kansas 1986; M.F.A. Indiana University 1990; Professor of Art 2007, 1995.

DOUG RUSSELL, B.F.A. Columbia College 1990; M.A. University of Iowa 1995; M.F.A. 1996; Professor of Art 2019, 2005.

Associate Professors:

DIANA BAUMBACH, B.F.A. Washington University in St. Louis 2003; M.F.A. Southern Illinois University 2007; Associate Professor of Art 2015, 2009.

PETER FINE, B.A. California State University, Chico 1993; M.F.A. University of Arizona 2004; Associate Professor of Art 2017, 2013.

BRANDON GELLIS, B.A. University of California at Santa Cruz 2002; M.F.A. University of Denver 2015; Associate Professor of Art 2021, 2015.

RACHEL SAILOR, B.A. Oregon State University 1992; M.A. University of Oregon 1994; Ph.D. University of Iowa 2007; Associate Professor of Art 2015, 2011.

SHELBY SHADWELL, B.F.A. Washington University in St. Louis 2003; M.F.A. Southern Illinois University 2007; Associate Professor of Art 2015, 2010.

Assistant Professor:

KATHLEEN FRYE, B.F.A. University of Colorado at Denver 1987; M.F.A. Colorado State University 1995; M.A. City College, New York; Assistant Professor of Art 2018.

Associate Academic Professional Lecturer:

BAILEY RUSSEL, B.A. Princeton University 2001; M.A. New York University 2004.

Senior Academic Professional Research Scientist:

DAVID L. JONES Jr., B.F.A. University of Georgia 2000; M.F.A. University of Tennessee 2004.

Assistant Academic Professional Lecturer:

RANI ROBISON, B.A. University of Utah 1999; M.F.A. University of Oregon 2008.

Professors Emeriti:

Deaderick, Edwards, Evans, Flach, Forrest, Reif, Russin (Distinguished Professor of Art), Schaefer, Haydon

Art and Art History

The Art and Art History Program within the Department of Visual and Literary Arts supports the creative, aesthetic and cultural development of students within the university community and serves the cultural and educational needs of the state. The department is dedicated to preparing its graduates to assume leadership positions in their professional lives while maintaining an inner commitment to the aesthetic standards of their chosen discipline.

The program fosters a unique combination of innovation, tradition, aestheticism and practicality, by providing a professional visual arts education built on a strong University Studies Program (USP) foundation.

Department Policy

A class within the Art and Art History Program within the Department of Visual and Literary Arts may require additional meeting times, so that students may fully participate in the Visiting Artist Program and the UWAM lecture series.

As a matter of policy, the Department of Visual and Literary Arts reserves the right to retain any works created by students it deems worthy for the purposes of exhibition until the end of the academic year.

The Department of Visual and Literary Arts studios are the primary instructional classrooms. As a matter of policy, access to the studios and use of the equipment is reserved for students who are formally registered for scheduled courses and are following a prescribed curriculum.

Scholarships

The department has several scholarships for qualified students at all stages in the program. See the Department of Visual and Literary Arts website for a full list of scholarships.

Academic and Career Advisement

Faculty advisers work closely with department students to guide and direct their progress through their declared degree program and course of study. Through the visiting Artist Program, the UW Art Museum and internship placements, the department provides numerous opportunities and role models for a professional life in the visual arts. Through consultation and discussion with faculty advisers, art students consider their interests and abilities in relation to the many and varied careers in the arts and art related fields. Many graduates go directly into industry, on to pursue graduate studies or take the next step in their career plan. On a competitive basis upon graduation, majors may participate in the Post Undergraduate Assistantship Program where they may prepare a portfolio for graduate school and/or gain additional experience in the studio and the classroom setting.

Undergraduate Majors

The University of Wyoming Department of Visual and Literary Arts offers five degrees within the Art and Art History Program:

- Bachelor of Arts in Art History
- Bachelor of Arts in Studio Art
- Bachelor of Arts in Art Education
- Bachelor of Fine Arts in Studio Art
- Bachelor of Fine Arts in Visual Communication Design

Transfer Residency

A minimum of 26 hours of upper-division course work in the major is required to establish residency in the department for all transfer students. This applies to students in all five of the B.F.A., B.A., and Art Education degree programs who transfer in 12 or more hours of art courses for the major. Students in all art programs must meet the university requirement of at least 42 hours of course work at the upper-division level (3000- and above).

Studio Art and Art Education Majors - General Requirements

ART 1005, 1110, 1120 and 1130 are considered an important preparation and prerequisite for drawing, painting, printmaking, ceramics, sculpture and graphic design courses and are required freshman courses for the major. Studio Art and Art Education Majors must complete the Foundation Core Hours before electing upper division courses in any studio area. ART 2010, 2020, and 2305 are required sophomore courses.

Once sophomore Art Studio and Art Education majors complete course prerequisites, they select a minimum of four courses from the studio core hours. Most of the university and college requirements should be completed as early as possible before the senior year. The department will enforce published prerequisites for courses.

Studio Art, Visual Communication Design, and Art Education majors must submit a portfolio for evaluation before proceeding to intermediate and advanced studios beyond the required studio core. Any student whose portfolio is assessed as deficient must address the deficiencies before receiving permission to advance in the major.

Please note: Studio Art and Art Education students who do not pass the portfolio review will be able to resubmit the following semester. However, if students fail more than once, they will be unable to progress in the Department of Visual and Literary Arts and may be asked to transfer to another department or UW college or complete an art minor. Portfolio evaluation will occur once in each of the fall, spring, and summer semesters.

Undergraduate Minors

Minors are offered in the following areas:

- Art History
- Ceramics
- Digital Media
- Drawing
- Metalsmithing
- Museum Studies
- Painting
- Photography
- Printmaking
- Sculpture

Further information may be found on the department's website.

Please note: B.A. in Studio Art, B.F.A. in Studio Art, B.F.A. in Visual Communication Design and B.A. in Art Education degree students cannot have a minor in a specific studio discipline. B.A. in Art History students may have a minor in studio disciplines, and B.A. in Studio Art, B.F.A. in Studio Art, B.F.A. in Visual Communication Design, and B.A. in Art Education degree students may have a minor in Art History and/or Museum Studies.

Creative Writing Program

201 Hoyt Hall, (307) 766-6453

FAX: (307) 766-3189

Web site: www.uwyo.edu/creativewriting/

Program Director: Val Pexton

Professors:

ALYSON HAGY, B.A. Williams College 1982; M.F.A. University of Michigan 1985; Professor of Creative Writing 2008, 1996.

HARVEY HIX, B.A. Belmont College 1982; M.A. University of Texas, Austin 1985; Ph.D. 1987; Professor of Philosophy and Creative Writing 2015.

FRIEDA E. KNOBLOCH, B.A. Cornell University 1985; Ph.D. University of Minnesota 1994; Professor of American Studies and Creative Writing 2014, 1997.

JEFFREY A. LOCKWOOD, B.S. New Mexico Institute of Mining and Technology 1982; Ph.D. Louisiana State University 1985; Professor of Philosophy and Creative Writing 2006.

Associate Professors:

KATE NORTHROP, B.A. University of Pennsylvania 1991; M.F.A. University of Iowa 1995; Associate Professor of Creative Writing 2008.

Senior Lecturers:

APRIL HEANEY, B.A. University of Wyoming 1998; M.A. 2000. Senior Lecturer in English and Creative Writing 2015, 2005.

VAL PEXTON, B.A. Humboldt State University 1986; B.A. University of Wyoming 1998; M.A. 2001; M.F.A. 2008; Senior Lecturer in English and Creative Writing 2018, 2009.

PAUL BERGSTRAESSER, B.A. Oberlin College 1989; M.A. Northern Michigan University 2000; Ph.D. University of Illinois, Chicago 2007; Senior Lecturer in English and Creative Writing 2018, 2007.

Creative Writing

We are writers. Our principles follow from what claims us as writers as we guide our students in the creation of their own work. We offer a commitment to art and to the development of community through art. We offer an immersion in making, a chance to discover, to create serious work without pretense, to collaborate, to shake off assumptions and anxieties.

To be first and foremost concerned with making does not mean we take refuge from the world. It means we begin by supporting the deepest, most intelligent engagement with what matters to us as writers. A critical distance from the literary and academic marketplaces allows us to engage with them in a more thoughtful manner once we have found our authentic calling-that which we are truly compelled to explore. Our values will never map perfectly onto the concerns of institutions, and that is good. We strive to create the finest conditions for the making of art when we remain

in an eccentric orbit of our own, one that overlaps with the other orbits, yet remains, as much as possible, guided by our own principles which include:

Making: we require the serious, committed, ongoing process of writing and revision.

Range: we cultivate a diversity of taste, form, genre, experience, and background, as well as an open understanding of what might constitute professional accomplishment.

Flexibility: we invite our writers to pursue their own creative and intellectual goals, to tailor the program in individual ways.

Curiosity: we urge creative and intellectual roaming: cross-genre work, interdisciplinary study, the movement across what are usually understood as boundaries; we encourage students to imagine possibilities beyond what is already imagined for them by the program and the university.

Community: we foster an environment that sustains listening, investment in the work of others, collaboration, rigorous expectation, generosity and, at the same time, respect for solitude.

Integrity: we challenge students to engage in deep investigation, to find their intent as a writer and to commit to it fully.

Graduate Study

The Creative Writing Master of Fine Arts offers two areas of concentration: fiction and creative non-fiction.

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this Catalog, the Creative Writing M.F.A. Program requires that students demonstrate by means of an official transcript that they have a solid undergraduate record. The M.F.A. program welcomes degrees in any discipline from four-year colleges or universities. Candidates submit three letters of recommendation, a writing sample consisting of no more than 25 pages of prose, a 500-word statement of purpose and a vita. Students should consult the M.F.A. web site or contact the department for specific admission information and deadlines.

Program Specific Graduate Assistantships

We are a fully-funded program, meaning that we accept only as many students as we can support with graduate assistantships. Full assistantships carry an annual stipend and tuition waiver, and require the teaching of one section per semester, or equivalent work assignment. M.F.A. students are expected to teach freshman English.

Each fall, the English department conducts a week-long orientation for new teaching assistants and a subsequent series of colloquia. Each graduate assistant is assigned to an experienced teacher in the English department as a mentor, to be available throughout the semester for consultation on teaching and grading techniques.

Major

Art Education, B.A.

The BA in Art Education is a professional level degree preparing students to be reflective, innovative and engaged K-12 art educators. The curriculum includes extensive Studio Art competencies and studies in Art History and Professional Education.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Art Education** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and

critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

required

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

required

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

required

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular unites, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.

required

Studio Core: 12 Hours

12 credits chosen from the below. At least one core course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramics class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Art History Core: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary

with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

Upper Division Art History: 6 hours

6 credits of upper division art history beyond ART 2010 and ART 2020

Upper Division Studio Electives: 12 Hours

12 credits of any upper division studio art classes

Art Education Program Requirements

Minimum Course Requirements for B.A. in Art Education

Minimum course requirements for Art Education Majors follow the curriculum plan for the B.A. in Studio Art Degree:

- University and College requirements,
- Foundations Core,
- Art History Core,
- Studio Core
- Upper Division Studio Electives.

The exception that there is no Foreign Language requirement. Students are required to apply for a Wyoming Substitute Teaching Certificate in the fall of their first semester in the program. Additional requirements are:

Professional Education Courses: 10 Hours

EDST 2480: Diversity and the Politics of Schooling Credits: 4

required

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.
required

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.
required

Art Education Courses: 27 Hours

ART3430 - Methods I

Credits: 3

Students investigate ways to translate art making practices and media into K-12 arts curricula and develop effective approaches to teaching these to the K-12 learner. Students create and teach lesson plans based on what they learn through their explorations; they also create their own artwork inspired by their studio investigations.

Restricted Restricted to junior class standing.

Prerequisite: ART 2000.
required

ART3490 - Philosophy, Theory and Issues

Credits: 3

Students explore the foundational elements involved in the history and philosophies of Art Education and the key issues that shape contemporary approaches to teaching in the field. These investigations are undertaken to support students' developing teaching philosophies and inform the connections between their teaching and creative practices.

USP 2003-2014 Code U3CH
USP 2015 Code U5C2

Restricted Restricted to junior class standing.

Prerequisite: ART 2000.
required

ART3550 - Art Education Practicum

Credits: 1-3

Max Credit (Max. 3)

Practicums are integral to an art education student's development as a teacher. They offer opportunities for immersion and hands-on teaching experiences in art classrooms guided by experienced teachers in the field and the UW faculty. Students develop skills and teaching strategies that complement classroom learning and strengthen their teaching practices.

Prerequisite: ART 3430 and ART 3490.
required

ART4440 - Methods II

Credits: 3

Students incorporate their understanding of the stages of artistic development with essential components of curriculum design to create lesson plans that engage the K-12 student in student-directed, holistic learning in the visual arts. Another component of the course is professional practice that includes classroom management and preparing professional portfolios.

Restricted Restricted to senior class standing.

Prerequisite: ART 3430 and ART 3490.
required

ART4460 - Curriculum Design

Credits: 3

Students develop a thorough knowledge of all the components of curriculum design in Art Education and will create a unit of instruction that includes a focus on enduring understandings, clarity of learning objective, assessment for the visual arts, instructional strategies, differentiation, and alignment with standards.

Restricted Restricted to senior class standing.

Prerequisite: ART 3430 and ART 3490.
required

ART4810 - Residency for Elementary

Credits: 6

This is an eight-week residency for teaching art full time at the elementary level. Students team-teach with an experienced mentor teacher, taking on considerable responsibility for all aspects of teaching art. Upon successful completion of this course and ART 4820, students are certified in Wyoming to teach K-12 Art. Satisfactory/Unsatisfactory only.

Prerequisite: ART 4440 and ART 4460
required

ART4820 - Residency for Secondary

Credits: 6

This is an eight-week residency for teaching art full time at the secondary level. Students team-teach with an experienced mentor teacher, taking on considerable responsibility for all aspects of teaching art. Upon successful completion of this course and ART 4810, students are certified in Wyoming to teach K-12 Art.

Prerequisite: ART 4440 and ART 4460.
required

Studio or Art History Elective, any level: 3 Hours

**3 units of course in Studio Art or Art History at any level*

Additional Requirements

B.A. IN ART EDUCATION DEGREE

The BA in Art Education degree supports students' development as reflective, innovative and engaged K-12 art educators. The curriculum encompasses extensive Studio Art competencies as well as studies in Art History and Professional Education. Art Education courses cover a variety of teaching practices and methods of curriculum development that include interdisciplinary, multicultural approaches to teaching and emphasize relevance to the lives of K-12 students and the realities of our contemporary world. In-class learning is augmented with firsthand teaching experiences in local and regional schools, the University of Wyoming Art Museum, and includes teaching people of all ages in community-based arts settings. Upon graduation from our program, students earn Wyoming licensure for teaching K-12 Art.

Degree Requirements

Requirements of the degree include:

- 120 hours, including 91 hours within the major
- C or better in all courses taken to satisfy Major requirements
- Background check for all incoming art education degree students required prior to enrollment
- Application for art education degree is due prior to enrollment in Art Education courses
- 2.75 UW Total Institution GPA must be maintained throughout the Art Education Program of study
- 2.75 GPA within the major must be maintained throughout the Art Education Program of study
- UW Transfer Art Residency Requirement for transfer of 12 or more art credit hours into department: 26 upper division hours of UW Art courses
- Score of 158 or above on the on the Praxis II Test: Art Content and Analysis by the end of the Residency semester
- As a Professional Degree, the BA in Art Education does not include the A&S Outside Major credit requirement.

Application

Students must fulfill the requirements listed in the *Application for the Art Education Program Checklist*:

- Satisfactory Completion of ART 2000 Portfolio Review
- C or above in all Education Courses
- C or above in all Art Content Courses
- Junior Standing (60+ credits)
- 2.75 or above overall UW total institutional GPA
- 2.75 or above in Major courses
- Completed background check

Probation, Removal, and Re-Application

- An Institutional and/or Major GPA below 2.75 mandates a probationary semester in the program (continuing with art ed courses) to raise GPA back up to 2.75 to continue
- If Institutional and Major GPA are not both above 2.75 by the end of the probationary semester, the student will be removed from the program
- Students may re-apply after removal from program if their GPA is again at or above 2.75

Art History, B.A.

The Art History B.A. offers students a broad understanding of world art, historiography, and professional practices related to the field. Closely linked to the Museum Studies minor, this degree prepares students for graduate work or the work force.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Art History** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Program Requirements

Requirements of the degree include:

- 120 hours, including 57 hours within the major
- All Art courses must be passed with a letter grade of C or better
- 2.50 GPA within major required
- 2.50 or above overall UW total institutional GPA
- UW Transfer Art Residency Requirement for transfer of 12 or more art credit hours into department: 26 upper division hours of UW Art courses

Art History Core: 12 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social

forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

required

ART2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ANTH 2700/HIST 2700.

USP 2003-2014 Code U3CH

required

Upper Division Electives: 30 Hours

*30 units - with the following stipulations:

15 hours 3000 or 4000 level Art History Courses

6 hours of ART 4790 Art Seminar

6 hours of upper division art history taken in other departments with cross listed courses

Courses in other disciplines as applicable

Honors Courses as applicable (Honors Program)

Potential other courses on a case by case basis in consultation with art history advisor

3 credits Internship or Art History travel course in consultation with art history advisor

Cross listed and applicable courses

*6 hours of upper division art history may be taken in other departments with cross listed courses (that may have prerequisites other than Art History).

ART4830 - Victorian Women's Lives: Their Art, Literature and Culture

Credits: 3

Interdisciplinary approach to study of women's issues in art. Uses literary/cultural texts to reinforce/contradict and/or expand/enlarge the art historical basis. Topics include domestic goddess, working women, prostitution, education, marriage and divorce.

Cross Listed ENGL 4830/GWST 4830.

When Offered (Normally offered every sixth semester)

USP 2003-2014 Code U3CA

A&S College Core 2015 ASG

Prerequisite: Either ART 2020 or GWST 1080/ENGL 1080.

OR

GWST4830 - Victorian Women's Lives: Their Art, Literature and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage and divorce.

Cross Listed ART 4830/ENGL 4830.

Dual Listed GWST 5830.

When Offered (Offered every other year)

A&S College Core 2015 ASG

Prerequisite: Either ART 2020 or GWST 1080/ENGL 1080.

ART4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the 20th century.

Cross Listed GWST 4780.

When Offered (Normally offered fall semester)

Prerequisite: ART 2010 or ART 2020 or 3 hours of WMST courses; and WB.

OR

GWST4780 - History of Women Artists

Credits: 3

Studies documented influence of women as subjects, makers and receivers of art. Emphasizes careers and works of women over a wide range of times and places and under a variety of social circumstances. Greatly emphasizes developments in the twentieth century.

Cross Listed ART 4780.

Dual Listed GWST 5780.

Prerequisite: ART 2010 or ART 2020 or 3 hours of Women's Studies courses; and WB.

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

AMST4250 - The Harlem Renaissance

Credits: 3

Examines the florescence of African American creativity, centered in Harlem, New York, between the end of World War I and the onset of the Great Depression. This movement had a tremendous impact on African American culture in and outside of the U.S., including Africa and the Caribbean.

Cross Listed AAST 4250.

Dual Listed AMST 5250.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, AMST 2010, any AAST 2000-level course, junior or senior standing, or nine credit hours in any level AMST course.

AMST4640 - Art and Ecology

Credits: 3

Focuses on the intersection of contemporary art with ecological concerns. Readings present philosophical, historical and cultural aspects of the art/ecology relationship; students reflect and question their own beliefs. Examples of art/artists are reviewed as well as how ecological artwork is developed. Students propose solutions and/ or create art in, out of, or about the environment; local sites are encouraged.

Prerequisite: 6 hours of ART and/or AMST or consent of the instructor.

OR

- ART 4640 - Art and Ecology Credits: 3
- Special Topics in American Studies including travel courses (as appropriate)
- Special topics in Classical and Modern Languages-including travel courses (as appropriate)
- HIST 4070 - History of the Book
- HIST 4075 - History of the Book
- HIST 4076 - History of the Book

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

Art Seminar

*6 hours of ART 4790 Art Seminar (fulfills USP COM 3 requirement)

ART4790 - Art Seminar

Credits: 1-3

Special topic in art history and criticism for advanced students.

When Offered (Offered based on sufficient demand and resources)

USP 2015 Code U5C3

Prerequisite: 6 hours in art history.

required

Upper Division Art History: 15 hours

*15 hours 3000 or 4000 level Art History Courses

Internship or Travel

*3 credits Internship or Art History travel course in consultation with art history advisor

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

Foreign Language: 15 Hours

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

LANG2030 - Third Semester in (TOPIC)

Credits: 1-4
Max Credit (Max. 12)

Prerequisite: LANG 1010, LANG 1020.

LANG2040 - Fourth Semester in: (TOPIC)

Credits: 3
Max Credit (Max. 12)

Encompasses formal grammar introduction and review; periodic composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5C2

Prerequisite: Satisfactory completion of corresponding study in LANG 2030.

Additional Requirements and Description

The B.A. in Art History major offers students with a course of study that will provide depth and breadth in the history of art. Students will develop a broad understanding of world art, study the art of western and other global cultures in-depth, and explore the historiography and professional practices related to the field. Closely linked to the Museum Studies minor curriculum, the B.A. in Art History has a strong vocational application. This degree provides preparation for entry into graduate school or for students who want to enter the work force after their undergraduate education. Students will have the experience and training to enter into the cultural sector (arts or archival management, non-profit work in the arts and humanities, etc.).

Studio Art, B.A.

The B.A. in Studio Art degree prepares students for further studies or careers in the studio arts and arts-related fields including art therapy, illustration, arts administration, design, and art education.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Studio Art** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Minimum Course Requirements for Art Majors

In addition to the university and college requirements listed above and in this Catalog, all students majoring in art must complete the following:

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice

with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular unites, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.

Art History Core: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Studio Core (Minimum): 12 Hours

12 credits chosen from the below. At least one course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)
Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.
OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramic class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist

research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Upper Division Studio Electives: 12 Hours

12 credits of any upper division studio art classes

Foreign Language: 8 Hours

8 Hours of any Foreign Language:

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

Art History Electives: 6 Hours

6 credits beyond ART 2010 and ART 2020, with at least 3 units at upper division level

Additional Requirements

B.A. IN STUDIO ART DEGREE

The B.A. in Studio Art degree is available to students who are preparing for further studies or careers in the arts and arts-related fields, such as art education, graphic design, art therapy, illustration, botanical illustration and forensic illustration. Students work with their academic advisers to select courses from the USP and elective offerings to complement art studies in their areas of interest. Students must earn a grade of C or better in all courses taken to satisfy department requirements. Courses in the major must be taken for a letter grade. In addition to the university requirement that degree candidates hold a minimum cumulative grade point average of 2.000, degree candidates for the B.A. in Studio Art degree in the Department of Visual and Literary Arts also must have a minimum 2.500 overall cumulative grade point average and a 2.500 grade point average within all major courses at the time of graduation.

Transfer Residency. A minimum of 26 hours of upper-division course work in the major is required to establish residency in the department for all transfer students. This applies to students in the B.F.A., B.A., and Art Education degree programs who transfer in 12 or more hours of art courses for the major. Students in all art programs must meet the university requirement of at least 42 hours of course work at the upper-division level (3000 and above).

Based on their goals and career plans, students in consultation with a faculty adviser select the appropriate degree plan. Students major in studio art with areas of study in one or more of the following:

- Drawing
- Painting
- Photography
- Printmaking
- Ceramics
- Sculpture
- Metalsmithing
- Visual Communication Design

Studio Art, B.F.A.

The B.F.A. in Studio Art is a professional level degree open to outstanding students through an application process who are preparing for art studies, careers and professional activity in the studio arts beyond the undergraduate level.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BFA in Studio Art** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA
required

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

required

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

required

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular units, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.

required

Studio Core: 12 Hours

12 credits chosen from the below. At least one core course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramic class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Art History Core: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

Upper Division Studio Electives: 21 Hours

21 credits of any upper division studio art classes

Art and Art History Electives: 3 Hours

3 credits of any art or art history course at any level

BFA Core: 12 Hours

ART4010 - Contemporary Art: Theory/Practice

Credits: 3

Max Credit 3

Taught from the perspective of a studio artist, this course enables students to situate their art within a theoretical context. Students examine how issues in contemporary art relate to philosophical concerns through reading, discussion, and critique. Emphasis is placed on an interdisciplinary framework through which students can discuss their work.

USP 2015 Code U5C3

Prerequisite: ART 2000 , and junior standing.
required

ART4600 - Professional Practices and Strategies

Credits: 3

This course offers information to junior/senior level art majors in regards to: finding jobs in art, finding/applying for exhibition opportunities, applying/finding grant opportunities, furthering education including finding/applying for a Masters in art, and overall life possibilities after the completion of an undergraduate art degree. Writing is expected in the form of cover letters, resumes, artist statements, and project proposals.

USP 2015 Code U5C3

Prerequisite: ART 2000, junior or senior standing.
required

ART4800 - BFA Capstone I

Credits: 3

BFA Capstone I course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by creating work for their BFA exhibition.

Prerequisite: ART 2000 and 6 credits of a studio beyond Art 2000; 3.0 overall gpa; 3.25 gpa in Art/Art History; major acceptance into the BFA VCD degree or BFA in Studio Art degree.
required, offered only fall semester

ART4840 - BFA Capstone II

Credits: 3

Max Credit 3

BFA Capstone II course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by finishing work for their BFA exhibition and defending it once the

artwork is completed.

Restricted BFA in Studio Art

Prerequisite: Successful completion of ART 2000 and ART 4800 , 3.0 overall GPA, 3.25 GPA in Art/Art History, and acceptance into BFA program.

required, offered only spring semester

Upper Division Art History Electives: 9 Hours

9 credits of any upper division art history classes

Foreign Language: 8 Hours

8 hours in any Foreign Language:

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

Additional Requirements

B.F.A. IN STUDIO ART DEGREE

The B.F.A. in Studio Art is a professional level degree open to outstanding students through an application process who are preparing for art studies, careers and professional activity in the studio arts beyond the undergraduate level. The B.F.A. in Studio Art degree requires a minimum of 120 hours of credits with up to seventy-eight (78) semester hours focused in studio and art history course work. All B.F.A. in Studio Art students are required to participate in the B.F.A. exhibition upon graduation. As a Professional Degree, the B.F.A. in Studio Art does not include the A&S Outside Major credit requirement.

Application

Formal application is made to the program for acceptance into the B.F.A. in Studio Art degree program. Application must be submitted at least three semesters prior to the applicant's anticipated graduation. Favorable faculty review of the application materials are required before a student is declared a candidate for the B.F.A. in Studio Art degree. Applicants must have achieved the following at the time of application to the B.F.A. in Studio Art:

- C or better in all major classes
- 3.25 GPA or above within major classes
- 3.00 or above overall UW total institutional GPA

Undergraduate majors proceed with meeting the USP requirements for the B.A. in Studio Art and balance with foundation, art history, and studio core requirements in the major until formally accepted as a B.F.A. in Studio Art candidate. Students should apply at least three semesters before graduation. Application does not automatically guarantee acceptance into the B.F.A. in Studio Art program.

Final Year

During their final year and in conjunction with the spring B.F.A. exhibition, students enroll in two sequential capstone courses: BFA Capstone I (fall) and II (spring). The courses outline the deadline and requirements for the B.F.A. exhibition as well as coordinating mentoring of B.F.A. candidates. If faculty deem their work insufficient, they reserve the right to exclude the work from the exhibition and withhold the B.F.A. degree. Students transferring to the Department of Visual and Literary Arts who have completed their foundation core and successfully passed portfolio review are eligible to apply for a B.F.A. in Studio Art after one semester in Art and Art History Program.

Visual Communication Design, B.F.A.

The B.F.A. in Visual Communication Design is a professional level degree open to outstanding students through an application process who are preparing for design studies, careers and professional activity in design beyond the undergraduate level.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BFA in Visual Communication Design** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Foundation Core: 15 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

required

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

required

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

required

ART2000 - Portfolio Review

Credits: 1

One-semester course in which work is created for a portfolio review at midterm based on the content and principles

learned in the foundation core classes. Art majors may only attempt successful completion of this course once.

Prerequisite: successful completion of ART 1005, ART 1110, ART 1120, and ART 1130, and a UW GPA of 2.500 or above.

required

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

required

ART2305 - Techniques: Wood/Art Preparation

Credits: 1

Art Tech 2305 covers two curricular unites, one in which students are introduced to the processes, equipment, hand tools, materials, and necessary safety procedures related to the art department woodshop. In the other unit in this course, students are taught art preparation techniques which they will encounter both as a student and professional.

required

Studio Core: 12 Hours

12 credits chosen from the below. At least one course must be from 2D and one from 3D.

2D Studio

Note: only one Photography class can count in the Studio Core

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

3D Studio

Note: only one Ceramics class can count in the Studio Core

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

OR

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

Art History and Design Theory Core: 9 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient,

medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

required

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

required

Upper Division Art History - 20th and 21st Century: 6 Hours

* six hours in ART 4740 and ART 4770

ART4740 - 20th Century European Art

Credits: 3

Studies 20th-century European art from 1900 to 1945. Covers the 2-D and 3-D art of Expressionism, Cubism, the Bauhaus, Dada and Surrealism, and other important movements in the first half of the 20th century.

When Offered (Normally offered spring semester)

Prerequisite: ART 2010 and ART 2020.

required

ART4770 - Contemporary Arts Seminar

Credits: 3

Studies the major movements in the visual arts from 1945 to the present. Investigate major theories, stylistic movements, and key artists since WWII with a special focus on the increasing globalization of art during this era.

When Offered (Normally offered fall semester of every other year)

Prerequisite: ART 2010 and ART 2020.

required

VCD Core: 12 Hours

ART2110 - Type I: Thinking with Type

Credits: 3

Max Credit 3

Examines history and structure of type as a form of communication and art. Students will reference type as visual expression, data visualization, messaging, and representative of power, political, and socio-economic movements. Explorations in type as a concept and critical expression will explore the fields of graphic design and computer visualization.

Prerequisite: ART 1115

required

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

required

ART2122 - VCD II Visual Programming

Credits: 3

Max Credit (Max. 9)

Explores digital art principles in Web spaces through the understanding and use of design tools and techniques. Creative approaches consist of informed planning, thoughtful concepting, strategic wire frame development and creative execution. Projects include explorations of HTML, CSS, and visual programming, and time-based media and image manipulation.

When Offered (Normally offered spring semester)

Former Course Number [3110]

Prerequisite: ART 1110 and ART 1115.
required

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.
OR

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

Upper Division VCD: 15 Hours

ART3112 - Type: Type, Images, and Narrative

Credits: 3

Examines the experimental use of type, its history, structure and background in reference to visual expression, data visualization, messaging, representative power, and time-based and site-specific explorations. Advanced explorations in type as concept and critical expression will explore the fields of graphic design and computer visualization.

When Offered (Offered spring semester)
Former Course Number [2110]

Prerequisite: ART 2000 and ART 2112.
required

ART3120 - VCD III: Visual Making

Credits: 3

Studies advanced graphic design preparation, idea generation, conceptualization, and critical thinking. Sustainable design problems include print and package design and an exploration of historical impact of design for reproduction

through analog and digital means. Contemporary socio-cultural issues will be emphasized along with design as an agent for positive change.

When Offered (Offered fall semester)

Prerequisite: ART 2000 and ART 2112.
required

ART3150 - VCD IV: Visual Imaging in Time

Credits: 3

Explores digital video, sound and site-specific experiments. Students learn and use experimental digital design tools and techniques to develop site-specific time-based individual and collaborative works. Students also collaborate and install works on campus, town and other venues. Projects include video and sound design and editing, graphic arts, computer graphics and digital art history.

Former Course Number [4140]

Prerequisite: ART 2000, and ART 2112 or ART 2122.
required

ART4120 - VCD VI: Senior Design Studio

Credits: 3

Specialized research for the advanced design student who will develop a mature voice and sense of design. Individual projects are determined by student interest with the instructor in order to best prepare students for industry careers and graduate school. Students are encouraged to explore new to them, and emerging approaches.

When Offered (Normally offered fall semester)

Prerequisite: ART 2000, ART 2112, ART 2122.
required

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.
OR

ART4425 - Graphics Internship

Credits: 3

This course allows graphic design students to better understand real-world design practices, learn about industry standards, and discuss career opportunities and preparedness. Students will be expected to secure internships and meet with an intern advisor regularly, to gain a strong understanding of the graphic design industry.

Prerequisite: ART 2000, ART 2112, and ART 2122.

BFA Core: 12 Hours

ART4010 - Contemporary Art: Theory/Practice

Credits: 3

Max Credit 3

Taught from the perspective of a studio artist, this course enables students to situate their art within a theoretical context. Students examine how issues in contemporary art relate to philosophical concerns through reading, discussion, and critique. Emphasis is placed on an interdisciplinary framework through which students can discuss their work.

USP 2015 Code U5C3

Prerequisite: ART 2000 , and junior standing.
required

ART4600 - Professional Practices and Strategies

Credits: 3

This course offers information to junior/senior level art majors in regards to: finding jobs in art, finding/applying for exhibition opportunities, applying/finding grant opportunities, furthering education including finding/applying for a Masters in art, and overall life possibilities after the completion of an undergraduate art degree. Writing is expected in the form of cover letters, resumes, artist statements, and project proposals.

USP 2015 Code U5C3

Prerequisite: ART 2000, junior or senior standing.
required

ART4800 - BFA Capstone I

Credits: 3

BFA Capstone I course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by creating work for their BFA exhibition.

Prerequisite: ART 2000 and 6 credits of a studio beyond Art 2000; 3.0 overall gpa; 3.25 gpa in Art/Art History; major acceptance into the BFA VCD degree or BFA in Studio Art degree.
required, offered only fall semester

ART4840 - BFA Capstone II

Credits: 3

Max Credit 3

BFA Capstone II course is designed to allow students time to participate in group critiques with their BFA cohort group, to refine their writing and documentation process, to learn from visiting artists and various professors in the art department, and to strengthen their studio practice by finishing work for their BFA exhibition and defending it once the artwork is completed.

Restricted BFA in Studio Art

Prerequisite: Successful completion of ART 2000 and ART 4800 , 3.0 overall GPA, 3.25 GPA in Art/Art History, and acceptance into BFA program.

required, offered only spring semester

Upper Division Studio Electives: 9 Hours

9 credits of any upper division studio art classes

Foreign Language: 8 Hours

* 8 credits in any foreign language:

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

Additional Requirements

B.F.A. in Visual Communication Design

Designers explore a variety of visual communication design topics dealing with diverse messages and audiences. Students interested in pursuing a career in design, including visual communication design, graphic design, motion graphics, animation, digital media, etc. may apply into the B.F.A. in Visual Communication Design. Students planning to graduate in four years with a B.F.A. in Visual Communication Design should complete their Foundation Core in their Freshman year and take the appropriate Studio Core classes in their sophomore year. As a Professional Degree, the B.F.A. in Visual Communication Design does not include the A&S Outside Major credit requirement.

Students must earn a grade of C or better in all courses taken to satisfy department requirements. Courses in the major must be taken for a letter grade. To obtain a B.F.A. in Visual Communication Design degree in the Department of Visual and Literary Arts students must have a minimum 3.00 overall UW-total institutional GPA, and a 3.25 GPA in all major courses at the time of graduation.

The Visual Communication Design degree provides students with a human-centered approach to making and thinking as designers. Students learn through digital and hand's-on-making design challenges to develop critical narrative skills and refine their ability to think conceptually. Individual projects and research prepare each student to think flexibly in an international community that is continually being influenced by new ideas, tools, and technologies. The Visual Arts Building, design computer classroom, and design and fabrication studio facilities offer undergraduate students ample research, design, and production space and access to cutting-edge technology, and open-source and industry standard software and tools for design exploration.

Application

Formal application is made to the program for acceptance into the B.F.A. in Visual Communication Design degree program. Application must be submitted at least three semesters prior to the applicant's anticipated graduation. Favorable faculty review of the application materials are required before a student is declared a candidate for the B.F.A. in Visual Communication Design degree. Applicants must have achieved the following at the time of application to the B.F.A. in Visual Communication Design:

- C or better in all major classes
- 3.25 GPA or above within major classes
- 3.00 or above overall UW total institutional GPA

Undergraduate majors proceed with meeting the USP requirements for the B.A. in Studio Art and balance with foundation, art history, and studio core requirements in the major until formally accepted as a B.F.A. in Visual Communication Design candidate. Students should apply at least three semesters before graduation. Application does not automatically guarantee acceptance into the B.F.A. in Visual Communication Design program.

Final Year

During their final year and in conjunction with the spring B.F.A. exhibition, students enroll in two sequential capstone courses: BFA Capstone I (fall) and II (spring). The courses outline the deadline and requirements for the B.F.A. exhibition as well as coordinating mentoring of B.F.A. candidates. If faculty deem their work insufficient, they reserve the right to exclude the work from the exhibition and withhold the B.F.A. degree. Students transferring to the Department of Visual and Literary Arts who have completed their foundation core and successfully passed portfolio review are eligible to apply for a B.F.A. in Visual Communication Design after one semester in the Art and Art History Program.

Minor

Art History Minor

The Art History Minor introduces students to the discipline of Art History in a 21 credit hour sequence.

Art History Sequence: 6 Hours

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient,

medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Lower Division Requirement: 3 Hours

ART2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ANTH 2700/HIST 2700.

USP 2003-2014 Code U3CH

OR

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

Other Traditions: 3 Hours

Including but not limited to Art & Architecture of Medieval Islam, Japanese Art History, Meso-American Art History

ART3720 - Art and Architecture of Medieval Islam

Credits: 3

Studies the art and architecture produced by Islamic societies from the time of the Prophet Mohammed to the time of the Crusades (7th-14th centuries CE), and the geographic scope surrounds the Mediterranean Sea, including the Near Middle East, northern Africa, and Spain.

Former Course Number [2720]

Prerequisite: USP WA and WB courses.

Art History Electives at the 3000/4000-level: 9 Hours

Art History Electives at the 3000/4000-level (including additional Other Traditions) Credits: 9

Total Credits: 21 Hours

Ceramics Minor

The Ceramics Minor introduces students to the discipline of Ceramics in a 24 credit hour sequence.

Required Courses: 9 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

OR

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

Studio Elective Courses in Ceramics: 12 Hours

ART2410 - Ceramics I

Credits: 3

Introduces ceramic form through traditional hand processes, simple mold making and slip casting. Includes underglaze decoration, glaze application, image transfer, low and high firing processes. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process and the formation of a personal voice in the medium.

ART2420 - Ceramics II

Credits: 3

Introduces ceramic form through wheel throwing technique. Includes underglaze decoration, glaze application, image transfer, and high temperature surfaces. Emphasizes formal and conceptual understanding, the development of a strong foundation in ceramic process, and the formation of a personal voice in the medium.

ART3410 - Ceramics III/I

Credits: 3

Studies development of ceramic form through multiple construction methods. Problems are designed to develop fluidity and versatility in the different processes introduced in the beginning class. Glaze exploration and development are introduced. Emphasizes design, conceptual development, and professional practices.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: completion of Foundation Core, ART 2000, ART 2410, ART 2420 and consent of instructor based on portfolio review.

ART3420 - Ceramics III/II

Credits: 3

A second semester continuation of the development of ceramic form through multiple construction methods. Problems are designed to develop fluidity and versatility in the different processes introduced in the beginning classes. Glaze

exploration and development are introduced. Emphasizes design, conceptual development, and professional practices.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: completion of Foundation Core, ART 2000, ART 2410, ART 2420, and consent of instructor based on portfolio review.

Art History Survey Elective: 3 Hours

Choose one from

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Creative Writing Minor

The Creative Writing Minor teaches the fundamentals of creating original work while providing opportunities for the exploration of blended genres and interdisciplinary work. A minor in Creative Writing complements majors from a wide array of departments and colleges.

Creative Writing Minor

Minor in Creative Writing. The creative writing minor consists of six courses (18 hours) in creative writing and literature. Four of these courses will be in creative writing (12 hours) and must adhere to the following sequence: CW 1040 Intro to Creative Writing, two Lower Division Creative Writing courses (at the 2000-level), and an Upper

Division course (4050). In addition, two courses will be in literature (6 hours). All courses must be completed with grades of C or better.

This minor is intended to be used with any major and must be designed in conjunction with a creative writing advisor. Each course must be passed with a grade of C or better.

Digital Media Minor

The Digital Media Minor introduces students to the discipline of Digital Media in a 25 credit hour sequence.

Required Courses: 22 Hours

ART 2110: Type 1: Thinking with Type - 3 credits

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

OR

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1115 - Digital Media

Credits: 1

An introductory level course designed to investigate the role of digital media in visual literacy. Students gain practice with basic graphics software, explore using the Internet in informing the development of art work, and discuss how application of these skills are used in classroom, studio, and commercial art fields.

USP 2003-2014 Code U3I

ART2030 - History of Graphic Design

Credits: 3

History of graphic language and evolution of graphic communication. Includes an extensive examination of the social forces that shaped the design profession and how in turn design has shaped society. The theories that moved designers to act to remake society are also considered.

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on as a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2122 - VCD II Visual Programming

Credits: 3

Max Credit (Max. 9)

Explores digital art principles in Web spaces through the understanding and use of design tools and techniques. Creative approaches consist of informed planning, thoughtful concepting, strategic wire frame development and creative execution. Projects include explorations of HTML, CSS, and visual programming, and time-based media and image manipulation.

When Offered (Normally offered spring semester)

Former Course Number [3110]

Prerequisite: ART 1110 and ART 1115.

ART3112 - Type: Type, Images, and Narrative

Credits: 3

Examines the experimental use of type, its history, structure and background in reference to visual expression, data visualization, messaging, representative power, and time-based and site-specific explorations. Advanced explorations in type as concept and critical expression will explore the fields of graphic design and computer visualization.

When Offered (Offered spring semester)

Former Course Number [2110]

Prerequisite: ART 2000 and ART 2112.

OR

ART3150 - VCD IV: Visual Imaging in Time

Credits: 3

Explores digital video, sound and site-specific experiments. Students learn and use experimental digital design tools and techniques to develop site-specific time-based individual and collaborative works. Students also collaborate and install works on campus, town and other venues. Projects include video and sound design and editing, graphic arts, computer graphics and digital art history.

Former Course Number [4140]

Prerequisite: ART 2000, and ART 2112 or ART 2122.

Art History Survey Elective: 3 Hours

Choose one from

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 25 Hours

Drawing Minor

The Drawing Minor introduces students to the discipline of Drawing in a 21 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2005 - Drawing II

Credits: 3

An intermediate level drawing course building upon fundamentals of observation, artistic invention, perspective and composition through problems in still life, landscape, explorations in wet and dry media, and color with pastels. Lectures, drawing sessions, and critiques develop formal, conceptual, expressive and technical understanding.

Prerequisite: ART 1005.

ART3052 - Life Drawing I

Credits: 3

An advanced drawing course working from a life model with an emphasis on composition, monochromatic media, drawing techniques and the skeletal and muscular construction as related to action and proportion in the human figure. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding.

When Offered (Normally offered fall semester)

Prerequisite: ART 2000 and ART 2005.

Studio Elective Courses in Drawing: 6 Hours

*6 credits chosen from the following...

ART3005 - Drawing III

Credits: 3

An advanced drawing course applying the fundamentals of drawing to creative individual problems in figure, still life, and/or landscape composition. Structured yet open assignments, lectures and critiques develop formal, conceptual, expressive, and technical understanding. Course may be repeated for a maximum of 6 credit hours.

When Offered (Offered spring semester).

Prerequisite: ART 2000 and ART 2005.

ART4005 - Drawing IV

Credits: 3

An advanced drawing course exploring conceptual, expressive, personal and technical limits of process and media. Individually proposed projects lead to a coherent body of work. Open discussion and structured critiques develop personal and technical understanding. Repeatable for a maximum of 9 credit hours.

Prerequisite: ART 2000 and ART 3005.

ART4052 - Life Drawing II

Credits: 3

An advanced drawing course building upon figure construction fundamentals with heavy emphasis on composition, personal expression, wet and dry media, and color with pastels. Lectures, drawing sessions and critiques develop formal, conceptual, expressive and technical understanding. May be repeated for a maximum 9 credit hours.

When Offered (Normally offered spring semester)

Prerequisite: ART 2000 and ART 3052

ART3250 - Watercolor Painting I

Credits: 3

Investigates watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 1130, 2000 and ART 2210.

ART3260 - Illustration I

Credits: 3

This is an introductory Illustration course. This primary class objective is to develop conceptual skills through a variety of media traditionally used in fine art illustration and a variety of illustration problems and projects. This class is designed to further your interest in illustration and initiate portfolio development.

Prerequisite: ART 2000.

ART4250 - Watercolor Painting II

Credits: 3

Advanced investigation of watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000 and ART 3250.

ART4260 - Illustration II

Credits: 3

This is the second level Illustration course for students who have had ART 3350. Students will continue to develop conceptual skill in creating narrative illustrations for a variety of projects. The majority of the semester will be dedicated to developing a single project: Graphic Novelization or book illustrations. Students will be focusing on character development, narrative arc, and compelling imagery using materials appropriate for their project.

A&S College Core 2015 ASG

Prerequisite: ART 2000 and ART 3260.

ART4975 - Independent Study and Research

Credits: 1-3

Research options in all creative areas. Students work independently and provide demonstrated ability and background knowledge to carry out self-directed research or creative activity in the research area. Arrangements regarding curricular obligations and meeting times are made with the instructor in advance.

Prerequisite: ART 2000 and 12 hours of art in research area and prior consent of instructor.

Art History Survey Elective: 3 Hours

Choose one from

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance,

Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 21 Hours

Metalsmithing Minor

The Metalsmithing Minor introduces students to the discipline of Metalsmithing in a 24 credit hour sequence.

Required Courses: 15 Hours

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

OR

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART2350 - Metalsmithing I

Credits: 3

Introduces basic technical approaches to fabricating small scale, non-ferrous metals (silver, copper, brass, nickel) including sawing, soldering, filing, drilling, form raising/pressing, texturing, and finishing processes. Investigation into the rich history of metalsmithing as well as innovative contemporary applications will manifest in both sculptural objects and jewelry. Individual studio projects and critical discussion will address aesthetic, conceptual and technical aspects of metalsmithing.

Prerequisite: ART 1120.

ART3350 - Metalsmithing II

Credits: 3

Introduces intermediate approaches to fabricating small scale, non-ferrous metals through hammer-raised forming, lost-wax casting, enameling and hardware fabrication. Historical and innovative contemporary applications are fostered through sculptural objects and jewelry-based pieces. Individual studio projects, critical discussion and presentations address aesthetic, conceptual, and technical aspects of metalsmithing.

Prerequisite: ART 2000 and ART 2350.

Studio Elective Courses in Metalsmithing: 6 Hours

ART4355 - Metalsmithing III

Credits: 3

Introduces advanced fabrication and surface techniques which build on skills developed in Metalsmithing I and II. Students propose a body of work for the semester based on individual aesthetic, conceptual and technical interests. Professional practices including resume writing, documenting, presenting and exhibiting artwork are addressed at this advanced level.

Prerequisite: ART 2000 and ART 3350.

required

ART4360 - Metalsmithing: Special Topics

Credits: 3

Focuses on a specific technique in the field of Metalsmithing for an in-depth exploration into topics such as lost-wax casting, chasing and repoussé, enameling, etc. Individual projects and critical discussion will address the special topic aesthetically, technically and conceptually.

Prerequisite: ART 2000 and ART 2350.

required

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Museum Studies Minor

The Museum Studies Minor introduces students to the discipline of Museum Studies.

Museum Studies Core: 12 Hours

- ART 2705 - Intro to Museology II Credits: 3 crosslisted as ANTH/AMST/HIST 2705

ART2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed AMST 2700/ANTH 2700/HIST 2700.
USP 2003-2014 Code U3CH

Choose One of the Following

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

Internship - 3 credits

3 credits in Internship

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world.

Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

ANTH4970 - Internship

Credits: 1-12

Max Credit (Max. 12)

Allows students to gain hands-on experience, bridging the gap between anthropology as an academic discipline and anthropology as practiced in museums, public archaeology agencies, non-governmental organizations, and private consulting companies. Involves a required academic component in addition to work experience. Internship credit cannot fulfill requirements of the major.

Prerequisite: anthropology major of junior/senior standing and consent of internship director and/or department head.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

OR

- Corresponding number in student's major department

Methods Core: 6 Hours

To be chosen from the following:

AMST2400 - Introduction to Historic Preservation

Credits: 3

Online course introduces students to historic preservation theory and philosophy, the history of the preservation movement and contemporary historic preservation as practiced in the public, nonprofit and private realms. Assignments include reading, research, online discussion and lectures (podcasts, videos or PowerPoint presentations), as well as directed field work.

AMST4300 - American Culture and the Public Sector

Credits: 3

Surveys American culture studies in the public sector. Topics include history and theory of public sector humanities

and social sciences; types of public sector jobs and institutions where public humanists work; and public sector work in specific fields such as museums, arts, humanities, archives, folklife, oral history, and historic preservation.

Dual Listed AMST 5300.

When Offered (Offered once a year)

Prerequisite: 12 credits in humanities or social science courses having to do with American culture.

AMST4900 - Field Studies in American Culture

Credits: 1-4

Max Credit (Max. 4)

Field Studies in American Culture: Gives students hands-on field-based training and experience in researching, documenting, and presenting aspects of American culture. Topics may include historic preservation, folklife, oral history or related fields.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: 6 credits in American Studies or related field. May also be taken for graduate credit.

ANTH3300 - Ethnographic Methods in Anthropology

Credits: 3

Introduces anthropology majors to ethnographic fieldwork, the fundamental method in cultural anthropology. Students conduct fieldwork and discuss research problems including ethics and the role of the researcher. Open to students in related fields of humanities and social sciences.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: ANTH 1200.

ANTH3310 - Introduction to Anthropology Research Methods

Credits: 3

Introduces anthropology majors to use of the discipline's scientific method through problem formation, research data acquisition and research techniques used by anthropologists.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, ANTH 1200, and ANTH 1300.

ANTH4020 - Seminar

Credits: 3-6

Considers current topics of anthropological interest. May be repeated for a maximum of 6 hours credit when the subject matter of the seminar is different.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ANTH 1100, ANTH 1200, or ANTH 1300.

ANTH4190 - Public Archaeology

Credits: 3

A consideration of archaeological legislation, policies and regulations; compliance, heritage, and avocational archaeology, cultural resource management; curation; and professional archaeological ethics.

Dual Listed ANTH 5190

ART4790 - Art Seminar

Credits: 1-3

Special topic in art history and criticism for advanced students.

When Offered (Offered based on sufficient demand and resources)

USP 2015 Code U5C3

Prerequisite: 6 hours in art history.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL4717 - Field Course in Geology

Credits: 1-8

Reviews field observation of geologic phenomena, methods of geologic mapping and interpretation of data collected. Course includes a six-week field trip.

When Offered (Offered early summer)
Former Course Number [GEOL 5100]

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

- HIST 4050

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

Elective Courses: 3 Hours

Students will choose course from the elective list in conjunction with their advisor, based on their area(s) of interest. Additional courses listed in the museum studies and methods cores can be chosen as electives. For a list of electives, go to www.uwyo.edu/museumstudies.

Cultural Experience / International Fieldwork

Choose one of the following:

- Study Abroad/International Field School - students may enroll or participate in an approved study abroad course or program (credit hours vary),
OR

- Foreign or Indigenous Language - students may enroll in 12 hours
OR
- A foreign language. 8 of the 12 hours must be in the same language. American Sign Language does qualify.

Painting Minor

The Painting Minor introduces students to the discipline of Painting in a 24 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2210 - Painting I

Credits: 3

Introduces problems in painting, developing skill, techniques and concepts.

Prerequisite: ART 1005, ART 1110, and ART 1130; ART 1120 may be taken concurrently.

Studio Elective Courses in Painting: 9 Hours

Choose from 3000/4000-level painting courses including but not limited to:

ART3210 - Painting II

Credits: 3
Max Credit (Max. 6)

Investigates various painting techniques to create individual work. Emphasizes contemporary and classical treatment of formal, aesthetic and conceptual creative expression.

Prerequisite: ART 2000 and ART 2210.

ART4210 - Painting III

Credits: 3
Prerequisite: ART 2000 and ART 3210.

ART4220 - Painting Topics

Credits: 6
This is an advanced painting course that will cover specific painting approaches for an entire semester. Examples of topics can include Abstraction and color field, figuration, narrative painting, experimental painting media and surfaces, etc. This course will enable students to experience a more comprehensive and targeted set of painting problems for the semester. Topics will vary based on the instructor.

Prerequisite: ART 2000, ART 2210, ART 3210.

ART3250 - Watercolor Painting I

Credits: 3
Investigates watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 1130, 2000 and ART 2210.

ART4250 - Watercolor Painting II

Credits: 3
Advanced investigation of watercolor techniques in the development of creative work. Discussion, application and criticism of contemporary ideas about structure, form and color constitute the main activity.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ART 2000 and ART 3250.

ART4655 - Outdoor Studio

Credits: 3
The emphasis in this course will be on the expressive nature of outdoor creative work. Students will need to be responsive to the natural environment through a variety of media, including watercolor, oil sticks, drawing, sculpture, photography, video, etc. This course involves travel and day trips to a variety of sites throughout the county and state.

Prerequisite: ART 2000.

ART3260 - Illustration I

Credits: 3

This is an introductory Illustration course. This primary class objective is to develop conceptual skills through a variety of media traditionally used in fine art illustration and a variety of illustration problems and projects. This class is designed to further your interest in illustration and initiate portfolio development.

Prerequisite: ART 2000.

OR

ART4260 - Illustration II

Credits: 3

This is the second level Illustration course for students who have had ART 3350. Students will continue to develop conceptual skill in creating narrative illustrations for a variety of projects. The majority of the semester will be dedicated to developing a single project: Graphic Novelization or book illustrations. Students will be focusing on character development, narrative arc, and compelling imagery using materials appropriate for their project.

A&S College Core 2015 ASG

Prerequisite: ART 2000 and ART 3260.

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Photography Minor

The Photography Minor introduces students to the discipline of Photography in a 24 credit hour sequence.

Required Courses: 15 Hours

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

OR

ART2112 - VCD I Visual Thinking

Credits: 3

Max Credit (Max. 6)

Explores techniques of graphic design preparation from concept through paste-up to the printed page, both on a field that engages both the verbal and the visual is stressed. Problems include a variety of experimental and practical approaches that engage historical and contemporary formal and conceptual exercises.

When Offered (Offered fall semester)

Former Course Number [2120]

Prerequisite: ART 1110 and ART 1115.

ART2265 - Introduction to Photography, Black and White

Credits: 3

Fundamentals of Black and White film photography, including use of SLR cameras, how to correctly expose film, process it and create prints in the darkroom. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of Black and White photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

ART2255 - Introduction to Photography, Digital

Credits: 3

Fundamentals of Digital and Color photography. Students will learn how to use their digital cameras, how to input images to Photoshop and out put them to prints. The class will begin with an investigation of techniques before moving through a series of assignments designed to develop the understanding of how to compose a body of work around a specific theme or concept. Lectures will work through the concepts and history of color photography and regular critiques will guide students towards creating a final portfolio of images.

Prerequisite: ART 1110, ART 1130.

Studio Elective Courses in Photography: 6 Hours

- Choose from 3000/4000-level photography courses

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Printmaking Minor

The Printmaking Minor introduces students to the discipline of Printmaking in a 24 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1110 - Foundation: Two Dimensional

Credits: 3

First in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of two-dimensional mediums. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

OR

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

- An upper division drawing course beyond ART 1005

ART3510 - Printmaking I

Credits: 3

Investigates and experiments with processes and properties of print media, including intaglio, lithography and relief. Explores ideas and works of traditional and contemporary printmaking.

Prerequisite: ART 1005 and ART 1110 and ART 1130 or concurrent registration in ART 1130.

Studio Elective Courses in Printmaking: 9 Hours

- Choose from 3000/4000-level printmaking courses Credits: 9

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Sculpture Minor

The Sculpture Minor introduces students to the discipline of Sculpture in a 24 credit hour sequence.

Required Courses: 12 Hours

ART1005 - Drawing I

Credits: 3

A foundation level drawing course introducing fundamentals of observation, artistic invention, and basic principles of perspective and composition through problems in still life, landscape, and live model. Lectures, drawing sessions, and critiques develop formal, conceptual, and technical understanding of the drawing process.

USP 2003-2014 Code U3CA

ART1120 - Foundation: Three Dimensional

Credits: 3

Second in a sequence of three foundation courses that investigate the fundamentals of design. Basic aesthetic/formal concepts and conceptual approaches are covered through a variety of three-dimensional mediums. Structural form is emphasized in various contextual settings. Structured critiques are employed to provide students in the experience of assessing formal, conceptual, and technical aspects of art.

ART1130 - Foundation: Color Theory

Credits: 3

Third in a sequence of three foundation courses that investigate the fundamentals of design. Explores color theories based on the color wheel/light spectrum including hue, value, chroma, and aesthetic color relationships. Optical color, emotional/psychological color, and color symbolism are also covered. Structured critiques are employed to provide students the experience of assessing formal, conceptual, and technical aspects of art.

ART2310 - Sculptural Practices I

Credits: 3

This beginning sculptural practices course introduces fundamentals in traditional and contemporary sculpture. Students are asked to explore various mediums, techniques, and equipment including: wood and metal fabrication, casting with plaster, and mixed media and digital technology processes. Assigned projects, extensive sketchbook work, artist research, and critique participation is expected.

Former Course Number [1310]

Studio Elective Courses in Sculpture: 9 Hours

Choose from the following:

ART3310 - Sculptural Practices: Cast Form I

Credits: 3

Max Credit (Max. 6)

This intermediate sculptural practices course explores a wide variety of mold-making and processes including cold-casting (paper/fabric/resin casting) and both non-ferrous (bronze and aluminum) and ferrous metal (cast iron) casting techniques. Assigned projects will allow students to engage in the production of finished cast sculpture. Extensive sketchbook, artist research, and critique participation is required.

When Offered (Offered fall semester)

Prerequisite: ART 2310 and 2000.

ART3320 - Sculptural Practices: Mixed Media I

Credits: 3

Max Credit (Max. 6)

This intermediate course explores mixed media processes in sculptural practices including soft sculpture fabrication with fabric and fiber, found object manipulation, and digital processes involving 3D printing and laser cutting. Assigned projects will engage students in the production of artwork related to the topic. Extensive sketchbook, artist research, and critique participation is expected.

When Offered (Normally offered fall semester of every other year)

Prerequisite: ART 2310 and ART 2000.

ART3330 - Sculptural Practices: Assembled Form I

Credits: 3

Max Credit (Max. 6)

Investigates constructed and assembled form as an essential means of sculptural expression. Emphasizes wood construction, assembled metals and mixed media. Utilizes general carpentry techniques, a variety of welding methods (oxyacetylene, arc, M. I. G. and T. I. G.) and other means of assembling materials. Includes investigation of concepts in assemblage and exposure to classic and contemporary forms of assembled sculpture.

When Offered (Offered spring semester)

Prerequisite: ART 2310 and ART 2000.

ART3345 - Sculptural Practices: Special Topics

Credits: 3

Max Credit (Max. 9)

This course addresses specific areas of contemporary sculptural practices such as: Installation, Video/Sound manipulation, kinetic sculpture, and figure modeling. Assigned projects will engage the students in production of artwork related to the topic. Extensive sketchbook work, artist research, and critique participation is expected.

Prerequisite: ART 2310 and ART 2000.

Art History Survey Elective: 3 Hours

Choose one from:

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

OR

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Total Credits: 24 Hours

Graduate

Creative Writing, M.F.A.

This fully-funded MFA program is dedicated entirely to prose. We teach a wide range of courses in fiction, nonfiction, and hybrid forms. We offer award-winning faculty and prepare graduates to release books with prominent commercial and small-press publishers.

Additional Information

M.F.A. students follow the guidelines for a Plan A thesis. Only those courses in which a grade of B or better has been earned may be applied to the graduate program of study. All courses must be taken for a grade unless offered for S/U only. No graduate credit is allowed for grades S and U.

The cumulative GPA must be at least 3.000 to receive a degree. Courses below 4000-level will not count toward the degree nor will they be figured in the GPA, although they will appear on the transcript.

A minimum of four Workshops (CW 5560) and/or Creative Writing Seminars (CW 5540) must be taken. These may be in any combination to reach the four-course total, typically for a total of 12-16 credit hours. We require a cross-genre component in that mix of courses.

Requirements

- Elective courses (typically taken for a total of 18 credit hours)

ENGL5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 4)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ENGL5010 - Rhetoric and Composition: History, Theory, Practice

Credits: 1-4
Max Credit (Max. 4)

Prepares graduate students to teach college composition and rhetoric at UW and beyond, with attention to the intellectual traditions that inform our writing program's pedagogy. It examines the theories that support informed writing instruction and offers classroom strategies that may be applied to any course in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

- Other electives: free to be taken in any UW program or department across campus
- Thesis Hours (5960): 4 credit hours

Total Credits: 36 Hours (Minimum)

Total credit hours must be a minimum of 36.

Department of Botany

Botany

114 Aven Nelson Building, (307) 766-2380

FAX: (307) 766-2851

Web site: www.uwyo.edu/botany

Department Head: Naomi Ward

Professors:

GREGORY K. BROWN, B.S. Colorado State University 1973; M.S. Arizona State University 1978; Ph.D. 1980; Professor of Botany 1997, 1985.

ALEX BUERKLE, B.A. (Hons.) University of Missouri 1990; Ph.D. Indiana University 1997; Professor of Botany 2016, 2004.

BRENT E. EWERS, B.S. Colorado State University 1995; M.S. Duke University 1997; Ph.D. 1999; Professor of Botany 2014, 2002.

STEVEN L. MILLER, B.S. University of Wyoming 1979; M.S. Virginia Polytechnic Institute and State University 1982; Ph.D. 1985; Professor of Botany 2002, 1990.

CAMELLIA OKPODU, B.S. North Carolina State University 1987; Ph.D. North Carolina State University 1994; Professor of Botany 2021.

DAVID TANK, B.S. (Hons.) Michigan State University 1998; M.S. Michigan State University 2000; Ph.D. University of Washington 2006; Professor of Botany 2021.

NAOMI WARD, B.Sc. (Hons.) University of Queensland 1993; Ph.D. University of Warwick 1997; Professor of Molecular Biology and Botany 2019, 2007.

CYNTHIA WEINIG, B.A. (Hons.) Brown University 1991; Ph.D. Indiana University 1999; Professor of Botany and Molecular Biology 2013, 2007.

DAVID WILLIAMS, B.A. The University of Texas, Austin 1985; M.S. Texas A&M University 1988; Ph.D. Washington State University 1992; Professor of Botany 2009, 2003.

Associate Professors:

ELLEN D. CURRANO, B.Sc. (Hons.) University of Chicago 2003; Ph.D. Pennsylvania State University 2008; Associate Professor of Botany 2017, 2014.

DANIEL LAUGHLIN, B.S. Calvin College 1999; M.S. Pennsylvania State University 2002; Ph.D. Northern Arizona University 2009; Associate Professor of Botany 2017.

Assistant Professors:

LAUREN SHOEMAKER, B.A. (Hons.) Colorado College 2011; Ph.D. University of Colorado Boulder 2017; Assistant Professor of Botany 2019.

CATHERINE E. WAGNER, B.A. (Hons.) Whitman College 2004; Ph.D. Cornell University 2011; Assistant Professor of Botany 2015.

CHRISTOPHER WEISS-LEHMAN, B.A. Earlham College 2010; Ph.D. University of Colorado Boulder 2017; Assistant Professor of Botany 2019.

Senior Lecturer:

MARK E. LYFORD, B.A. St. Olaf College 1993; M.S. University of Wyoming 1995; Ph.D. 2001; Senior Lecturer in Botany 2014, 2005;

Associate Lecturer:

CHRISTOPHER NORTH, B.S. Virginia Polytechnic Institute and State University 2002; M.S. Eastern Illinois University 2005; Ph.D. University of Wyoming 2017; Associate Lecturer in Botany 2020, 2014.

Assistant Lecturers:

JAMIE CRAIT, B.Sc. Oregon State University 1999; M.S. University of Wyoming 2005; Ph.D. 2013; Assistant Lecturer in Botany 2018.

Senior Research Scientist:

BURRELL E. NELSON, B.A. Andrews University 1971; M.A. University of Wyoming 1974; Senior Research Scientist.

Research Scientist:

BEN LEGLER, B.S. University of Washington 2001; M.S. University of Wyoming 2010; Research Scientist 2021.

Professors Emeriti:

Dennis H. Knight, Stephen T. Jackson, William A. Reiners

Associate Professors Emeriti:

Daniel B. Tinker

Botany

Botany is the study of plants and their relationship to human affairs. The science is fundamental to food, fiber and pharmaceutical production; to the management of landscapes for beauty, recreation, forest products and forage; and to the protection of landscapes against pollution and other abuses. The botanist is concerned with the diversity and classification of plants and fungi, their structure at both the macroscopic and microscopic levels, and their physiology, ecology and genetics and evolutionary relationships.

Courses in botany have been developed to meet the needs of the following groups of students: those who desire a general knowledge of the subject for its cultural value; those specializing in areas which require a background in plant biology; and those selecting botany or biology as a major.

Undergraduate Degrees:

Students can choose from two undergraduate degree majors: the Botany B.S. and Biology B.S. programs. The Biology B.S. program includes an optional Concentration in Ecology and Evolution. The Biology B.S. degree program also maintains a concurrent major offered through the College of Education whereby students fulfil all the major requirements for Biology on top of their requirements for the B.S. degree in Secondary Science Education with a major in Biological Sciences Education.

Undergraduate minors:

Minors in Biology and Botany are offered.

Graduate Study:

The Department of Botany offers graduate programs leading to the master of science and the doctor of philosophy degrees in botany and the master of science degree in botany/water resources.

Program Specific Admission Requirements (Graduate Study)

A minimum GPA of 3.000 on previous coursework is required.

Program Specific Degree Requirements (Graduate Study)

Regardless of field of specialization, all candidates will be held responsible for basic information in the following areas: genetics, physiology, morphology, and evolutionary and environmental botany. A knowledge of chemistry (including organic and elementary biochemistry), physics, calculus, and statistics may be required.

A minimum GPA of 3.000 must be maintained. Any course in which a C (or below) or U is obtained cannot be counted toward the degree requirement.

Participation in seminars will be required of all candidates during their residence at the University of Wyoming.

Major

Biology, B.S.

The Bachelor of Science degree in Biology is designed to provide a thorough foundation in biology as well as other supporting areas of physical and life sciences and mathematics while providing flexibility and student choice.

Additional Information

The Biology major is designed for students interested in obtaining a broad education in biological sciences. It enables students to combine courses in biology, botany, zoology, physiology, and other biological sciences to meet the requirements of the major. On completion of the core requirements for the major, specific courses selected to complete the major may vary according to students' interests and are worked out by consultations between student and adviser. The requirements for a bachelor of science degree in biology are as follows:

*Course must be completed with a grade of C or better.

The degree program is administered by the Department of Botany.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on

developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3

A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3

A&S Core: Global Awareness Course

Biology Major -Lower Division Courses

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

OR

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

A&S College Core 2015 Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

A&S College Core 2015 This course is not an acceptable prerequisite for CHEM 2440.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Foundational Biology - Two of the Following:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR MOLB 2021 (General Microbiology, crosslisted with MICR 2021)

Data Science course- select ONE of the following:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1100 - Computer Science Principles and Practice

Credits: 3

Introduces use of computers for algorithmic problem solving. Studies scope, major contributions, tools and current status of computer science. Presentation of computer science principles; use of software packages and evaluation of their effectiveness; and elementary programming.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: C or better in MATH 1400 or in any University Studies QB or Level 4 or higher on Mathematics Placement Exam.

COSC1200 - Computer Information Systems

Credits: 3

Introduces computers and information processing, computer systems and hardware, computer software, information processing systems, information systems and information resource management. Uses word processing, data base language and electronic spreadsheet program in hands-on exercises.

Prerequisite: passing of Mathematics Placement Examination at Level 2 or equivalent.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

Biology Major Upper Division Courses

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

BOT4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed ZOO 4100.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

A&S College Core 2015 Preference given to seniors.

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

Scientific Communication BOT 4100/4101 recommended; any COM3 will apply here.

BOT4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences. Preference given to seniors.

Cross Listed ZOO 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

Biology, Ecology and Evolution Concentration, B.S.

The Department of Botany offers the Ecology and Evolution Concentration for Biology majors. This concentration will prepare students for a career or further graduate study. Students will receive the academic training to become park naturalists, environmental consultants, restoration ecologists, natural resource managers, conservation scientists, environmental educators, and research technicians in academic or government agencies. In addition to core concepts and theories, this concentration will teach students important skills that are required in the workforce, including organism identification, quantitative reasoning, data analysis, and scientific communication. Students also will have opportunities to participate in faculty research projects, which will train them for graduate research, careers in scientific discovery, or any endeavor where critical thinking and problem solving are essential components of the vocation.

To fulfill the requirements of the concentration, students will select five courses that meet a minimum of 15 credit hours in addition to what is required for the Biology Major. These will be selected from a variety of upper-division (3000-4000) courses that satisfy their individual interests (listed below).

Students must select

1. one course in organismal biology (A),
2. one course in ecology (B),
3. one course in evolution (C),
4. any one additional course from these three categories,
5. and one fourth-year capstone course (D).

Students who concentrate in Ecology and Evolution should plan to take LIFE3500 - Evolutionary Biology in their third year to be able to take an additional evolution course before graduating. All courses listed below will count toward this concentration. However, there are many other excellent courses offered across campus that are relevant to this concentration. Students can obtain approval to take other courses that are not included on the list below to satisfy the requirements of the concentration.

List of Potential Courses

A. Organismal Biology

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

BOT4360 - Mushrooms of the Rocky Mountains

Credits: 3

A broad introduction to the biology of mushrooms, with emphasis on identification, ecology, and safety for consumption. Lab emphasizes learning major mushroom families and genera and their features, use of keys and manuals, and mushroom collections with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023 or equivalent.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

BOT4395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 5395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

B. Ecology

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4650 - Tropical Field Ecology Ecuador

Credits: 4

Course comprises 10 days in Ecuador in January (before spring semester), followed by one lecture per week during spring semester. Focus will be ecology, biodiversity and conservation of tropical forests and behavioral ecology of birds and mammals. Field site is at 1100m on west slope of the Andes.

Dual Listed ZOO 5650.

Prerequisite: LIFE 2022.

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

OR

GEOL4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed BOT 4280.

Dual Listed GEOL 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

BOT4200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 5200.

Prerequisite: LIFE 1010 and LIFE 2021.

C. Evolution

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

- BOT4790 - Special Topics in Ecology Credits: 3 (Evolution of development)
- BOT4790 - Special Topics in Ecology Credits: 3 (Evolution seminar)

BOT5060 - Fundamental Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/ZOO 5060.

Prerequisite: graduate student in good standing.

OR

ZOO5060 - Fundamental Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/BOT 5060.

Prerequisite: graduate student in good standing.

D. Senior Capstone Course

BOT4965 - Undergraduate Research in Botany

Credits: 1-10

Max Credit (Max. 10)

Undergraduate research or study in botany done under the guidance of a Botany Faculty Member. Encouraged to present their research at local, regional, or national scientific meetings, and, when appropriate, submit a manuscript for publication.

Prerequisite: LIFE 2023, undergraduate status in good academic standing; consent of a botany faculty research mentor.

Botany, B.S.

The Bachelor of Science degree in Botany is designed to provide a thorough foundation in botany as well as other supporting areas of physical and life sciences and mathematics.

Additional Information

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Lower Division Courses

Students take introductory courses in biology, chemistry, physics, and mathematics. These courses provide the foundation for more advanced work in upper division biology courses and contribute to a more comprehensive understanding of biological processes.

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3
Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.
Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.
OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021
When Offered Fall and Spring
Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit

earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

OR

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

or

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

Upper Division Courses

BOT3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Cross Listed Cross listed with: REWM 3000.

Prerequisite: LIFE 2022 or LIFE 2023.

BOT3600 - Plant Diversity and Systematics

Credits: 4

A broad introduction to modern vascular plant systematics, with emphasis on identification, classification, nomenclature, speciation, adaptation, convergence, and phylogenetic methods. Lab emphasizes learning major flowering plant families and genera, major invasive species, use of keys and manuals, and plant collection, with a

Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023, or equivalent.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

BOT4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed ZOO 4100.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

A&S College Core 2015 Preference given to seniors.

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

A&S College Core 2015 Preference given to seniors

BOT4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences. Preference given to seniors.

Cross Listed ZOO 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

Upper Division BOT elective credits- **FOUR** credit hours from the following:

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other

plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

BOT4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed ATSC/ESS 4001/GEOL 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

BOT4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

BOT4200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 5200.

Prerequisite: LIFE 1010 and LIFE 2021.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

BOT4745 - Terrestrial Ecosystem Ecology

Credits: 3

Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. We study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Cross Listed ECOL 5745.

Dual Listed BOT 5745.

Prerequisite: 1 course in ecology.

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

BOT4965 - Undergraduate Research in Botany

Credits: 1-10

Max Credit (Max. 10)

Undergraduate research or study in botany done under the guidance of a Botany Faculty Member. Encouraged to present their research at local, regional, or national scientific meetings, and, when appropriate, submit a manuscript for publication.

Prerequisite: LIFE 2023, undergraduate status in good academic standing; consent of a botany faculty research mentor.

BOT4970 - Internship

Credits: 1-12

Max Credit (Max. 12)

Provides undergraduate students with academic credit for approved work experiences in the fields of botany and biology. Must be arranged in consultation with a botany faculty member and the work supervisor.

Prerequisite: junior or senior standing,

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

BOT4360 - Mushrooms of the Rocky Mountains

Credits: 3

A broad introduction to the biology of mushrooms, with emphasis on identification, ecology, and safety for consumption. Lab emphasizes learning major mushroom families and genera and their features, use of keys and manuals, and mushroom collections with a Wyoming and Rocky Mountain focus.

Prerequisite: LIFE 2023 or equivalent.

BOT4395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 5395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

BOT4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed ENR 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

BOT4640 - Flora of the Rocky Mountains

Credits: 3

Field course. Acquaints students with the flora of the surrounding region. Emphasizes field identification and collection from plant communities encompassing a wide range of environments, such as grasslands, forests and alpine tundra.

When Offered (Normally offered summer session)

Prerequisite: LIFE 2023.

BOT4664 - Special Topics in Evolution

Credits: 1-4

Max Credit (Max. 6)

Advanced topics in evolutionary biology are engaged by studying primary research and topical synthesis in the current literature.

Dual Listed BOT 5664.

Prerequisite: LIFE 3500 or equivalent.

BOT4680 - Taxonomy of Vascular Plants

Credits: 4

A study of classification principles, nomenclature rules and systematic botany literature. Plants of the Rocky Mountain region are used primarily as examples, but the course gives a comprehensive view of the characteristics and relationships of the principal plants families.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2023.

BOT5000 - Graduate Seminar

Credits: 1-3

Max Credit (Max. 6)

Selected topics on current research in the botanical sciences.

Prerequisite: 15 hours of botany or biology.

BOT5060 - Fundamental Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed ECOL 5060/ZOO 5060.

Prerequisite: graduate student in good standing.

BOT5150 - Research in Remote Sensing

Credits: 1-6

Max Credit (Max. 6)

Independent research into problems on the remote sensing of vegetation using satellite technology.

Prerequisite: graduate standing and consent of instructor.

BOT5200 - Plant-Microbe Interactions

Credits: 3

This course is designed to improve content knowledge in Microbiology, with a specific focus on plant-microbe interactions and their application to ecology, conservation, agriculture, and rangeland management, and to enhance oral presentation skills.

Dual Listed BOT 4200.

BOT5480 - Spatial Information Sciences Seminar

Credits: 1

There are many earth science technologies, remote sensing, GIS and GPS. Synergism among these technologies increase the range of solutions for research and management. This course is a forum for presentation of these solutions or questions requiring solutions.

Cross Listed GEOL 5480.

Prerequisite: a course in remote sensing, GIS, GPS, and graduate standing.

BOT5600 - Ecological Modeling

Credits: 3

Course will immerse students in the most important and fundamental statistical modeling techniques for data analysis. Each class will include theoretical content delivered through a brief lecture and the immediate application of the theory through activities using R software.

Prerequisite: STAT 2050, STAT 3050, or an equivalent course.

Minor

Biology, Minor

Students may combine courses in biology, botany, zoology, physiology, and other biological sciences to meet the requirements of the minor.

Biology minor - additional information

Students who are majoring in Biology may not declare a Minor in Biology. Elective credit hours used towards the BIOL minor must be in courses not being counted towards a student's major. A grade of "C" or better is required in all courses. At least 25% of credit hours for the BIOL minor must be earned in upper division courses.

Credit in other courses with different prefixes in the biological sciences area may be applied to the minor in Biology at the discretion of a student's minor advisor.

Required Courses:

(12 credit hours)

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Select Two of the Following:

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

(or MOLB 2021 crosslisted)

Elective Courses:

(9-12 credit hours)

Select one different course from each of three of the following subject areas. One of the three courses must have a laboratory component.

Molecular/Genetics/Cell Biology:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

- ZOO 4425

Morphology/Physiology:

BOT3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Cross Listed Cross listed with: REWM 3000.

Prerequisite: LIFE 2022 or LIFE 2023.

BOT4395 - Symbiosis

Credits: 3

Symbiosis, the living together of unlike organisms, encompasses mutually beneficial to reciprocally detrimental interactions. The course examines conditions required for establishment and maintenance of important symbioses including mycorrhizae, lichens, endophytes, nitrogen-fixing and endosymbiotic bacteria, fungal/insect interactions, and fungal pathogens. Symbioses in forest ecosystems will be emphasized.

Dual Listed BOT 5395.

Prerequisite: LIFE 2022 or LIFE 2023, and LIFE 3400.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

Evolution:

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)
Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

Ecology:

- LIFE 3400

BOT4280 - Paleobotany

Credits: 4

An examination of the ecology and evolution of land plants throughout Earth history that emphasizes the profound impact plants have had on Earth's surface and atmosphere. Through a combination of lecture, discussion, and laboratory, the course will explore fossilized plant communities, their ecological properties, and effects of major environmental upheavals.

Cross Listed GEOL 4280.

Dual Listed BOT 5280.

Prerequisite: a grade of C or better in LIFE 1010 or GEOL 1100.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

BOT4730 - Plant Physiological Ecology

Credits: 4

Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms.

Cross Listed RNEW 4730.

Dual Listed BOT 5730.

When Offered (Normally offered spring semester)

Prerequisite: one course in physiology and one course in ecology.

BOT4745 - Terrestrial Ecosystem Ecology

Credits: 3

Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. We study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Cross Listed ECOL 5745.

Dual Listed BOT 5745.

Prerequisite: 1 course in ecology.

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

MOLB4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MICR 4540 or SOIL 4540.

Dual Listed MOLB 5540 or SOIL 5540 or ECOL 5540.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

Botany, Minor

The Botany minor provides foundational coursework in botany as well as other supporting areas of physical and life sciences and mathematics

Required Courses Credits: 11-12 Hours

BOT3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Cross Listed Cross listed with: REWM 3000.

Prerequisite: LIFE 2022 or LIFE 2023.

BOT4640 - Flora of the Rocky Mountains

Credits: 3

Field course. Acquaints students with the flora of the surrounding region. Emphasizes field identification and collection from plant communities encompassing a wide range of environments, such as grasslands, forests and alpine tundra.

When Offered (Normally offered summer session)

Prerequisite: LIFE 2023.

OR

BOT4680 - Taxonomy of Vascular Plants

Credits: 4

A study of classification principles, nomenclature rules and systematic botany literature. Plants of the Rocky Mountain region are used primarily as examples, but the course gives a comprehensive view of the characteristics and relationships of the principal plants families.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 2023.

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

OR

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

Elective Courses Credits: 7 Hours (Minimum)

(minimum 7 credit hours).

Choose from the following:

BOT3100 - Plants and Civilization

Credits: 3

Overview of past and current roles plants have in human civilizations and culture. Socio-economic impacts of agriculture, famine, deforestation, wealth allocation, politics and technology will be discussed in relation to specific plants and plant products. Examples include plant fibers, stimulants, drugs and medicinals, foods, spices and other plant-derived resources.

USP 2003-2014 Code U3L

A&S College Core 2015 ASG

Prerequisite: COM1 or equivalent writing course.

- BOT 3150
- BOT 4111
- BOT 4130
- BOT 4330

BOT4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed ENR 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT4730 - Plant Physiological Ecology

Credits: 4

Acquaints advanced students with environmental factors which affect the establishment and growth of plants. Emphasizes adaptive mechanisms.

Cross Listed RNEW 4730.

Dual Listed BOT 5730.

When Offered (Normally offered spring semester)

Prerequisite: one course in physiology and one course in ecology.

BOT4745 - Terrestrial Ecosystem Ecology

Credits: 3

Advanced course examines fundamental ecosystem functions and their relationship to ecosystem structure using a systems approach. We study cycles of carbon, water and nutrients through ecosystem components with an emphasis on interactions among plants, soil, and the atmosphere. Current readings focus on responses of terrestrial ecosystems to global climate change and human disturbance.

Cross Listed ECOL 5745.

Dual Listed BOT 5745.

Prerequisite: 1 course in ecology.

BOT4780 - Biogeochemistry

Credits: 3

A comprehensive treatment of biogeochemistry with emphasis on biogenic elements and biological processes. Reviews occurrence of elements, their behavior in the biosphere, and how their cycles are affected by humans.

Cross Listed ESS 4780.

Dual Listed BOT 5780.

Prerequisite: Consent of instructor.

Total Credits for Botany Minor: 18 Hours

Graduate

Botany, M.S.

Requirements for this degree are 26 semester hours of courses approved by the student's committee plus four hours of BOT5960 - Thesis Research.

Botany, Ph.D.

In addition to the minimum requirements set forth in this Catalog, the Department of Botany may require that a student demonstrate skills in two peripheral areas. This decision is made for individual cases by the major professor and graduate committee. These could include foreign languages, statistics, or computer science. In some cases, additional skills may be required.

Department of Chemistry

204 Physical Sciences Building,

(307) 766-4363

FAX: (307) 766-2807

Web site: www.uwyo.edu/chemistry

Department Head: Debashis Dutta

Professors:

DAVID T. ANDERSON, B.S. George Washington University 1987; Ph.D. Dartmouth College 1993; Professor of Chemistry 2012, 2000.

FRANCO BASILE, B.S. University of Wisconsin-Eau Claire 1986; Ph.D. Purdue University 1992; Professor of Chemistry 2018, 2003.

DEBASHIS DUTTA, B. Tech Indian Institute of Technology 1998; Ph.D. University of Notre Dame 2003; Professor of Chemistry 2017, 2006.

JOHN O. HOBERG, B.A. Jamestown College 1984; Ph.D. Montana State University 1990; Professor of Chemistry 2020, 2004.

TERESA LEHMANN DELLA VOLPE, B.S. Universidad Central de Venezuela 1987; Ph.D. University of Minnesota 1997; Professor of Chemistry 2021, 2008.

BRUCE A. PARKINSON, B.S. Iowa State University 1972; Ph.D. California Institute of Technology 1977; Professor of Chemistry 2008.

JING ZHOU, B.S. Xiamen University 1997; Ph.D. University of South Carolina 2004; Professor of Chemistry 2021, 2007.

Associate Professors:

ELLIOTT HULLEY, B.S. Ursinus College 2005; Ph.D. Cornell University 2011; Associate Professor of Chemistry 2020, 2014.

BRIAN M. LEONARD, B.S. University of Nebraska at Kearney 2003; Ph.D. Texas A&M 2008; Associate Professor of Chemistry 2016, 2010.

Assistant Professors:

CALEB M. HILL, B.S. Jacksonville State University 2009; Ph.D. University of Alabama 2014; Assistant Professor of Chemistry 2016.

LAURA RITA DE SOUSA OLIVEIRA, B.S. New Mexico Institute of Mining and Technology 2010; Ph.D. University of California, Riverside 2017; Assistant Professor of Chemistry 2020.

MICHAEL T. TAYLOR, B.S. Salisbury University 2006; Ph.D. University of Delaware 2013; Assistant Professor of Chemistry 2017.

Research Faculty:

NAVAMONEY ARULSAMY, B.Sc. Madurai-Kamaraj University, India 1982; M.Sc. 1986; Ph.D. University of Hyderabad, India 1991; Senior Research Scientist 2013, 2005.

ALEXANDER GORONCY, B.S. University of Bremen; Ph.D. University of South Carolina; Research Scientist 2015.

Adjunct Professors:

YURI DAHNOVSKY, Ph.D. Institute of Chemical Physics, Moscow 1983; Adjunct Professor of Chemistry 2001.

MAOHONG FAN, Ph.D. Osaka University 2003; Professor in SER and CEAS; Adjunct Professor in Chemistry 2009.

Senior Lecturer:

CARLA DEE BECKETT, B.S. University of Wyoming 1991; M.S. 2007; Senior Lecturer of Chemistry 2012, 2011.

RACHEL WATSON, Senior Lecturer in Chemistry

Assistant Lecturers:

KUI CHEN, B.Sc. Xiamen University 1997; Ph.D. University of South Carolina 2004; Assistant Lecturer of Chemistry 2019.

GINKA S. KUBELKA, M.S. University of Wuerzburg, Germany 2010; Ph.D. University of Wyoming 2015. Assistant Lecturer of Chemistry 2016.

Professors Emeritus:

Vernon Archer, Keith T. Carron, Robert Corcoran, Clyde Edmiston, Anthony Guzzo, Suzanne Harris, Robert Hurtubise, David Jaeger, E.G. Meyer, Dean M. Roddick, Edward Clennan.

Senior Lecturer Emeritus:

Patricia A. Goodson

Chemistry is one of the fundamental physical sciences dealing with the structure and properties of matter, along with changes that matter undergoes. Chemistry's scope encompasses all substances, living and non-living. Its study and practice include (1) the theoretical and experimental aspects of chemical bonding and structure using computational, spectroscopic, and diffraction techniques; (2) the laboratory synthesis from simple starting materials of desirable compounds in the inorganic, organic and biological classes; and (3) the total analysis of complex mixtures using modern spectroscopic and electrochemical methods. Since we live in a material world, applications of chemical knowledge influence most areas of human endeavor: scientific, economic, political and social. Many of the advances in the areas of new materials, medicines, biotechnology, food production, new energy sources and semiconductor technology associated with the "computer revolution" are based on chemistry and chemical principles. Some understanding of these chemical principles should be part of every educated person's knowledge.

Because of the broad scope of this discipline, the Department of Chemistry offers a variety of courses and programs. These programs meet the needs of students planning professional careers in chemistry and those wishing to major in chemistry for other objectives. In particular, chemistry is a traditional pre-professional major for students interested in medicine and dentistry. Specific courses are offered to serve other major areas and as part of University Studies and A&S core requirements.

Students who have taken an AP examination and have received a score of 4 or 5 may receive credit for CHEM 1020 and CHEM 1030.

Undergraduate Minor

A minor is offered in the Department of Chemistry. Further information may be found at the web site www.uwyo.edu/chemistry.

Graduate Study

The Department of Chemistry offers programs leading to the degrees of master of science and doctor of philosophy chemistry. The master's degree is offered mainly under Plan A with Plan B reserved for special circumstances.

The department also participates in the preparation of students for the degrees of master of science in natural science and master of science in teaching (M.S.T.), which are designed to improve the competence of those engaged in science teaching.

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this *Catalog*, the Department of Chemistry requires that a student have taken the following undergraduate courses: one year of general chemistry; one semester/quarter of quantitative analysis; one year of organic chemistry plus laboratory; one year of physical chemistry plus laboratory; one year of

physics; and mathematics through multivariable calculus. As appropriate, one or more of these course requirements may be waived at the discretion of the department.

Major

Chemistry, B.A.

The Bachelor of Arts program (B.A.) is designed to provide a solid foundation in chemistry for those pursuing careers that would benefit from chemical expertise.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Chemistry** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Plan 1

(32 hours of chemistry)

Course Requirements

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

- **Additional USP requirements** Credits: 21
- **Additional A&S core requirements** Credits: 6
- **Electives** Credits: 45

Basic Chemistry: 26 Hours

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical

theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

OR

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

Additional Upper-Level Chemistry: 6 Hours

(Including one of the following)

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4530 - Physical Chemistry Laboratory II

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with emphasis on thermodynamics and kinetics.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4508 or concurrent enrollment.

PHYS: 8 Hours

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Minimum Total: 120 Hours

Additional Requirements

The Plan 1 B.S. degree requires at least 38 hours.

The Plan 2 B.S. requires 46 hours of chemistry courses.

Since the chemistry required in the first two years of all programs is the same, students interested in pursuing a chemistry major can elect any program initially. Discussions with a departmental adviser will allow students to choose the most appropriate major for their career objectives. In general, students planning graduate work in chemistry should elect one of the B.S. programs.

The B.A. program has a more liberal content with additional electives. It would support careers in business, law and advanced study in areas needing a strong chemistry background such as toxicology or forensic science.

A B.A. is suitable for students in the College of Education who wish to obtain an A&S degree, and may also be appropriate for some premedical tracks.

The Plan 2 (CACCS) program is designed to meet standards set by the American Chemical Society (ACS). A student who completes the Plan 2 B.S. program will be certified by the Department of Chemistry to the ACS as having met the specific ACS requirements for undergraduate professional training in chemistry.

Students must obtain a grade of C- or higher in each of the chemistry, physics or math courses specifically required for their degree.

The department offers both, B.A. and B.S. degree programs. The B.A. degree includes a minimum of 32 hours of chemistry.

The Bachelor of Arts program (B.A.) is designed to provide a solid foundation in chemistry for those pursuing careers that would benefit from chemical expertise.

Chemistry, B.S.

The Bachelor of Science program (B.S.) provides an intensive study of chemistry appropriate for those pursuing careers in the chemical sciences.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Chemistry** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Plan 1

(38 hours of chemistry)

Course Requirements

CHEM4930 - Undergraduate Research

Credits: 1-3

Research activities on a chemical project of limited scope or as part of a laboratory project of great scope. A written report is submitted to the department each semester of enrollment.

When Offered (Offered every semester)

Prerequisite: chemistry major and consent of instructor.

- Additional upper-level chemistry Credits: 3

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

- **Additional USP requirements** Credits: 21
- **Additional A&S core requirements** Credits: 6
- **Electives** Credits: 34

Basic Chemistry: 36 Hours

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM4000 - Career Skills

Credits: 3

Max Credit 3

This class will help students develop their communication and job seeking skills for a professional career in chemical sciences. Additionally, it will help build their problem solving, chemical literature, laboratory safety, teamwork and ethical skills that are necessary to succeed in their professional careers in chemical sciences.

When Offered (Normally offered fall semester)

Prerequisite: At least 6 credit hours of Chemistry (CHEM) classes.

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM4508 - Physical Chemistry II

Credits: 3

Second semester of a one year sequence, emphasizes kinetic theory of gasses and non-ideal solutions, chemical equilibrium, electrochemistry, statistical thermodynamics, and reaction kinetics. Uses multivariable calculus and differential equations.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4507.

CHEM4525 - Physical Chemistry Lab I

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with an emphasis on quantum mechanical (spectroscopic) methodologies.

Prerequisite: CHEM 4507 or concurrent enrollment.

CHEM4530 - Physical Chemistry Laboratory II

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with emphasis on thermodynamics and kinetics.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4508 or concurrent enrollment.

PHYS: 8 Hours

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Minimum Total: 120 Hours

Plan 2 (CACS)

(46 hours of chemistry)

Course Requirements

CHEM4930 - Undergraduate Research

Credits: 1-3

Research activities on a chemical project of limited scope or as part of a laboratory project of great scope. A written report is submitted to the department each semester of enrollment.

When Offered (Offered every semester)

Prerequisite: chemistry major and consent of instructor.

- Additional upper-division chemistry Credits: 2-3

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

- **Additional USP requirements** Credits: 21
- **Additional A & S core requirements** Credits: 6
- **Electives** Credits: 4-6

Basic Chemistry: 43-44 Hours

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

OR

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

OR

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

CHEM4000 - Career Skills

Credits: 3

Max Credit 3

This class will help students develop their communication and job seeking skills for a professional career in chemical sciences. Additionally, it will help build their problem solving, chemical literature, laboratory safety, teamwork and ethical skills that are necessary to succeed in their professional careers in chemical sciences.

When Offered (Normally offered fall semester)

Prerequisite: At least 6 credit hours of Chemistry (CHEM) classes.

CHEM4100 - Inorganic Chemistry Laboratory

Credits: 2

Introduces basic inorganic laboratory synthetic techniques and methods of analysis.

When Offered (Offered fall semester)

Prerequisite: CHEM 2440 and CHEM 4110 or concurrent enrollment.

CHEM4110 - Introductory Inorganic Chemistry

Credits: 3

A basic course on theoretical and descriptive inorganic chemistry.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2420, and physical chemistry.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

CHEM4508 - Physical Chemistry II

Credits: 3

Second semester of a one year sequence, emphasizes kinetic theory of gasses and non-ideal solutions, chemical equilibrium, electrochemistry, statistical thermodynamics, and reaction kinetics. Uses multivariable calculus and differential equations.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 4507.

CHEM4525 - Physical Chemistry Lab I

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with an emphasis on quantum mechanical (spectroscopic) methodologies.

Prerequisite: CHEM 4507 or concurrent enrollment.

CHEM4530 - Physical Chemistry Laboratory II

Credits: 1

Illustrates principles of physical chemistry, techniques of measurement, and analysis and interpretation of data with emphasis on thermodynamics and kinetics.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)
Prerequisite: CHEM 4508 or concurrent enrollment.

PHYS: 8 Hours

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Computer Science: 3 Hours

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

CHEM4515 - Applied Mathematics in Physical Chemistry I

Credits: 3

Designed to introduce the necessary mathematical background and essential computer programming tools for students of physical and theoretical chemistry. This includes an introduction into linear algebra, multivariate calculus, differential equations, analysis and modeling of experimental data, use of Matlab software and mathematical analysis of physical chemistry problems.

Dual Listed CHEM 5515.

Prerequisite: MATH 2200 and MATH 2205, CHEM 1020/CHEM 1030 or CHEM 1050/CHEM 1060.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

Program Supporting Courses: 18 Hours

A group of courses selected to further the career objectives of the individual student. These are chosen after consultation with the departmental adviser and must subsequently be approved by the departmental Undergraduate Studies Committee. A grade of C- or higher is required for all program supporting courses.

Minimum Total: 120 Hours

Additional Requirements

The BS in chemistry requires a minimum of 39 hours of chemistry.

1 See the "Prerequisite and MPE Cut Score Reference Chart" on the Math Placement website for the most up-to-date math placement equivalencies: <http://www.uwyo.edu/mathstats/math-placement/>.

2 Students with specific additional interests (e.g. pre-med or another pre-professional program) may wish to move their V/H/C2 courses to alternate semesters so as to take other necessary required courses (e.g. LIFE 1010, MOLB 3000, etc.).

3 Students taking CHEM 4010 or MICR 4321 as their C3 are not required to take CHEM 4000.

Graduate

Chemistry, M.S.

The MS degree introduces students to critical thinking necessary to work independently in industrial settings & prepares you for a professional career. Provides classroom training, presentation & teaching skills along with professional development

Plan A (Thesis)

In addition to fulfilling the minimum university requirements, a student must take the Career Skills course (CHEM 5000) plus one 3 hour course in each of three of the four areas (inorganic, analytical, organic, and physical), excluding special topics and research courses. These courses must be graduate courses, 5000 and above.

One departmental seminar is required to be presented on the thesis research.

Take 9 Credits

A student may also take 9 credits of any combination of

CHEM5190 - Research in Inorganic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4110/5110.

CHEM5290 - Research in Analytical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 2230, CHEM 4507.

CHEM5390 - Research in Organic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 5320.

CHEM5590 - Research in Physical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4507.

CHEM5790 - Research in Biological Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: consent of instructor.

Additional Requirements

The M.S. committee consists of the student's major professor and two other members. The M.S. Committee is responsible for advising the candidate concerning course work and research. The M.S. Committee is also responsible for the final examination of the candidate. In addition to a thesis, the M.S. candidate is also required to present a departmental seminar on the thesis topic.

A student must take the Career Skills course (CHEM 5000) plus one three-hour course in each of three of the four areas (inorganic, analytical, organic, and physical), excluding special topics and research courses. These courses must be graduate courses, 5000 and above. A student may also take nine credits of any combination of CHEM 5190, 5290, 5390, 5590, or 5790. One departmental seminar is required on the thesis research.

A student in a M.S. program who is in good standing with a grade point average equal to a B or greater may petition to transfer into the Ph.D. program upon approval of his/her M.S. committee and recommendation of the Graduate Committee.

Chemistry, Ph.D.

Our Ph.D. program is a research degree in advanced chemistry that prepares our students for careers in academia or as leaders in industry. A Master's degree is not required; students may enter directly into the Ph.D. program.

Students May Also Take

A student may also take 12 credits of any combination of

CHEM5190 - Research in Inorganic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4110/5110.

CHEM5290 - Research in Analytical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 2230, CHEM 4507.

CHEM5390 - Research in Organic Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 5320.

CHEM5590 - Research in Physical Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: CHEM 4507.

CHEM5790 - Research in Biological Chemistry

Credits: 1-3
Max Credit (Max. 12)

Prerequisite: consent of instructor.

Area Selected as a Major

In the area selected as a major, the student will take the following as a minimum:

Analytical

CHEM5250 - Advanced Chemical Instrumentation

Credits: 3

Introduces chemistry students to the basic elements of electronics. Specific topics include networks, passive and active filters, digital electronics, logic gates, counters, flip-flops, and converters. Second half of course introduces students to experimental design, pattern recognition, factorial analysis, and multivariate statistical methods.

Prerequisite: CHEM 4230 or its equivalent.

- plus 9 hours of graduate level analytical courses

Inorganic

- 12 hours of graduate level inorganic courses

Organic

CHEM5320 - Spectroscopic Methods of Structure Determination

Credits: 3

Provides theoretical and practical treatment of spectroscopic methods for application in research. Topics include ultraviolet, infrared, and nuclear magnetic resonance spectroscopy and mass spectrometry.

Prerequisite: CHEM 2440, CHEM 4507.

CHEM5330 - Advanced Organic Chemistry

Credits: 3

Treatment of organic chemistry from the viewpoints of structure and mechanism with emphasis on structural theory of bonding, stereochemistry and the general classes of organic reactions.

Prerequisite: CHEM 2440 and CHEM 4507.

CHEM5340 - Synthetic Methods in Organic Chemistry

Credits: 3

Surveys and applies the important synthetic methods of organic chemistry with particular attention to recent developments.

Prerequisite: CHEM 5330.

- CHEM 5350

Physical

- any three graduate level physical chemistry courses

Additional Requirements

In addition to fulfilling the minimum university requirements, a student must take the Career Skills course (CHEM 5000) plus one 3 hour graduate course (5000 and above) in each of the four areas (inorganic, analytical, organic, and physical), excluding special topics, tool courses CHEM 5130, CHEM 5320, CHEM 5760, and research courses.

A student may also take 12 credits of any combination of CHEM 5190, 5290, 5390, 5590, or 5790.

Students must obtain satisfactory performance on a series of written major field cumulative examinations, including special topics.

Students must obtain satisfactory performance on a preliminary examination, part written and part oral.

Students must present a seminar based on the dissertation research. Students must also obtain one additional credit of 5000 by presenting a divisional or departmental seminar or an oral presentation at a regional or national research meeting. In addition, students must make one presentation at the annual University of Wyoming Graduate School Symposium.

Department of Communication and Journalism

223 Ross Hall, (307) 766-3122

FAX: (307) 766-5293

Web site: www.uwyo.edu/COJO

Department Chair: Cindy Price Schultz

Professor:

CHIA FANG (SANDY) HSU, B.A. Chinese Culture University 1995; M.A. Washington State University 1997; Ph.D. Washington State University 2002; Associate Professor of Communication and Journalism 2009, 2003.

Associate Professors:

KRISTEN D. LANDREVILLE, B.S. University of Florida 2004; M.A. 2006; Ph.D. Ohio State University 2010; Associate Professor of Communication and Journalism 2017, 2010.

LI LI, B.A. Hebei Normal University 2001; M.A. China University of Mining and Technology 2004; M.A. Ohio University 2009; Ph.D. 2012; Associate Professor of Communication and Journalism 2019, 2012.

CINDY J. PRICE SCHULTZ, B.A. University of Sioux Falls 1989; M.S. South Dakota State University 1992; Ph.D. Southern Illinois University 2000; Associate Professor of Communication and Journalism 2005, 1999.

Assistant Professor:

KATHRYN (KAATIE) COOPER, B.S. Trinity University 2008; M.A. Ohio State University 2013; Ph.D. 2018; Assistant Professor of Communication and Journalism 2019.

Instructor:

SHANE EPPING, B.A. University of Chicago; M.A. Washington University, St.Louis; M.A. University of Missouri

Senior Lecturers:

BEAU BINGHAM, B.S. Idaho State University 2000; M.A. New Mexico State University 2002; Senior Lecturer of Communication and Journalism 2007, 2003.

JUSTIN STEWART, B.A. University of Wyoming 2003; M.A. 2005; Senior Lecturer of Communication and Journalism 2017, 2005.

Assistant Lecturers:

MATTHEW LIU, B.A. University of Mary Washington 2009; M.A. Wake Forest University 2014; Assistant Lecturer of Communication and Journalism 2019.

MITZI STEWART, B.A. University of Wyoming 2007; M.A. 2015; Assistant Lecturer of Communication and Journalism 2019.

Emeriti:

Michael R. Brown, B. Wayne Callaway, William C. Donaghy, George A. Gladney, John W. Ravage, Kenneth L. Smith

The Department of Communication and Journalism provides a broad range of professional and research courses, offering a sound interdisciplinary academic program for students who plan careers in communication or media. Courses are comprised of writing, speaking and analyzing messages; forms of interpersonal communication; media effects and audiences' interpretations of media messages and images. Degrees are granted in communication and journalism with academic specialties in each of the degree areas. Students are given academic preparation in communication skills (media writing and public speaking), coupled with opportunities for professional experience in their majors. The department also offers minors in public relations, communication, journalism, and marketing communication.

Facilities and Research Activities

The department encourages majors to work actively in professional opportunities. The department offers unique experience for students with the student newspaper, *The Branding Iron*.

Oral Communication Center, Ross Hall 442. A resource for the entire university community. The lab is open for anyone required to present material orally. Lab instructors offer assistance at any stage in the process—from topic selection, purpose statements and gathering materials—to organizing, outlining and rehearsal. They can help alleviate speech anxiety that may prevent or inhibit some individuals from achieving their overall academic or career goals. Clients can have their presentations recorded for critical input and evaluation as well as for portfolio or interview applications.

Debate. The department conducts a nationally recognized program of Cross Examination Debate Association (CEDA) and has a British Parliament team. Teams and individuals representing the university attend national intercollegiate tournaments each year. Participation in the forensics program is open to all University of Wyoming students on a credit (COJO 2099) or non-credit basis.

Laboratories. The department has computer laboratories that support the professional, academic and research programs. These include a computer lab and digital production equipment.

Research. The department encourages undergraduate and graduate research. Faculty and students participate in research projects in social, cultural and political aspects related to media, interpersonal and organizational processes.

Internships. Journalism majors are required to complete internships in their field. Communication majors are encouraged to complete internships in their field. In addition to working with the *Branding Iron*, students can complete internships with newspapers; advertising and public relations agencies; non-profit organizations; businesses, professional and university sports organizations; governmental agencies; and many others. *Note:* a maximum of 6 hours in COJO 3480 and COJO 4990 count as fulfillment of the requirements for a major. Up to 12 hours will count toward graduation as upper-division hours.

Student Organizations

Professional Organizations. The department has a chapter of Lambda Pi Eta, communication honorary.

Student Activity. Within the department, student representatives participate on faculty committees where they assist in forming policies of the department.

The Branding Iron. The daily campus newspaper is independently managed by students at UW. It provides professional experiences for reporting, editorial, photojournalism, publication design and advertising.

The Owen Wister Review. The literary and arts magazine is independently managed and produced by university students, it features poetry, short stories, essays, photography and artwork.

Frontiers Magazine. The magazine is independently managed by UW students. Containing general interest content, the publication offers students opportunities to improve their professional skills in feature writing, in-depth reporting, photography, layout, design, advertising and marketing. Like the *Branding Iron* and *Owen Wister Review*, *Frontiers* is published under the auspices of UW Student Publications.

Scholarships and Awards

The department has several scholarships available to qualified students. Most are managed by Student Financial Aid.

Undergraduate Programs

The department offers courses leading to baccalaureate degrees in communication and journalism, as well as being an instrumental part of the Agricultural Communications degree. If a student wishes to double major in any of these degrees, only six credits will double count for each major.

Students majoring in the department must earn a grade of C or better in departmental required courses. Students may not take a course for S/U credit to satisfy requirements of the major.

Minors

The department offers minors in communication, journalism, marketing communication, and public relations. All minors must have a 2.00 minimum in minor classes. If a student is a communication, journalism or Agricultural Communications major, only six credits can double count for the major and the minor.

Graduate Study

The Department of Communication and Journalism offers graduate work leading to the master of arts degree in communication (either thesis or non-thesis) with emphasis on human communication or media communication.

The program offers coursework and study in rhetorical, critical/cultural, and social scientific perspectives and methodologies. The program is designed to be flexible such that students can examine questions that relate to their specific interests in human communication and/or mediated communication. Areas of interest include but are not limited to 1) communication processes in media (e.g., journalism, social media, advertising, public relations) about various issues such as politics, race and ethnicity, science, health, law and ethics, and international relations; 2) communication processes in human relationships (e.g., in interpersonal, small group, and organizational settings) about various issues such as culture, diversity, education, technology, science, and politics; and 3) communication as an agent of stability and change in diverse social systems.

Program Specific Admission Requirements

A cumulative minimum grade point average of 3.000 (A=4.000) on previous coursework is required for full admission.

The GRE is not required for admission to the graduate program. However, anyone who wants to be considered for a graduate assistantship in the department must take the GRE.

For international graduate students, the minimum acceptable TOEFL score is 540 (76 iBT). The minimum acceptable IELTS score is 6.5. International students must also provide proof of financial support (see UW Admissions for more details).

All graduate student applications, both domestic and international, must provide a writing sample of their work, whether that is a research paper, media publication, or another example of scholarly work. Please contact the director of graduate studies with any questions about the writing sample.

Major

Communication, B.A.

Communication is a liberal arts degree relevant to a variety of careers in community relations, public relations, politics, administration, law, sales management and many other fields.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Departmental Core Courses

In addition to the university studies requirements listed in this Catalog, all students majoring in communication and journalism must take the following required courses:

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Required Courses

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3040 - Advanced Communication Theory

Credits: 3

Considers nature of human communication theories. Analyzes problems in developing communication theory based on current social science methods.

Prerequisite: COMM 1000 and COMM 1040.

- Electives Credits: 15 (At least 12 elective hours must be at the 3000-level or higher of COJO courses.) The other three hours may be lower or upper division in COJO/COMM.

College of Arts and Science Requirements

- A&S U.S. Diveristy (ASD) Credits: 3
- A&S Global Awareness (ASG) Credits: 3

Additional Program Requirements

- Physical and Natural World Credits: 6-8 (PN)
- **OR**
- Quantitative Reasoning Credits: 6-8 (Q)

Communication, B.S.

Communication is a liberal arts degree relevant to a variety of careers in community relations, public relations, politics, administration, law, sales management and many other fields.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Departmental Core Courses

In addition to the university studies requirements listed in this Catalog, all students majoring in communication and journalism must take the following required courses:

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COJO3070 - Communication Research

Credits: 3

Focuses on problems in communication and mass communication research. Specifically studies and applies language of science, basic concepts of communication, mass communication research, types and limitations of empirical research, as well as measurement procedures and analysis.

Prerequisite: COMM 1000 or COMM 1040 and STAT 2050 or STAT 2070.

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

Required Courses

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3040 - Advanced Communication Theory

Credits: 3

Considers nature of human communication theories. Analyzes problems in developing communication theory based on current social science methods.

Prerequisite: COMM 1000 and COMM 1040.

- Electives Credits: 15 (At least 12 elective hours must be at the 3000-level or higher of COJO courses.) The other three hours may be lower or upper division in COJO/COMM.

College of Arts and Sciences Requirements

- A&S U.S. Diversity (ASD) Credits: 3
- A&S Global Awareness (ASG) Credits: 3

Additional Program Requirements

- Physical and Natural World Credits: 6-8 (PN)
OR
- Quantitative Reasoning Credits: 6-8 (Q)

Journalism, B.A.

The journalism major is designed to prepare students for careers as reporters, editors and writers with newspapers, news services, magazines, public information, public relations, advertising, and many other fields.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

- Departmental Core Courses Credits: 30

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

- Elective Credits: 15 (At least 9 hours must be from the list of journalism courses.) Three hours need to be upper division in COJO. The other three hours can be upper or lower division in COJO/COMM.

Departmental Core Courses

In addition to the university studies requirements listed in this catalog, all students majoring in communication and journalism must take the following required courses:

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and

magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COJO3070 - Communication Research

Credits: 3

Focuses on problems in communication and mass communication research. Specifically studies and applies language of science, basic concepts of communication, mass communication research, types and limitations of empirical research, as well as measurement procedures and analysis.

Prerequisite: COMM 1000 or COMM 1040 and STAT 2050 or STAT 2070.

LANG1010 - First Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

LANG1020 - Second Semester in (TOPIC)

Credits: 1-4

Max Credit (Max. 12)

Prerequisite: LANG 1010.

College of Arts and Sciences Requirements

- A&S U.S. Diversity (ASD) Credits: 3
- A&S Global Awareness (ASG) Credits: 3

Additional Program Requirements

- Human Culture Credits: 6 (H)

Minor

Communication Minor

Required: 12 Hours

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3040 - Advanced Communication Theory

Credits: 3

Considers nature of human communication theories. Analyzes problems in developing communication theory based on current social science methods.

Prerequisite: COMM 1000 and COMM 1040.

Electives: 6 Hours

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

COJO3190 - Cross-Cultural Communication

Credits: 3

Studies human communication processes within the context of various cultures and subcultures. Opportunity for field study of the effect of culture on communication behavior.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: COMM 1040 and junior standing.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3520 - Communication Technology and Society

Credits: 3

Studies role of communication technology in functioning of society. Examines history of effects on personal growth, self-concept, world view, creative thinking, personal relationships and social processes.

Prerequisite: COMM 1000 or COMM 1040.

COJO3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed POLS 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

COJO3900 - Family Communication

Credits: 3

This course will assist students in a study of the concept of family from a communication perspective. The goals of the course include:

Prerequisite: COMM 1040.

COJO4020 - Mass Media and Society

Credits: 3

Studies ethical and related problems of mass communication from contemporary and historical viewpoints. Critical analysis of the performance of the mass media.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4030 - Advanced Interpersonal Communication

Credits: 3

Studies research and theory in interpersonal relationships; formation and maintenance of friendships; marriages; and group relationships.

Prerequisite: COMM 1040 and 6 hours in the department.

COJO4050 - Communication and Conflict

Credits: 3

Studies research and theory concerning communication in conflict development and management. Examines forms of conflict, including occurrences in interpersonal, group, organizational and cultural contexts.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 4061

Dual Listed COJO 5061

USP 2015 Code U5C3

Prerequisite: COMM 1040 and junior standing.

COJO4140 - Nonverbal Communication Studies

Credits: 3

Critical analysis of current studies in the area of nonverbal communication. Students are required to complete an independent study of some aspect of nonverbal communication relevant to interests.

Dual Listed COJO 5140.

Prerequisite: junior standing.

COJO4250 - Advanced Organizational Communication

Credits: 3

Studies communication processes in political, educational, industrial, medical and nonprofit organizations. Emphasizes in-depth analysis of theories and methods of organizational research and practice.

COJO4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 4260.

Dual Listed COJO 4260.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

COJO4620 - Intergroup Communication

Credits: 3

The course will provide an overview of theory and research on intergroup relations to demonstrate how communication both affects and reflects our social group memberships. The objective is to provide students with the theoretical foundation to view various contexts of communication through an "intergroup lens. "

Dual Listed COJO 5620.

Prerequisite: COMM 1000 or COJO 1400.

COJO4640 - Communication Apprehension/ Competence

Credits: 3

This course examines theoretical explanations, research findings, and interventions. Students are required to develop research projects aimed at helping people cope with communication fear or anxiety in various contexts.

Dual Listed COJO 5640.

Prerequisite: COMM 1000 or COMM 1040.

COJO4210 - Special Topics in Communication

Credits: 1-3

Intensive study of such special problems and topics in human communication processes as gender relations, power dynamics, family and political communication. Content varies.

Dual Listed COJO 5210.

Prerequisite: COMM 1040 and 9 hours in the department.

Total: 18 Hours

Journalism Minor

Required Courses: 9 Hours

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

Elective Courses: 9 Hours

COMM2400 - Introduction to Photography

Credits: 3

Basic course in still photography. Includes classroom demonstrations in techniques of camera use, composition, computer software, and use of photographs, especially for communication and journalism applications.

USP 2003-2014 Code U3CA

Former Course Number COJO 2400

COJO3000 - History of American Journalism

Credits: 3

Presents history and development of American journalism from colonial times to present, emphasizing 20th century.

Prerequisite: COMM 1000.

COJO3100 - Public Affairs Reporting

Credits: 3

Practices in public affairs reporting, emphasizing local and state political organization as foundation for such reporting. Specialized reporting fields. News analysis.

Prerequisite: COMM 2100.

COJO3200 - Graphics of Communication

Credits: 3

Combines editing and design. Studies evaluation, selection and editing of magazine and newspaper news copy. Practice in publication design, including headline writing, printing methods, page layout and other display techniques.

USP 2003-2014 Code U3CA

Prerequisite: COMM 1000.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed POLS 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

COJO4020 - Mass Media and Society

Credits: 3

Studies ethical and related problems of mass communication from contemporary and historical viewpoints. Critical analysis of the performance of the mass media.

Prerequisite: COMM 1000 or COMM 1040 and 6 hours in the department.

COJO4040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 5040.

Prerequisite: 9 hours of COJO coursework.

COJO4200 - Visual Communication

Credits: 3

The purpose of this course is to combine visual communication theory and application in order to enhance visual literacy and practical skills. Content includes analyzing visual messages, developing and producing visual messages, and understanding how audiences process and are affected by visual messages.

Dual Listed COJO 5200.

Prerequisite: 9 hours of COJO coursework.

COJO4230 - Special Topics in Mass Media

Credits: 1-3

Intensive study of problems and topics specific to the mass media, including print, broadcast, advertising, public relations, and the Internet. Course content varies and may include historical, legal, ethical, political, sociocultural, economic, and theoretical perspectives.

Dual Listed COJO 5230.

Former Course Number [4910]

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4233 - Race, Gender, Ethnicity in the Media

Credits: 3

Examine the role mass media plays in the Black community and other racial, ethnic, gendered, and socioeconomic communities. Students will develop a critical understanding of the way the mass media uses stereotypes and prejudice to influence society's views about ethnic minorities and women in contemporary United States society.

Cross Listed AAST 4233 and GWST 4233.

Dual Listed COJO 5233.

USP 2003-2014 Code U3D, U3WC

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: 3 credit hours in AAST, COJO, or WMST, WB/COM2, and junior standing.

COJO4400 - Photojournalism

Credits: 3

Studies and intensively practices reporting news and features photographically, plus essentials of advertising photography. Includes advanced camera and darkroom techniques and photo editing. Two one-hour lectures and one two-hour laboratory weekly.

Prerequisite: COMM 2400.

COJO4530 - Web Design

Credits: 3

Addresses the theory and logistics of web design and online interactivity. Students will create and maintain a professional portfolio website that showcases their communication and design talents. It is applicable to journalism, public relations, advertising, marketing, photography, and any other media-related career path that uses new media.

Dual Listed COJO 5530.

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed ENR 4700.

Dual Listed COJO 5700.

Prerequisite: COMM 1000 or ENR 1200 or ENR 1500 or ENR 2000.

Total: 18 Hours

Marketing Communication Minor

The marketing communication minor is designed for College of Business and communication and journalism majors. Other majors are not recommended for this minor. For questions regarding this, please contact the minor supervisor.

Required for all Minors

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and

quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

COJO3300 - Advertising in the Media

Credits: 3

Studies fundamentals of copywriting in mediated communication. Provides information about the psychology of advertising, advertising appeals, strategy, and structure of ads and other marketing materials. Includes exercises in basic principles of copywriting for print, electronic and digital media.

Prerequisite: COMM 2100.

COJO3310 - Public Relations

Credits: 3

Studies how organizations can improve their relationships with their publics. Explores public opinion and how to research audiences. Explains different skills needed in the field, including its relationship to advertising and marketing.

Prerequisite: COMM 2100.

Emphasis

COJO Emphasis

(to be taken by non-COJO majors):

Choose Three Courses from the Following: 9 Hours

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COMM2400 - Introduction to Photography

Credits: 3

Basic course in still photography. Includes classroom demonstrations in techniques of camera use, composition, computer software, and use of photographs, especially for communication and journalism applications.

USP 2003-2014 Code U3CA

Former Course Number COJO 2400

COJO3200 - Graphics of Communication

Credits: 3

Combines editing and design. Studies evaluation, selection and editing of magazine and newspaper news copy. Practice in publication design, including headline writing, printing methods, page layout and other display techniques.

USP 2003-2014 Code U3CA

Prerequisite: COMM 1000.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO4040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 5040.

Prerequisite: 9 hours of COJO coursework.

COJO4310 - Public Relations Techniques

Credits: 3

Practical application of public relations writing, planning and program implementation. Includes exercises in writing news releases, structuring news conferences and writing preliminary and formal public relations strategies. The plans also incorporate advertising and marketing segments for external publics, newsletter design, editing and interpersonal relations.

Prerequisite: COJO 3310.

Marketing Emphasis

(to be taken by non-College of Business majors):

Choose Three Courses from the Following: 9 Hours

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4230 - Integrated Marketing Communication

Credits: 3

Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

MKT4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed INST 4540.

Prerequisite: MKT 2100 and junior class standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

MKT4910 - Topics in Marketing

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Total: 21 Hours

Public Relations Minor

Public relations is a minor that can help you in numerous fields. It is foundational for learning how to promote your organization and build relationships with many different publics to the benefit of all involved.

Required: 12 Hours

COMM1000 - Intro to Mass Media

Credits: 3

An overview of mass media, newspapers, magazines, books, radio, television and films. Studies mass media's historical development, emphasizing understanding techniques of expression and impact on American culture. Surveys content of mass media; considers contemporary problems and trends.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1000

COMM2100 - Media Writing

Credits: 3

This course focuses on an introduction to basic news writing, reporting, editing, interviewing, PR and advertising. Strong writing, deadlines, accuracy, news judgment, ethical practices and sensitivity of our pluralistic society are expected. This course provides skills necessary for various media careers including media writing, PR, marketing and magazine writing.

USP 2003-2014 Code U3WB

Former Course Number COJO 2100

Prerequisite: Prerequisite: WA or COM1

COJO3310 - Public Relations

Credits: 3

Studies how organizations can improve their relationships with their publics. Explores public opinion and how to research audiences. Explains different skills needed in the field, including its relationship to advertising and marketing.

Prerequisite: COMM 2100.

COJO4310 - Public Relations Techniques

Credits: 3

Practical application of public relations writing, planning and program implementation. Includes exercises in writing news releases, structuring news conferences and writing preliminary and formal public relations strategies. The plans also incorporate advertising and marketing segments for external publics, newsletter design, editing and interpersonal relations.

Prerequisite: COJO 3310.

Three of the Following: 9 Hours

COMM2400 - Introduction to Photography

Credits: 3

Basic course in still photography. Includes classroom demonstrations in techniques of camera use, composition, computer software, and use of photographs, especially for communication and journalism applications.

USP 2003-2014 Code U3CA

Former Course Number COJO 2400

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3300 - Advertising in the Media

Credits: 3

Studies fundamentals of copywriting in mediated communication. Provides information about the psychology of advertising, advertising appeals, strategy, and structure of ads and other marketing materials. Includes exercises in basic principles of copywriting for print, electronic and digital media.

Prerequisite: COMM 2100.

COJO3480 - Internship

Credits: 1-12

Review and evaluation of approved internship experience. At the conclusion, students must submit a journal containing work samples and a critique of their performance and internship experience. Maximum of 6 hours of internship credit can be used to fulfill requirements of the major.

Prerequisite: signed contract and 9 hours in the department.

COJO3530 - Multimedia Production

Credits: 3

Intensive introduction to reporting, writing, producing, editing, and managing content for the web. Integration of writing, photography, social media, audio, video, and blogging for both journalism and strategic communication (e. g. , public relations, marketing). Focus on grammar, AP style, deadlines, accuracy, news judgment, ethics, and appreciation of our diverse society.

Prerequisite: COMM 2100.

COJO4040 - Digital Video Production

Credits: 3

This course teaches technical skills and creative principles involved in shooting and editing single camera video. Topics include video technology, design, lighting, audio, continuity, and editing. Students will gain experience planning, shooting, and editing video projects through hands-on exercises and assignments.

Dual Listed COJO 5040.

Prerequisite: 9 hours of COJO coursework.

COJO4200 - Visual Communication

Credits: 3

The purpose of this course is to combine visual communication theory and application in order to enhance visual literacy and practical skills. Content includes analyzing visual messages, developing and producing visual messages, and understanding how audiences process and are affected by visual messages.

Dual Listed COJO 5200.

Prerequisite: 9 hours of COJO coursework.

COJO4230 - Special Topics in Mass Media

Credits: 1-3

Intensive study of problems and topics specific to the mass media, including print, broadcast, advertising, public relations, and the Internet. Course content varies and may include historical, legal, ethical, political, sociocultural, economic, and theoretical perspectives.

Dual Listed COJO 5230.

Former Course Number [4910]

Prerequisite: COMM 1000 and 9 hours in the department.

COJO4250 - Advanced Organizational Communication

Credits: 3

Studies communication processes in political, educational, industrial, medical and nonprofit organizations. Emphasizes in-depth analysis of theories and methods of organizational research and practice.

COJO4530 - Web Design

Credits: 3

Addresses the theory and logistics of web design and online interactivity. Students will create and maintain a professional portfolio website that showcases their communication and design talents. It is applicable to journalism, public relations, advertising, marketing, photography, and any other media-related career path that uses new media.

Dual Listed COJO 5530.

Prerequisite: COMM 1000 and 9 hours in the department.

Total: 21 Hours

Graduate

Communication, M.A.

Administered by the Director of Graduate Studies, the programs are structured to facilitate completion of requirements for the M.A. degree in two years. Deficiency makeups may be required.

Research Thesis: 31 Hours

31 hour program.

Students must complete an accepted research thesis approved by the student's thesis committee.

Students must complete a minimum of 27 credit hours and 4 hours of thesis credit. A minimum of 24 hours must be within the department, with a maximum of 6 hours of independent study, 3 hours of internship credit hours, and 3 hours of 4000-level coursework.

Students Must Complete

COJO5070 - Quantitative Research Methods

Credits: 3

Design, implementation, and examination of research questions in communication with quantitative, social scientific methodologies. Attention primarily on survey design, experimental design, and quantitative content analysis. Analysis of quantitative data with statistical programs. Theories and ethical issues with quantitative research. Design and implement a quantitative study start to finish.

Prerequisite: graduate standing.

COJO5080 - Qualitative Research Methods

Credits: 3

Students study principles and issues associated with qualitative methods used in communication and media research. The class explores methods that use interpersonal communication and observation as tools for data collection and explores methods that analyze media content from a critical and qualitative perspective.

Prerequisite: graduate standing.

COJO5800 - Foundations of Communication and Journalism

Credits: 3

Examines current issues and trends in the various areas of communication and journalism that are represented within the department. Students analyze the historical roots of these issues and trends as a way of understanding the present context and future evolution of communication and journalism scholarship.

Prerequisite: first year of graduate study and acceptance into the COJO graduate program.

One of the Following Theory Courses:

COJO5061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 5061.

Dual Listed COJO 4061.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

COJO5310 - Seminar in Mass Communications

Credits: 3

The study of contemporary, historical, critical and behavioral theories of mass communication processes. Attention primarily on the social functions performed by mediated messages.

Prerequisite: graduate standing.

COJO5540 - Seminar in Communication Theory

Credits: 3

An intensive examination of various metatheoretical assumptions and theoretical models used in the study of communicative dynamics.

Prerequisite: graduate standing.

Professional Project: 33 Hours

33 hour program.

Students must complete an accepted professional project (e.g., documentary film, public relations and marketing plan, website) approved by the student's graduate committee. Students who chose the project option will be required to take 30 credit hours plus 3 hours of Graduate Project credits (for a total of 33 credit hours). A minimum of 27 hours must be taken within the department, with a maximum of 6 hours of independent study, 3 hours of internship credit hours, and 6 hours of 4000-level coursework.

Students Must Complete

COJO5070 - Quantitative Research Methods

Credits: 3

Design, implementation, and examination of research questions in communication with quantitative, social scientific methodologies. Attention primarily on survey design, experimental design, and quantitative content analysis. Analysis of quantitative data with statistical programs. Theories and ethical issues with quantitative research. Design and implement a quantitative study start to finish.

Prerequisite: graduate standing.

COJO5080 - Qualitative Research Methods

Credits: 3

Students study principles and issues associated with qualitative methods used in communication and media research. The class explores methods that use interpersonal communication and observation as tools for data collection and explores methods that analyze media content from a critical and qualitative perspective.

Prerequisite: graduate standing.

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An intensive examination of various metatheoretical assumptions and theoretical models used in the study of communicative dynamics.

Prerequisite: graduate standing.

Department of Criminal Justice and Sociology

Contact Information

**208 Arts and Sciences Building,
(307) 766-2988**

Criminal Justice website: www.uwyo.edu/cj **Sociology website:** www.uwyo.edu/Sociology

Department Head: Eric Wodahl

Mission Statement

The Department of Criminal Justice & Sociology is committed to providing its students with a comprehensive liberal arts education and advancing research of value to Wyoming and our respective fields. We strive to provide a high-quality education to students that will inspire them to become critical thinkers, effective communicators, and lifelong consumers of knowledge. Students will be exposed to diverse perspectives, research, and learning opportunities to prepare them for a variety of professions in the public, private, non-profit, research, service, and academic settings.

Faculty

Professors:

ADRIENNE FRENG, B.A. Black Hills State University 1995; M.A. University of Nebraska 1997; Ph.D. 2001; Professor of Criminal Justice 2007, 2001.

ERIC J. WODAHL, A.A. Eastern Wyoming College 1992; B.A. Chadron State College 1994; M.P.A. University of Wyoming 2003; Ph.D. University of Nebraska at Omaha 2007; Professor of Criminal Justice 2021, 2007.

Associate Professors:

LAUREN McLANE, B.S. Radford University 2002; J.D. Seattle University School of Law 2008; Associate Professor of Law 2021, 2018.

JAMIE SNYDER, B.S. Northern Kentucky University 2005; M.S. University of Cincinnati 2007; Ph.D. 2011; Associate Professor of Criminal Justice 2021, 2018.

JENNIFER TABLER, B.A. University of California Los Angeles 2010; M.S. University of Utah 2013; Ph.D. 2016; Associate Professor of Sociology 2022, 2018.

Assistant Professors:

DANIEL AUERBACH, B.S. St. Lawrence University 2008; M.S. North Carolina State University 2012; Ph.D. University of Utah 2020; Assistant Professor of Sociology 2020.

KATELYN GOLLADAY, B.B.A. Pacific Lutheran University 2012; M.S. Arizona State University 2014; Ph.D. 2018; Assistant Professor of Criminal Justice 2018.

CLAIR WHITE, B.A. Colorado State University 2009; Ph.D. Arizona State University 2015; Assistant Professor of Criminal Justice 2018.

Lecturers:

DANIEL FETSCO, B.A. University of Wyoming 1995; J.D. University of Denver 1998; M.A. Arizona State University 2013; Assistant Lecturer of Criminal Justice 2017.

KAITLYN ROOT, B.A. Western Washington University 2012; M.A. University of Akron 2017; Ph.D. 2020; Assistant Professional Lecturer 2020.

Adjunct Professor:

(See Catalog section following name for academic credentials.)

Robert A. Schuhmann, political science

Professors Emeriti:

David Ashley, Audie Blevins, Gary Hampe, Malcolm Holmes, Quee-Young Kim, Richard Machalek

Degree Programs

Criminal Justice Program

Criminal Justice is a social science that major examines the causes and impacts of crime in society. Graduates go on to careers in fields such as law enforcement, homeland security, probation and parole, and victim services. The Criminal Justice Program offers both undergraduate and graduate degrees, concentrations, and minors (see below for details). Criminal Justice students will be involved in a critical examination of the sources of criminal behavior and the social and political institutions and processes designed to control criminal behavior. We expect that our graduating students will have achieved the following learning outcomes:

1. Accurate knowledge relating to crime in modern society to include the elements of major crime, the extent of crime, and its distribution in society
2. A broad historical and contemporary understanding of the institutions that make up our criminal justice system, the interconnectedness of these institutions, and the related issues of diversity and discrimination
3. An understanding of the major legal principles that serve as the foundation for criminal law and the processing of individuals through the justice system, as well as the difficult situations and ethical dilemmas they will face in the criminal justice field

4. An understanding of and ability to apply basic concepts and theoretical perspectives in criminology and criminal justice
5. Possess the ability to access, comprehend, and critically examine research and policy relevant to the field of criminal justice and criminology, including understanding basic research methodology.

Sociology Program

Sociology is the scientific study of group life and the investigation of the social causes and consequences of human behavior. This discipline occupies a central position in the social sciences and covers the full scope of social behaviors from intimate interactions between individuals to relationships among entire societies. Most importantly, sociology invites students to analyze those features of social existence that we are most likely to take for granted. As such, sociological training imparts critical and analytical skills of great value in virtually all aspects of modern life.

Much of the applied knowledge employed in diverse fields such as communications, social work, business management, family life, health care, urban planning, government, education, religion and the administration of justice derives from basic sociological research. Consequently, sociological training provides an excellent background for occupations connected with these fields. In addition, an undergraduate degree in sociology prepares many students for advanced study in law, education, business, public administration, social work, pastoral work, health care and other professions.

The department provides a comprehensive sociology education both for students who elect to terminate their formal education with the B.A. and for those who plan to pursue advanced degrees in sociology or a related social science. Fundamentally, however, the department aspires to prepare students for informed participation in an increasingly complex world.

Sociology majors with a 3.200 overall GPA, a 3.500 GPA in sociology courses and one 5000-level sociology course graduate with honors in sociology. The department also nominates students for membership in Alpha Kappa Delta, the international honorary society for sociology. Selection is based on academic excellence.

Major

Criminal Justice, B.A.

The B.A. in Criminal Justice is a social science that major examines the causes and impacts of crime in society. Graduates go on to careers in fields such as law enforcement, homeland security, probation and parole, and victim services.

University Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

One PN Course must be a lab science to meet major requirements

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.
POLS 1000 Required for major requirements

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

Arts & Sciences College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Foundation Courses

Students must complete all foundation courses with a grade of C or better.

CRMJ1001 - Introduction to Criminal Justice

Credits: 3
Introduces the American criminal justice system. Examines nature of crime and describes historical and philosophical foundations of law enforcement agencies, criminal courts and correctional institutions. Discusses major issues facing the criminal justice system.

Former Course Number [2120]

CRMJ2210 - Criminal Law

Credits: 3
Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

CRMJ2400 - Criminology

Credits: 3

Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed SOC 2400.

Prerequisite: SOC 1000.

CRMJ2685 - Research Methods

Credits: 3

Max Credit 3

Introduces students to fundamental issues associated with the application of scientific methods to criminal justice problems. Students examine research designs involving ethnographic, archival, historical, and quantitative methods and how they relate to criminal justice issues.

Cross Listed SOC 2685

Former Course Number [3680]**Restricted** Criminal Justice or Sociology majors and minors

Prerequisite: CRMJ 1001 OR SOC 1000

CRMJ3110 - Criminal Courts and Processes

Credits: 3

Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ3350 - Correctional Theory and Practice

Credits: 3

Examines the various components of the correctional complex from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current correctional practice and will be called upon to critically evaluate this research and its implications for correctional policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 2685.

CRMJ3490 - Issues in Policing

Credits: 3

Examines the various components of policing from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current policing practice and will be called upon to critically evaluate this research and its implications for policing policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, CRMJ 2685.

CRMJ4200 - Ethics in Administration of Justice

Credits: 3

Introduces basic ethical theories, emphasizing how ethical theory can be applied to contemporary problems in law enforcement, corrections and adjudication. Students will be called upon to apply these various ethical frameworks to typical moral dilemmas in criminal justice.

Former Course Number [3200]

Prerequisite: CRMJ 3110, CRMJ 3350, and CRMJ 3490.

Criminal Justice Core

Students must complete any 4 courses with a grade of C or better.

CRMJ3250 - Juvenile Delinquency

Credits: 3

Considers the nature of delinquency, including an analysis of treatment methods and the juvenile justice system.

Cross Listed SOC 3250.

Prerequisite: CRMJ 2400/SOC 2400.

CRMJ3400 - Deviant Behavior

Credits: 3

Examines theory and research relevant to understanding deviant behavior in general and specific types of individual and subcultural deviancy.

Cross Listed SOC 3400.

Prerequisite: SOC 1000.

CRMJ3500 - Drugs and the Criminal Justice System

Credits: 3

Focus on drugs and their impact on society. Particular interest is paid to the extent of drug use/abuse in America, and the effects of this problem on the criminal justice system and society as a whole. Strategies for controlling both supply and demand are discussed.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4140 - Criminal Legal Procedure

Credits: 3

Examines the constitutional principles that safeguard the rights and liberties of criminal suspects and constrain police during the investigatory stages of the criminal justice process: arrest; search and seizure; interrogation; undercover operations; pretrial identification; and the exclusionary rule.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ4150 - Community-Based Corrections

Credits: 3

Designed to provide students with an in-depth look at the community corrections complex. It will examine the history and growth of community corrections, the probation system, methods of post-incarceration supervision, intermediate sanctions, and correctional programming and treatment in the community.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3350.

CRMJ4151 - Crime Causation

Credits: 3

Examines the causal mechanisms that produce crime. Theoretical perspectives and empirical research from various disciplines will be evaluated, with particular emphasis placed on social factors that may cause crime. Policy implications of the different perspectives will be discussed.

Dual Listed CRMJ 5151.

Former Course Number [3150]

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400.

CRMJ4260 - Gangs

Credits: 3

Considers the nature and the characteristics of gangs and gang members. The theoretical and empirical evidence regarding the phenomenon of gangs is evaluated. Particular emphasis is placed on the social and policy implications of this social problem.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

CRMJ4280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 5280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

CRMJ4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 / GWST 5540 .

Dual Listed CRMJ 5540.

Prerequisite: ENGL 1080/WMST/GWST 1080 , WMST/GWST 2500 , WMST/SOC 3500, or CRMJ 2400/SOC 2400.

CRMJ4705 - Terrorism

Credits: 3

Examines the concept, causes, incidence, types, consequences of, and responses to terrorism. Highlights the distinction between domestic and international terrorism and expands on the latter within the framework of the global environment.

Cross Listed INST 4705, POLS 4705, and SOC 4705.

Former Course Number [4700]

Prerequisite: 9 hours in CRMJ, INST, POLS, or SOC coursework.

CRMJ4860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 5860.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400 and junior standing.

Supporting Courses

Students must complete one three credit hour course from the list below; or 1 additional course from Criminal Justice Core. Must be completed with a grade of C or better.

CRMJ4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

CRMJ4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed ANTH 4230.

Prerequisite: ANTH 1100.

CRMJ4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed SOC 4350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

CRMJ4370 - Criminal Psychopathology

Credits: 3

Provides an overview of current theories and empirical evidence concerning the relationship between psychological disorder and criminal behavior. Examines various clinical syndromes and their role in biological, social and psychological genesis of crime, as well as the concept of criminal responsibility.

Cross Listed PSYC 4370.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Cross Listed POLS 4600.

When Offered (Normally offered every other year)

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

CRMJ4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed PSYC 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4750 - Criminal Justice Internship

Credits: 1-12

Integrates practical criminal justice experience with academic knowledge. Students participate in specifically assigned duties and observe broader activities of the sponsoring organization, and reflect upon these experiences through written assignments.

Restricted Junior Standing.

Prerequisite: Integrates practical criminal justice experience with academic knowledge. Students participate in specifically assigned duties and observe broader activities of the sponsoring organization, and reflect upon these experiences through written assignments.

CRMJ4760 - Child Maltreatment

Credits: 3

Examines the phenomenon of child abuse and neglect. Includes an overview of attitudes towards and legal definitions of child maltreatment. Explores parental factors, contextual influences and developmental consequences of maltreatment. Relies heavily on current research in child abuse and neglect. Emphasizes policy implications.

Cross Listed PSYC 4760.

Prerequisite: A grade of C or better in 6 hours in psychology.

CRMJ4965 - Research Hours in Criminal Justice

Credits: 1-6

Max Credit (Max. 6)

Provides undergraduates with an opportunity to assist in conducting various aspects of research under the supervision of criminal justice faculty. Specific research activities and requirements will be determined in consultation with the sponsoring faculty person. Credit is only available for research corresponding to enrollment in this course.

Dual Listed CRMJ 5965.

Prerequisite: upper division standing and consent of instructor required in advance.

CRMJ4975 - Readings

Credits: 1-3

Max Credit (Max. 6)

Special programs of readings in criminal justice related subjects will be outlined to meet needs of individual students.

Prerequisite: consent of instructor.

CRMJ4990 - Topics:

Credits: 1-3

Max Credit (Max. 6)

Intended to accommodate various special subjects not offered as regular courses.

Prerequisite: as listed for housing department's topics course.

Foreign Language

Students are required to complete two semesters of the same foreign language with a grade of C or better. Two semesters of American Sign Language (SPPA 2110 & SPPA 2120) will fulfill this requirement.

Statistics

Students are required to complete STAT 2050 or STAT 2070 or SOC 2070 with a grade of C or better.

In Addition

Upper division course work that was completed more than ten years prior to graduation will not meet major requirements.

Criminal Justice, Prelaw Concentration, B.A.

The Pre-Law Concentration consists of diverse courses selected from departments across the university to help prepare students for the challenges of law school and the practice of law.

Verbal Comprehension and Expression: 3 Hours Minimum

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGECE 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

Written Comprehension and Expression: 6 Hours Minimum

Students must complete any two (2) courses with a USP designation of WC or COM3.

Critical Understanding of Human Institutions and Values: 3 Hours Minimum

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

PHIL3120 - Ancient Greek Philosophy

Credits: 3

Surveying some of ancient Greek philosophy. Begins with the works of the earliest extant philosophical thinkers, the pre-Socratics. Remainder of focus on Plato and Aristotle.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3340 - Philosophy in Literature

Credits: 3

Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL

USP 2015 Code U5H

Former Course Number [2340]

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

OR

ENGL3340 - Philosophy in Literature

Credits: 3

Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL 3340.

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3500 - History of Science

Credits: 3

Historic and philosophic survey of the development of science from the ancient Greeks to the 20th century.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

OR

AMST4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed POLS 4051 / ENR 4051 / GEOG 4051 / REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze

political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

OR

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

COJO4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 4260.

Dual Listed COJO 4260.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

OR

AAST4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of

American society.

Cross Listed COJO 4260.

Dual Listed AAST 5260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [AAST 4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

Creative and Analytical Thinking: 3 Hours Minimum

CW2050 - Introduction to Fiction

Credits: 3

Max Credit (Max. 6)

Analyzes forms of fiction and the practice of creative writing at an introductory level.

Prerequisite: WA/COM1.

OR

CW2060 - Introduction to Nonfiction

Credits: 3

Max Credit (Max. 6)

The new nonfiction course will be described according to the emphasis the individual professor chooses to impart. In general, the course will teach students to research, organize, and express themselves in a nonfiction genre, such as essay, memoir, article, biography, autobiography, etc.

Prerequisite: WA/COM1.

OR

CW2080 - Introduction to Poetry

Credits: 3

Max Credit (Max. 6)

Analyzes forms of poetry and practice of creative writing at introductory level.

Prerequisite: WA/COM1.

PHIL3140 - Philosophy of Science

Credits: 3

Systematically examines philosophical problems about the nature of science, its methods of explanation, and the status of its laws.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3420 - Symbolic Logic

Credits: 3

Studies both propositional and quantificational logic, concentrating on methods of proof. Takes up such topics as identity, singular terms, intuitive set theory, and translating English sentences into symbolic notation.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3510 - Introduction to Epistemology

Credits: 3

Systematic introduction to epistemology, the philosophical study of knowledge and justified belief. Aims to answer questions such as: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? How we are to understand the concept of justification?

Prerequisite: 3 hours of philosophy, or consent of instructor.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGECE 5550.

Prerequisite: QA/Q.

OR

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGECE 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

World Cultures and International Institutions: 3 Hours Minimum

INBU1040 - Introduction to International Business

Credits: 3

A broad survey of the field of international business which introduces basic concepts of international business activity and theory and reviews major foreign environmental forces--financial, economic and socioeconomic, physical, sociocultural, political, legal, labor, competitive and distributive.

Cross Listed INST 1040.

A&S College Core 2015 ASG

Former Course Number [BUSN 2000]

OR

INST1040 - Introduction to International Business

Credits: 3

A broad study of the field of international business activity and theory and review major foreign environmental forces

Cross Listed INBU 1040.

Former Course Number [INST 2000]

Prerequisite: ECON 1010.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H
A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

INST2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed POLS 2310.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG

OR

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.
USP 2015 Code U5H
Prerequisite: 3 hours of philosophy, or consent of instructor.

ANTH3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed INST 3420.

Prerequisite: ANTH 1200.

OR

INST3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed ANTH 3420.

Prerequisite: ANTH 1200.

CRMJ4280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 5280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

INST4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed POLS 4340.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

INST4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed SOC 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 2100.

OR

SOC4370 - Global Political Economy

Credits: 3

Examines the interaction of politics and the economy at the global level. Evaluates how political and economic decisions of one country or groups of countries affect institutions and life circumstances in others. Assesses the causes of consequences of globalization as rooted in political economy.

Cross Listed INST 4370.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000 and junior standing or SOC 3000.

Electives: 9 Hours Max (3 Courses)

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

COMM1030 - Interpersonal Communication

Credits: 3

Focuses on interpersonal communication settings or face-to-face interaction. Basic unit of study is, therefore, the dyad. Also includes some work in small group settings.

USP 2015 Code U5H

Former Course Number COJO 1030

OR

COJO 1030 - Interpersonal Communication Credits: 3

COMM1040 - Intro to Communication Theory

Credits: 3

Introduces theories and research of social and behavioral scientists on communication process. Orients beginning communication students by focusing on concepts and issues central to human communication.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number COJO 1040

OR

COJO 1040 - Intro to Communication Theory Credits: 3

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

CNSL2200 - Introduction to Student Leadership

Credits: 2

Acquaints student leaders with skills and competencies necessary for successful service in the university community.

When Offered (Normally offered each fall semester)

USP 2003-2014 Code U3CS, U3L

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

COJO3190 - Cross-Cultural Communication

Credits: 3

Studies human communication processes within the context of various cultures and subcultures. Opportunity for field study of the effect of culture on communication behavior.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Prerequisite: COMM 1040 and junior standing.

PHIL3440 - Philosophy of Mind

Credits: 3

Considers topics in philosophy of mind, including the mind-body problem, emotions, attitudes, perception and psychological explanation.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

CRMJ4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

OR

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

ANTH4340 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology.

Dual Listed ANTH 5340.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

OR

INST4350 - Culture Change

Credits: 3

Examines representative theories of change, factors involved, dynamics of modernization and applied anthropology. Identical to ANTH 4340.

Prerequisite: ANTH 1200.

CNSL4520 - Fundamentals of Counseling (B)

Credits: 3

Students learn some of the skills of counseling and develop an understanding of elementary principles of counseling theory, as well as a better understanding of themselves in relation to other people.

Dual Listed CNSL 5520.

When Offered (Offered on campus and online all semesters)

Prerequisite: junior standing: 6 hours of education or psychology and graduate standing to receive graduate credit.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

Additional Information

The Department of Criminal Justice offers a Pre-Law Concentration for Criminal Justice majors that consists of courses selected from several departments across the university. These courses were chosen to help prepare students for the challenges of law school and the practice of law. Students electing the Pre-Law Concentration are urged to seek advising early.

The Pre-Law Concentration requires 27 credit hours - 18 of which must be 3000-level or above. All coursework must be completed with a grade of C or better to be counted toward the concentration.

Sociology, B.A.

Sociology is the study of the development, interaction, and behavior of organized human groups. Sociology provides powerful insights into the social processes that shape our lives, the problems we face, and the possibilities we can envision.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Arts & Sciences College Core

D- - Diversity

Credits: 3

A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3

A&S Core: Global Awareness Course

Foundation Courses

Students must complete all Foundation Courses with a grade of C or better.

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, STAT 2070, STAT 4220, STAT 5520.

Cross Listed STAT 2070.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Former Course Number [2000]

Prerequisite: MATH 1000, MATH 1400 or equivalent.

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences.

Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

SOC2685 - Research Methods

Credits: 3

Max Credit 3

Introduces students to fundamental issues associated with the application of scientific methods to social science problems. Students examine research designs involving ethnographic, archival, historical, and quantitative methods and how they relate to social science issues.

Cross Listed CRMJ 2685

Restricted Criminal Justice or Sociology majors and minors

Prerequisite: CRMJ 1001 OR SOC 1000

SOC4715 - Sociological Theory

Credits: 3

Examines the emergence and development of sociological theory in the writings of thinkers such as Marx, Durkheim, and Weber. Explores continuities and discontinuities between the classical period of sociological theory and contemporary schools such as functionalism, conflict theory, neo-Marxian theories, symbolic interactionism, phenomenology, and rational choice/exchange theory.

Dual Listed SOC 5715.

Former Course Number [3700, 3900]

Prerequisite: 9 credit hours of sociology, including SOC 1000.

Core Courses:

Students must complete four courses from the following list with a grade of C or better.

SOC2350 - Race and Ethnic Relations

Credits: 3

Examines social relations among majority and minority groups by devoting particular attention to race and ethnic relations in the U. S. Encompasses sociological approach to this topic, which emphasizes power structures, economic relationships and cultural traditions historically and today. Devotes attention to social psychological issues, such as prejudice, and social structural issues, such as class inequality.

USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: SOC 1000.

SOC3110 - Self and Society

Credits: 3

Considers social behavior at the micro level, emphasizing the influence of society on the individual's thoughts, emotions and behaviors. Topics such as the development of the self over the life course, the self in social interaction, and the role of attitudes and emotions in social interaction are discussed.

Former Course Number [2110]

Prerequisite: SOC 1000 or PSYC 1000.

SOC3140 - Sociology of the Family

Credits: 3

Two major themes of the course are change experienced by the family institution and the centrality of the family in America today. Subjects that are covered include: A brief history of the family in the U. S. , kinship, family structure, mate-selection, marriage, divorce and socialization.

Former Course Number [4100, 4140]

Prerequisite: SOC 1000.

SOC3200 - Sociology of Religion

Credits: 3

Introduces various ways sociologists interpret religion. Explores the nature of relationships between religion and society.

Prerequisite: SOC 1000.

SOC3400 - Deviant Behavior

Credits: 3

Examines theory and research relevant to understanding deviant behavior in general and specific types of individual and subcultural deviancy.

Cross Listed CRMJ 3400.

Former Course Number [4200]

Prerequisite: SOC 1000.

SOC3500 - Sociology of Gender

Credits: 3

Explores gender through a cultural and structural approach. The cultural approach emphasizes the variability in social expectations for men and women across time and place; the structural approach analyzes the effect of social institutions such as family, government, education, and the economy of gender.

A&S College Core 2015 ASD

Prerequisite: SOC 1000.

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

SOC3605 - Sociology of Education

Credits: 3

An introductory overview of the principal areas of inquiry in the field. Students learn relevant theories and concepts, principal methodological approaches as well as important current issues in education. Comparative analysis may focus on historical comparisons, national/ global comparisons, U. S. regional, and/or variant educational systems at the local level.

Prerequisite: SOC 1000.

SOC3640 - Social Inequality

Credits: 3

Focuses on the structure and consequences of unequal access to political, economic and social benefits in U. S. society and the world. This course critically examines institutional arrangements that perpetuate and are supported by inequality and stratification, as well as patterns of social mobility.

A&S College Core 2015 ASD

Former Course Number [4000, 4050]

Prerequisite: SOC 1000.

SOC3880 - Political Sociology

Credits: 3

Study of political theory, political organization, political mobilization, the state, nation-building, national identity, post-nationalism, the relationship between the state and markets, historic formation of the nation-state, and the changing role of the state in a global context.

Prerequisite: SOC 1000.

SOC3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed INST 3910.

A&S College Core 2015 ASG

Former Course Number 4110

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

Elective Courses

Students must complete 9 additional hours of sociology courses with a grade of C or better. Electives may be used either to develop additional expertise in an area of interest or to broaden the student's sociological training.

Minor

Criminal Justice Minor

A minor in criminal justice requires 18 semester hours in criminal justice. All courses must be completed with a grade of C or better.

Required Courses

CRMJ1001 - Introduction to Criminal Justice

Credits: 3

Introduces the American criminal justice system. Examines nature of crime and describes historical and philosophical foundations of law enforcement agencies, criminal courts and correctional institutions. Discusses major issues facing the criminal justice system.

Former Course Number [2120]

CRMJ2210 - Criminal Law

Credits: 3

Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

CRMJ2400 - Criminology

Credits: 3

Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed SOC 2400.

Prerequisite: SOC 1000.

OR

SOC2400 - Criminology

Credits: 3

Generally introduces the nature of crime, statistics on crime, types of criminal behavior and explanations of crime.

Cross Listed CRMJ 2400.

Former Course Number [3300]

Prerequisite: SOC 1000.

CRMJ3110 - Criminal Courts and Processes

Credits: 3

Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ3350 - Correctional Theory and Practice

Credits: 3

Examines the various components of the correctional complex from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current correctional practice and will be called upon to critically evaluate this research and its implications for correctional policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 2685.

CRMJ3490 - Issues in Policing

Credits: 3

Examines the various components of policing from both theoretical and practical frameworks. Students are exposed to the abundance of research that informs current policing practice and will be called upon to critically evaluate this research and its implications for policing policy and practice.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, CRMJ 2685.

Interdisciplinary Pre-Law Minor

The minor requires 18 hours to be completed from among the following courses. Of these 18 hours, 12 must be upper division (3000 or 4000 level). In addition, 12 of the 18 hours must be outside the student's primary major, and none of these courses may be credited toward both the minor and the USP requirement. Complete one course from each of the following categories. All coursework must be completed with a grade of C or better to counted toward the minor.

Language Comprehension & Expression: 3 Hours

COMM1030 - Interpersonal Communication

Credits: 3

Focuses on interpersonal communication settings or face-to-face interaction. Basic unit of study is, therefore, the dyad. Also includes some work in small group settings.

USP 2015 Code U5H

Former Course Number COJO 1030

OR

COJO 1030 - Interpersonal Communication Credits: 3

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

COJO3160 - Theory of Language and Society

Credits: 3

Considers contributions to communication theory from linguistics, sociolinguistics, sociology, social psychology and anthropology to understanding a spoken language.

USP 2003-2014 Code U3WC

Prerequisite: COMM 1040 and 6 additional hours in the department.

COJO4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music and film.

Cross Listed ENGL 4061

Dual Listed COJO 5061

USP 2015 Code U5C3

Prerequisite: COMM 1040 and junior standing.

OR

ENGL4061 - Rhetorical Theory and Criticism

Credits: 3

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music, and film.

Cross Listed COJO 4061.

Dual Listed ENGL 5061.

USP 2015 Code U5C3

Prerequisite: COMM 1040 and COJO 3040 or ENGL 2035.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

Written Comprehension & Expression: 3 Hours

Any course with a USP designation of C3 may be counted in this area. However, no C3 course may be counted twice toward fulfilling this category and the USP C3 requirement or another category within the prelaw minor.

Critical Understanding of Human Institutions & Values: 3 Hours

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3500 - History of Science

Credits: 3

Historic and philosophic survey of the development of science from the ancient Greeks to the 20th century.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

OR

AMST4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed POLS 4051 / ENR 4051 / GEOG 4051 / REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

OR

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

OR

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

POLS4090 - Anglo-American Jurisprudence

Credits: 3

Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 5090.

Prerequisite: 9 hours of political science or philosophy, including POLS 1000.

FCSC4113 - Consumer Issues

Credits: 3

Provides research/ applied understanding of consumer rights/ responsibilities, government/business roles, legislation, advocacy, and redress. Emphasizes introductory consumer law/legal research, critical thinking, self-reflection, and cultural examination. Ethical theories and issues examined within an interdependent world. Meets requirements for certification in family and consumer sciences education. Internship opportunities possible upon successful completion. Companion web site used.

Prerequisite: ECON 1000 or SOC 1000 or PSYC 1000; WB/COM2.

AAST4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/ social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed COJO 4260.

Dual Listed AAST 5260.

When Offered (Offered spring semester of even-numbered years)

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [AAST 4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

OR

COJO4260 - Rhetoric and Social Justice

Credits: 3

Analyzes concepts of ableism, anti-Semitism, heterosexism, racism, sexism, and socioeconomic class through a critical/ social construction framework. It attempts to develop a "working" definition of these concepts by analyzing historical and current conceptualizations and identifying marginalization and disenfranchisement as it is woven in the fabric of American society.

Cross Listed AAST 4260.

Dual Listed COJO 4260.

USP 2003-2014 Code U3D

USP 2015 Code U5C3

A&S College Core 2015 ASD

Former Course Number [4985]

Prerequisite: Minimum of 9 credit hours in AAST or COJO and junior standing.

PHIL4300 - Topics in Ethics

Credits: 3-6
Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 5300.

Prerequisite: 6 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3
Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.

Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

Creative & Analytical Thinking: 3 Hours

CW2050 - Introduction to Fiction

Credits: 3
Max Credit (Max. 6)

Analyzes forms of fiction and the practice of creative writing at an introductory level.

Prerequisite: WA/COM1.

CW2060 - Introduction to Nonfiction

Credits: 3
Max Credit (Max. 6)

The new nonfiction course will be described according to the emphasis the individual professor chooses to impart. In general, the course will teach students to research, organize, and express themselves in a nonfiction genre, such as essay, memoir, article, biography, autobiography, etc.

Prerequisite: WA/COM1.

CW2080 - Introduction to Poetry

Credits: 3
Max Credit (Max. 6)

Analyzes forms of poetry and practice of creative writing at introductory level.

Prerequisite: WA/COM1.

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

PHIL3140 - Philosophy of Science

Credits: 3

Systematically examines philosophical problems about the nature of science, its methods of explanation, and the status of its laws.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3220 - Existentialism and Phenomenology

Credits: 3

Examines fundamental perspectives of existentialist thought, beginning with its roots in Kierkegaard and Nietzsche. Looks at a large variety of existentialist perspectives presented by Sartre, Heidegger, Buber, Jaspers and Camus. Considers the relation of Husserl's phenomenological method to existentialism.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3420 - Symbolic Logic

Credits: 3

Studies both propositional and quantificational logic, concentrating on methods of proof. Takes up such topics as identity, singular terms, intuitive set theory, and translating English sentences into symbolic notation.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3440 - Philosophy of Mind

Credits: 3

Considers topics in philosophy of mind, including the mind-body problem, emotions, attitudes, perception and psychological explanation.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3510 - Introduction to Epistemology

Credits: 3

Systematic introduction to epistemology, the philosophical study of knowledge and justified belief. Aims to answer questions such as: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? How we are to understand the concept of justification?

Prerequisite: 3 hours of philosophy, or consent of instructor.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

OR

CRMJ4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed ANTH 4230.

Prerequisite: ANTH 1100.

PHIL4420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 4420/MATH 4420.

Dual Listed PHIL 5420.

Prerequisite: PHIL 3420 or equivalent.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical

techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

OR

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGEC 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

World Cultures & International Institutions: 3 Hours

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

ANTH2200 - World Culture

Credits: 3

Provides an understanding of cultural behavior of people in various geographical areas of the world. Students read ethnographies, cultural descriptions of societies, written by cultural anthropologists.

When Offered (Normally offered at least once a year)

USP 2003-2014 Code U3G, U3CS

A&S College Core 2015 ASG

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and

theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

ANTH3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed INST 3420.

Prerequisite: ANTH 1200.

OR

INST3420 - The Anthropology of Global Issues

Credits: 3

Using anthropology's long-term, holistic and comparative approaches, the course examines key global issues, e. g. , poverty, war, disease, environmental degradation, and terrorism from an anthropological perspective.

Cross Listed ANTH 3420.

Prerequisite: ANTH 1200.

INST3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed SOC 3910.

When Offered (Offered once a year).

A&S College Core 2015 ASG

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

OR

SOC3910 - Global Sociology

Credits: 3

Global Sociology explores how humans shape and are shaped by globalization processes. Globalization creates inherent risks, such as increased inequality and violence, but also opportunities for greater democracy and a stronger global civil society. This course examines social, cultural, institutional, and economic factors and their effects on societies around the world.

Cross Listed INST 3910.

A&S College Core 2015 ASG

Former Course Number 4110

Prerequisite: SOC 1000 or ANTH 1200 or INST 2350.

CRMJ4280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 5280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and junior standing.

INST4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed POLS 4340.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

Law: 3 Hours

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

CRMJ2210 - Criminal Law

Credits: 3

Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

CRMJ3110 - Criminal Courts and Processes

Credits: 3

Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

NAIS3300 - Federal Indian Law

Credits: 3

Survey of law that applies to individual Indians and tribal governments. In particular, explores the legal relationships among, and relative jurisdictions of federal, tribal, and state governments. Specific topics include civil and criminal jurisdiction, taxation, family law, hunting and fishing, and gaming regulations.

Prerequisite: NAIS 1001 or NAIS 1350.

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

CRMJ4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed POLS 4110.

Prerequisite: POLS 1000, POLS 3100 recommended.

OR

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

CRMJ4140 - Criminal Legal Procedure

Credits: 3

Examines the constitutional principles that safeguard the rights and liberties of criminal suspects and constrain police during the investigatory stages of the criminal justice process: arrest; search and seizure; interrogation; undercover operations; pretrial identification; and the exclusionary rule.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

CRMJ4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 / GWST 5540 .

Dual Listed CRMJ 5540.

Prerequisite: ENGL 1080/WMST/GWST 1080 , WMST/GWST 2500 , WMST/SOC 3500, or CRMJ 2400/SOC 2400.

OR

GWST4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540.

When Offered (Offered every other year)

Prerequisite: ENGL 1080/GWST 1080, WMST/SOC 3500, or CRMJ 2400/SOC 2400 , WMST/GWST 2500

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGECEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

CRMJ4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed PSYC 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

OR

PSYC4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed CRMJ 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

Sociology Minor

Sociology is the study of the development, interaction, and behavior of organized human groups. Sociology provides powerful insights into the social processes that shape our lives, the problems we face, and the possibilities we can envision.

Requirements

The sociology minor requires a total of 18 sociology credits including SOC 1000. At least 9 of these 18 hours must be upper-division sociology credits.

Only grades of C or better can be counted toward the minor. Also, students seeking a minor must have 12 credit hours exclusive to the minor and not counted toward their major.

Graduate

Criminal Justice Concentration within the M.P.A.

The Master of Public Administration Program with Criminal Justice Concentration is a professional degree designed for current and future leaders in the criminal justice field.

Plan B (Non-Thesis)

A criminal justice concentration within the master of public administration program is offered by the Criminal Justice program. Students wishing to enroll in the M.P.A. with criminal justice concentration must first be admitted into the M.P.A program. See M.P.A. program admissions requirements for specific details.

The M.P.A. with criminal justice concentration curriculum consists of 39 credits including: 24 hours of core credit; criminal justice (4) courses; and one additional approved elective course. Students may complete the degree within two years full-time or approximately three-four years part-time. Courses are offered through distance education, which allows students to complete their degree in their community while working full-time.

Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/ electronic class discussion.

Students must maintain a graduate GPA of 3.000.

MPA Required Core Courses

POLS5000 - Survey of Public Administration

Credits: 3

Designed to introduce the beginning graduate student to the study and practice of public administration at all levels of government. Attention is also directed to specific functions and processes such as intergovernmental relations, budgeting, personnel, and regulation.

Prerequisite: graduate status and consent of instructor.

POLS5400 - Public Personnel Management

Credits: 3

Designed to integrate information about the political environment of personnel administration with problem solving exercises in such specific areas as job analysis, affirmative action, and flextime. A number of topics including the evolution of the civil service, the rights and responsibilities of governmental employees, the functions of public personnel management, and collective bargaining processes are also covered.

Prerequisite: POLS 5000.

POLS5410 - Administrative Behavior and Theory of Organization

Credits: 3

An advanced course in the theory of organization and the workings of public agencies.

Prerequisite: POLS 5000.

POLS5440 - Principles and Processes of Government Budgeting

Credits: 3

Analyzes the principles, processes and politics of the budgetary process in the U. S. It examines the various theories of budgetary decision-making, the politics of budgeting and budgetary reforms.

Prerequisite: POLS 5000 and graduate standing.

POLS5480 - Ethics In Government

Credits: 3

The student is introduced to the ethical nature and dilemmas of public administration in American constitutional government. Such topics are addressed as source of ethical obligation, role of loyalty, application of moral philosophy, constitutional theory and ethical obligation, relation of theory and practice, and methods of ethical reflection.

Prerequisite: POLS 5000.

POLS5510 - Public Policy and Program Management

Credits: 3

An overview of governmental policy making processes in the U. S and the uses of applied policy analysis.

Prerequisite: POLS 5000.

POLS5684 - Empirical Analysis for Public Administration

Credits: 3

Designed for students in public administration to train them to make decisions based on empirical evidence in policy and management. Course draws concepts from system analysis, management science, operations research, and social science methodology to provide an understanding of various policy analysis and program management techniques across many applications.

Prerequisite: POLS 5000.

POLS5690 - Capstone in Public Management

Credits: 3

Integrates theories and concepts introduced in core and option-core courses, and emphasizes students' application of them to various administrative settings.

Prerequisite: completion of all other core and option core requirements in the MPA Program.

Criminal Justice Concentration Courses

Required Criminal Justice Concentration Courses

CRMJ5000 - Survey of Criminal Justice

Credits: 3

Provides an overview of criminal justice theory by providing critical evaluation and discussion of research in the criminal justice field. It will emphasize seminal works and review current research concerning the structure, function, operation, interaction of the criminal justice system's primary components, and future trends.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5100 - Public Policy and Crime

Credits: 3

This course is designed to take a multidimensional look at public policy issues related to the prevention and control of crime in the United States. Issues covered include the development, implementation, and evaluation of crime control policy.

Prerequisite: Admission to the MPA Program or consent of instructor.

Elective Criminal Justice Concentration Courses

*Students with little or no administration and/or criminal justice professional experience must enroll in CRMJ 5500 as one of their electives.

(students must select two of the following courses)

CRMJ5151 - Crime Causation

Credits: 3

Examines the causal mechanisms that produce crime. Theoretical perspectives and empirical research from various disciplines will be evaluated, with particular emphasis placed on social factors that may cause crime. Policy implications of the different perspectives will be discussed.

Dual Listed CRMJ 4151.

Prerequisite: graduate standing or consent of instructor.

CRMJ5280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 4280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: graduate standing.

CRMJ5500 - Internship in Criminal Justice

Credits: 3

Educationally-oriented assignments for work in selected criminal justice agencies, with tutorial types of supervision.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 4860.

Prerequisite: graduate standing or consent of the instructor.

Approved Elective Credit

One additional approved MPA elective course is required. For additional options, contact the MPA director.

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS5051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

CNSL5060 - Counseling Ethics and Professional Issues

Credits: 3

Designed to provide students with a philosophical base for making ethical decisions in the professional situations they encounter. In addition, it involves a chance to discuss many specific ethical and professional issues that are commonly encountered in the profession.

Prerequisite: program admission or consent of instructor.

STAT5220 - Advanced Design

Credits: 3

Advanced study of experimental designs, observational designs, and mixed models. Topics include fixed and random effects, factorial, split-plot and repeated measures designs, and hierarchical models. Linear model methodology and Data Science concepts will also be emphasized.

Prerequisite: MATH 5265/STAT 4265/STAT 5265, and at least one of STAT 4015/STAT 5015, STAT 4025/STAT 5025, or STAT 5210.

POLS5420 - Seminar In Public Administration

Credits: 3
Max Credit (Max. 6)

A reading and research course in selected topics in public administration.

Dual Listed POLS 4420.

Prerequisite: POLS 1000 and consent of instructor.

POLS5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 5445.

Dual Listed POLS 4445.

Prerequisite: 9 hours of international studies or social science coursework

POLS5450 - Administrative Regulation

Credits: 3

Significant points of contact between government and business are stressed. Government activities designed to regulate and aid such economic interests as business, labor, agriculture, and consumers are dealt with at length.

Prerequisite: POLS 5000.

POLS5460 - Public Administration and Law

Credits: 3

Focuses on various facets of the relationship between American public administration and law. Emphasis is placed on the emerging body of administrative law as a context for jurisprudential reasoning in administrative decision making.

Prerequisite: POLS 5000.

POLS5465 - Survey of the Nonprofit Sector

Credits: 3

This foundational course is designed to give students of diverse backgrounds a common framework for understanding the nonprofit sector in the United States and globally. Students in this course will identify and interpret key theories, issues, and challenges in the nonprofit world and will consider the implications for practice.

Dual Listed POLS 4465.

Prerequisite: graduate standing.

POLS5500 - Internship in Public Administration

Credits: 1-6
Max Credit (Max. 6)

Educationally-oriented assignments for work in selected public agencies, with tutorial types of supervision.

Prerequisite: consent of instructor.

EDRE5530 - Introduction To Research

Credits: 3
Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

POLS5530 - USCongress

Credits: 3
Analyze aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 4430
Prerequisite: POLS 1000.

POLS5540 - Public Policy Perspectives

Credits: 3
Acquaints students with the underlying structure and dynamics of public policy formulation, implementation, and evaluation at the state, local, and federal levels. Drawing on a number of analytic approaches, the course seeks to understand this complex political phenomenon in the context of the institutions that drive it.

Prerequisite: graduate standing.

POLS5600 - Political Violence

Credits: 3
Examines causes and consequences of violence both among individuals and among nations.

Dual Listed POLS 4600.
Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS5685 - Program Evaluation and Policy Analysis

Credits: 3

Explores techniques for analyzing and evaluating public policy choices and impacts.

Dual Listed POLS 4685.

Prerequisite: STAT 5070 or equivalent and an introductory research methods course in social science or related discipline.

POLS5710 - Topics In Political Science

Credits: 1-3

Max Credit (Max. 9)

Intended to accommodate various specialized subjects not offered as regular courses.

Prerequisite: graduate standing.

POLS5810 - Seminar in Political Philosophy

Credits: 3

Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 4810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

Department of English

126 Hoyt Hall, (307) 766-6452

FAX: (307) 766-3189

Web site: www.uwyo.edu/english

Department Chair: Kelly Kinney

Professors:

SUSAN ARONSTEIN, B.A. Seattle Pacific University 1980; M.Sc. Edinburgh University 1984; Ph.D. Stanford University 1987; Professor of English 2006, 1987.

KENT G. DRUMMOND, B.A. Stanford University 1980; M.B.A. Northwestern University 1982; Ph.D. University of Texas, Austin 1990; Associate Professor of English 2019, 1990.

SUSAN C. FRYE, B.S. Smith College 1974; M.A. University of New Mexico 1981; Ph.D. Stanford University 1986; Professor of English 2001, 1986.

CAROLINE McCracken-Flesher, M.A. University of Edinburgh 1980; M.A. Brown University 1986; Ph.D. 1989; Professor of English 2004, 1989.

Associate Professors:

CAROLYN ANDERSON, B.A. Auckland University 1981; M.A. 1984; Ph.D. Stanford University 1992; Associate Professor of English 2001, 1993.

MICHAEL EDSON, B.A. Virginia Tech University 2003; M.A. University of Delaware 2005; Ph.D. 2011; Associate Professor of English 2020, 2014.

SCOTT HENKEL, B.A. Western Michigan University 1997; M.A. Ohio University 2000; Ph.D. Michigan State University 2007; Associate Professor of English 2018, 2015.

KELLY KINNEY, B.A. Purdue University 1992; M.A. University of Nebraska-Omaha 1996; Ph.D. Ohio University 2005; Associate Professor of English 2015.

MICHAEL KNEVEL, B.A. Creighton University 1995; M.A. 1997; Ph.D. Texas Tech University 2002; Associate Professor of English 2009, 2002.

CLIFFORD J. MARKS, A.B. University of Michigan 1983; M.A. State University of New York, Buffalo 1988; Ph.D. 1992; Associate Professor of English 2000, 1993.

JULIA OBERT, B.A. University of Western Ontario 2004; M.A. University of British Columbia 2006; Ph.D. University of California, Irvine 2011; Associate Professor of English 2016, 2011.

PETER PAROLIN, B.A. University of British Columbia 1988; M.A. University of Pennsylvania 1991; Ph.D. 1997; Associate Professor of English 2003, 1997.

JASON THOMPSON, B.A. Pacific Lutheran University 1996; MFA University of Arizona 2000; Ph.D. 2008; Associate Professor of English 2015, 2008.

ARIELLE ZIBRAK, B.A. University of Rochester 2003; M.A. Boston University 2007; Ph.D. 2013; Assistant Professor of English 2020, 2014.

NANCY SMALL, B.A. Texas A&M University 1992; M.A. 1994; Ph.D. Texas Tech University 2014; Assistant Professor of English and Director of Writing Programs 2017.

Assistant Professors:

JAMES CREEL, B.A. University of Wyoming 2007; M.A. 2011; Ph.D. Texas Christian University 2018; Assistant Lecturer Professor of English 2021.

Senior Lecturers:

PAUL BERGSTRAESSER, B.A. Oberlin College 1989; M.A. Northern Michigan University 2000; Ph.D. University of Illinois, Chicago 2007; Senior Lecturer in English and Creative Writing 2018, 2007.

RICK FISHER, B.A. University of Wyoming 2002; M.A. 2006; Ph.D. 2018; Senior Lecturer in English 2020, 2015, 2011.

APRIL HEANEY, B.A. University of Wyoming 1998; M.A. 2000. Senior Lecturer in English and Creative Writing 2015, 2005.

VAL PEXTON, B.A. Humboldt State University 1986; B.A. University of Wyoming 1998; M.A. 2001; M.F.A. 2008; Senior Lecturer in English and Creative Writing 2018, 2009.

JOYCE STEWART, B.A. Felician College 1994; M.A. Creighton University 1998; Senior Lecturer in English 2018, 2008.

Assistant Lecturers:

ASHLEY M. BURCHETT, B.A. The College at Southeastern 2016; M.A. North Carolina State University 2018; Assistant Lecturer in English 2019.

Study in the English department today emphasizes composition, literature, and rhetoric, creative and expository writing, and the nature and workings of language. Students in the department's programs can learn to read with pleasure and understanding, to write with grace, clarity and force, and to think with greater depth and breadth. With these accomplishments, students are prepared for lives and work in which their power to understand, read, write and communicate will serve themselves and others, some specifically in careers in writing or teaching, some in professions of law, medicine, administration or almost any other field.

Composition, Literature, and Rhetoric are traditions that reach back through the centuries, but these intellectual traditions are continually growing and changing. New theories of language help us reshape understandings of ancient traditions and enhance our lives as critical readers and writers and creative human beings.

Assessment of English Undergraduate Learning

Through an active and ongoing assessment of our program, we have identified the following outcomes that are expected of each student graduating with a Bachelor of Arts in English. We will continue to assess our curriculum to ensure these outcomes are being met:

UW students graduating with a Bachelor of Arts in English will have demonstrated an ability to:

1. Read, interpret, and write about a diverse range of texts in English, for example literature, film, digital media, and popular culture;
2. Understand those texts analytically and critically;
3. Understand those texts on the basis of careful close reading;
4. Understand those texts through past and current literary and rhetorical theory;
5. Understand that those texts are culturally constructed in time, place, and tradition;
6. Understand how those texts inform culture;
7. Participate in the critical and cultural discourses of English;
8. Participate clearly and appropriately through multiple spoken and written forms.

English Honors Program

Requires a 3.500 GPA and a senior honors paper and defense. See the English department web site for information.

Teacher Certification

Students seeking the B.A. in English may also be certified for public school teaching by completing additional requirements set forth by the College of Education, via a concurrent major in English and English Education.

Graduate Study

The M.A. graduate program in English offers three concentrations leading to the master of arts degree: Literary Studies, Composition and Rhetoric, and Public Humanities.

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this *Catalog*, the Department of English requires that students demonstrate by means of an official transcript that they have a solid undergraduate record with course work in English. That said, the department welcomes degrees in English or other disciplines from four-year colleges or universities.

Depending on their undergraduate preparation, some successful applicants may be required to take additional or specific courses toward the English master's degree.

Candidates must submit GRE general test scores, a writing sample, a 500-word statement of purpose, a CV/resume, and three letters of recommendation.

English offers both a campus-based M.A. degree and a low-residency/online M.A. degree. Students should consult the M.A. web site or contact the department for specific admission information and deadlines for both M.A. programs.

Program Specific Graduate Assistantships

Teaching assistantships are available to qualified applicants in the campus-based M.A. degree. Full assistantships carry an annual stipend and a remission of full-time tuition and fees, and require the teaching of one course per term.

Each fall the department conducts a week-long orientation for new teaching assistants and a subsequent series of colloquia for all graduate assistants. Each assistant is assigned an experienced teacher in the department as a mentor, to be available throughout the semester for consultation on teaching and grading techniques.

Major

English, B.A.

Choose from two tracks in English: Literary Studies track or English Studies track. The former focuses on the study of literature and culture, while the latter balances literary study with courses in rhetoric and composition and professional writing.

USP Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

ENGL 1010

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

ENGL 2025

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

ENGL 4999

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Gateway to the English Major - 3 Hours

ENGL2025 - Introduction to English Studies

Credits: 3

This course provides an introduction to English Studies, covering the history of English as an academic field, the options available within it, and possible career paths. Students will also be taught the skills they need to succeed as English majors, including critical reading and writing, and literary and rhetorical analysis.

USP 2015 Code U5C2

Prerequisite: COM1; English major status.

Historical Period - 12 or 15 hours

English Studies Track: 12 hours

Literary Studies Track: 15 hours

English Studies Track students take one of the following six courses.

Literary Studies Track students take two of the following six courses.

ENGL2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of

literature ever to appear in America.

Cross Listed AAST 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2425 - Literatures in English I

Credits: 3

Surveys major figures and literary movements in literatures written in English through 1750.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2430 - Literatures in English II

Credits: 3

Surveys major figures and literary movements in literatures written in English 1750-1865.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2435 - Literatures in English III

Credits: 3

Surveys major figures and literary movements in literatures written in English 1865-present.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

Take three of the following five courses:

ENGL3200 - Topics in: Medieval Literature

Credits: 3
Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3
Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3
Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3
Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3
Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

Expanding the Canon - 6 Hours

A full list of courses that fulfill the Expanding the Canon requirements will be published each semester. Generally speaking, these courses will cover topics related to racial diversity, global literatures, gender, sexuality, or disability studies. ENGL 2340/2350/2360 can be taken either as an Expanding the Canon course OR as an Historical Period course. The Expanding the Canon options are always changing, but will always include the following:

ENGL2340 - Native American Culture and Literature

Credits: 3
Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD
Prerequisite: WA/COM1.

ENGL2345 - American Indians in Hollywood Film

Credits: 3
Examines the ways Hollywood film has constructed various forms of racial identity for American Indians.

Cross Listed NAIS 2345.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD
Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3
Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed AAST 2350.
USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL3330 - Global Shakespeare in Performance

Credits: 3

Max Credit (Max. 12)

Shakespeare's works are constantly being reinterpreted around the globe, because their cultural capital invites many cultures to rebrand Shakespeare as their own. While helping us to see universal connections, recorded re-interpretations provide opportunities for viable cross-cultural analysis, as we explore and compare the hot-button cultural issues addressed through global performance.

A&S College Core 2015 ASG

Prerequisite: COM1.

ENGL3610 - Non-Western Women Writers

Credits: 3

Examines literature written by women in non-western cultures. The geographical region, time period, and genres of literature may vary by semester. Analyzes representations of such topics as family, marriage, sexuality, community, and colonialism as expressed in fiction, drama, literary non-fiction, and/or poetry.

Prerequisite: ENGL 1010 or GWST 1080; junior standing.

ENGL4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 4455.

Dual Listed ENGL 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

ENGL3710 - Gender: Humanities Focus

Credits: 3

Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity, and class.

Cross Listed ART 3710/GWST 3710.

USP 2003-2014 Code U3Ch

USP 2015 Code U5C2

Prerequisite: GWST 1080 or ENGL 1010.

ENGL4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed NAIS 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3

An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed ART 4830/GWST 4830.

Dual Listed ENGL 5830.

USP 2003-2014 Code U3CA

A&S College Core 2015 ASG

Prerequisite: ART 2020, GWST 1080/ENGL 1080.

ENGL4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed AAST 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

ENGL4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed LTST 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: LTST 1100 and WA/COM1.

ENGL4640 - Studies in Emerging Fields and Approaches

Credits: 3

Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in emerging fields or approaches to literature written in English.

A&S College Core 2015 ASG

Prerequisite: six hours of 2000 level literature courses.

- Please note that only ENGL 4640: Postcolonial Literature & Theory counts towards the Expanding the Canon Requirement **unless otherwise specified in a given semester.**

Methods - 3 Hours

Choose the methods course that corresponds with your track.

Literary Studies Track:

ENGL3000 - Literary Theory

Credits: 3

An introduction to critical theory as a methodology within literary studies. The course covers major schools of theory and major figures within those schools. Students will read, discuss, and write about literary texts and cultural artefacts by placing them in dialogue with important works of both theory and literary criticism.

Prerequisite: ENGL 2025 and junior standing.

OR

English Studies Track:

ENGL3010 - Approaches to Rhetoric, Composition Pedagogy, and Professional Writing

Credits: 3

Introduces common methods, concepts, and theories emphasized in these interrelated intellectual traditions. It asks

students to examine how research traditions have developed alongside each other over time, and prepares students to design a multimodal research project.

Prerequisite: ENGL 2025 and junior standing.

Foundations of Language - 3 Hours

This requirement is for the English Studies Track only.

ENGL4780 - History of the English Language

Credits: 3

Considers major sources of change in the English language historically, as well as some of the internal and external catalysts for the process. Identical to ANTH 4780.

Prerequisite: ENGL 4750.

OR

ENGL4785 - Linguistics, Language Teaching and Social Context

Credits: 3

Introduces prospective teachers of English as second language to the basic components of language and to the social aspects of human language use. Explores a variety of concepts about language: how it is used and perceived, how languages change, how diverse cultures respond to such changes.

Cross Listed LANG 4785.

Prerequisite: WB/COM2.

OR

EDCI4761 - Linguistics, Sociolinguistics, and Social Literacies for Teachers

Credits: 3

Introduces key concepts in linguistics, sociolinguistics, and social literacies that are necessary for understanding and working with children from diverse linguistic and cultural backgrounds. As such, the course was designed to redirect students' attention from a sole focus on schooled language and literacy to an understanding of the diverse language and literacy knowledges and skills that children bring to school from their own sociocultural contexts.

Prerequisite: EDST 3480.

OR

EDCI4762 - Essential Sociolinguistics for English as a Second Language Learning and Teaching

Credits: 3

This course is designed for the candidates in the ESL endorsement and graduate certificate program to focus on English as a second language teaching and learning. The issues addressed will include: (a) social and cultural approach to language and literacy; (b) second language learning and identity; (c) culture, ethnicity, race, and language variations;

(d) bilingualism, and (e) language attitudes.

Prerequisite: admission to the English as a Second Language Endorsement Program.

Electives - 6 hours

Literary Studies: Students can select from any of our courses for credit in this category. One of the two electives must be in either Rhetoric & Composition or Creative Writing.

English Studies: Two courses from the list of Rhetoric/Composition/Professional Writing classes offered by English. See the examples below:

- ENGL 2005 - Writing in Technology and the Sciences (3 Credits)
- ENGL 2035 - Writing for Public Forums (3 Credits)
- ENGL 2125 - Writing Tutor Pedagogy/Practicum (3 Credits)
- ENGL 3020 - Culture, Communication, Work (3 Credits)
- ENGL 4010 - Technical Writing in the Professions (3 Credits)
- ENGL 4020 - Editing for Publication (3 Credits)
- ENGL 4025 - Writing for the Web (3 Credits)
- ENGL 4030 - Writing for Magazines (3 Credits)
- ENGL 4040 - Rhetoric, Media, and Culture (3 Credits)
- ENGL 4061 - Rhetorical Theory and Criticism (3 Credits)
- ENGL 4075 - Writing for Non-Profits (3 Credits)

Capstone - 3 Hours

Advanced standing in English is required for all majors prior to taking the senior seminar. To be eligible for advanced standing in English, the student must have completed 24 hours of English coursework above COM1, including the required 2000-level Historical Period courses. Each course must have been passed with a grade C or better. Approved transfer courses from other institutions will satisfy the prerequisites for advanced standing. ENGL 4999 should be taken in the next to last semester before graduation.

ENGL4999 - Senior Seminar

Credits: 3

This course is the capstone course in the English major. Subject matter varies by section. In all sections students will exercise skills acquired in the major (close-reading, historical analysis, application of theory) to explore significant texts and to reflect on the nature of English study today.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and either ENGL 3000 or ENGL 3010; Senior standing.

Additional Requirements

All English Education students are required to take the English Studies track. Students should consult with an advisor to declare a track in Literary Studies or English Studies before their junior year.

The English major requires 36 hours of work within the major and an additional 12 hours of a single foreign language. 21 of the hours within the major must be taken at the upper division. Only those courses in which a grade of C or better has been earned may count toward the 36 hours required for the B.A. and the foreign language requirement. No 1000-level courses count toward the B.A.

Prerequisites

Most 2000-level courses require the completion of the COM1 requirement. Normally, 3000-level courses have the COM1, ENGL 2025, and one 2000-level "broad historical sweep" course (one of ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, ENGL 2360) as prerequisites, and 4000-level courses have 6 hours of 2000-level English courses as prerequisites. Students without certain prerequisites should consult the English department for permission to enroll.

Minor

Literary Studies Minor

Focuses on the study of literature, media, and culture. Courses address texts from various historical periods and regions and the work of a diverse range of voices.

Requirements

ENGL2025 - Introduction to English Studies

Credits: 3

This course provides an introduction to English Studies, covering the history of English as an academic field, the options available within it, and possible career paths. Students will also be taught the skills they need to succeed as English majors, including critical reading and writing, and literary and rhetorical analysis.

USP 2015 Code U5C2

Prerequisite: COM1; English major status.

Historical Period Classes: 6 Hours

Take any 2 of the following historical period courses:

ENGL2425 - Literatures in English I

Credits: 3

Surveys major figures and literary movements in literatures written in English through 1750.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2430 - Literatures in English II

Credits: 3

Surveys major figures and literary movements in literatures written in English 1750-1865.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2435 - Literatures in English III

Credits: 3

Surveys major figures and literary movements in literatures written in English 1865-present.

USP 2003-2014 Code U3CH

Prerequisite: WA/COM1.

ENGL2340 - Native American Culture and Literature

Credits: 3

Broad cultural study of Native Americans, past and present. Emphasizes folklore and literature.

Cross Listed NAIS 2340.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2350 - Introduction to African American Literature

Credits: 3

Provides an introduction to the major works of the African American literary tradition. Covering a wide range of fiction, poetry, drama, and autobiography, the course introduces students to some of the most exciting works of literature ever to appear in America.

Cross Listed AAST 2350.

USP 2003-2014 Code U3D, U3WB

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL2360 - Mexican American Literature

Credits: 3

Discusses literary reflections of Chicanoism. Studies literature of the Hispanic Southwest, Mexican-American folklore and the contemporary Chicano movement.

Cross Listed LTST 2360.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: WA/COM1.

ENGL3200 - Topics in: Medieval Literature

Credits: 3

Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3
Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

Upper Division Literature Courses: 9 Hours

Take 3 additional upper-division literature courses. Electives cannot be used for both the Historical Period requirement and this requirement. Please consult with department for options beyond this list.

ENGL3100 - Tribal Literatures of the Great Plains

Credits: 3
Familiarizes students with American Indian literatures of the Great Plains. The Great Plains region is the locus of much historical and contemporary significance in regard to American Indian cultures. The literature of Great Plains Indians allows students to confront and reexamine the national narratives surrounding American Indians.

Cross Listed NAIS 3100.
USP 2003-2014 Code U3D, U3WC
A&S College Core 2015 ASD
Prerequisite: 6 hours of NAIS or ENGL.

ENGL3150 - World Literature

Credits: 3
Max Credit (Max. 6)

Encompasses reading and analysis of major works representative of significant periods or literary forms in the history of literature.

USP 2003-2014 Code U3CH, U3G
Prerequisite: WA and WB/COM1 and COM2.

ENGL3200 - Topics in: Medieval Literature

Credits: 3
Max Credit (Max. 12)

This course focuses on the language, literature, history, and culture of England between 800 and 1485, including influential texts from continental and Arabic traditions. Students will be taught to read Middle English and the class will include a translation component.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3300 - Topics in: Renaissance Literature

Credits: 3

Max Credit (Max. 12)

Surveys important authors and texts from Britain, Europe, and the "new world" from 1500-1642. Covers major literary movements and genres, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced and consumed in the sixteenth century. Specific focus varies by section.

Prerequisite: COM1 and 6 hours of 2000-level literature courses.

ENGL3330 - Global Shakespeare in Performance

Credits: 3

Max Credit (Max. 12)

Shakespeare's works are constantly being reinterpreted around the globe, because their cultural capital invites many cultures to rebrand Shakespeare as their own. While helping us to see universal connections, recorded re-interpretations provide opportunities for viable cross-cultural analysis, as we explore and compare the hot-button cultural issues addressed through global performance.

A&S College Core 2015 ASG

Prerequisite: COM1.

ENGL3340 - Philosophy in Literature

Credits: 3

Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL 3340.

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3500 - Topics in: Nineteenth-Century Literature

Credits: 3
Max Credit (Max. 12)

This course surveys authors, movements, and/or genres significant to 19th Century American or British literature, and contextualizes materials by discussing the historical, cultural, and political developments of the period. COM1 and 6 hours of 2000-level literature courses in ENGL.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3600 - Topics in: 20th Century Literature

Credits: 3
Max Credit (Max. 12)

Surveys important authors and texts from Britain, the U.S., and around the world from 1900 to present-day. Covers major literary movements and genres, including modernism and postmodernism, and contextualizes materials by discussing the historical, cultural, and political developments of the period. Examines how literature is produced in our contemporary moment.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL3610 - Non-Western Women Writers

Credits: 3
Examines literature written by women in non-western cultures. The geographical region, time period, and genres of literature may vary by semester. Analyzes representations of such topics as family, marriage, sexuality, community, and colonialism as expressed in fiction, drama, literary non-fiction, and/or poetry.

Prerequisite: ENGL 1010 or GWST 1080; junior standing.

ENGL3710 - Gender: Humanities Focus

Credits: 3
Explores how men and women are imaged differently, studying the influence of representation on gender (including representations in literature, film, art, popular culture, and/or performance). Sharpens students' ability to analyze texts and images and investigate those texts' messages about gender, sexuality, ethnicity, and class.

Cross Listed ART 3710/GWST 3710.
USP 2003-2014 Code U3Ch

USP 2015 Code U5C2

Prerequisite: GWST 1080 or ENGL 1010.

ENGL4080 - Film Genre Studies (TOPIC)

Credits: 3

Max Credit (Max. 6)

Offers structural, film historical, and political analyses of selected major film genres.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4070 - Film Directors:

Credits: 3

Max Credit (Max. 6)

Offers an intensive examination of representative films by selected film makers.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4090 - Film and Religion

Credits: 3

Movies use religion to convey messages; they debate religious issues and use religion to debate non-religious issues. This course analyzes how film makers use religion and religious themes to transform religions into advocates for social issues and to shape religion's role in society. Popular films drawn from many genres.

Prerequisite: 6 hours of 2000-level or higher literature courses or religion courses.

ENGL4230 - Greek Tragedy

Credits: 3

Reading and discussion of major plays by Aeschylus, Sophocles, and Euripides, together with examination of the performance and social context of Greek drama, its use of traditional myths, and selected issues in contemporary scholarship on the tragedies.

Cross Listed CLAS 4230/THEA 4230.

When Offered (Offered in spring in alternate years)

Prerequisite: WB or COM2.

ENGL4270 - Classical Epic Poetry

Credits: 3

Reading and discussion of major works of Greek and Latin epic poetry, centered on Homer and Vergil. Also includes consideration of the background of these works (both mythological and historical) and the development of the epic tradition in the ancient world.

Cross Listed CLAS 4270.

Prerequisite: WB or COM2.

ENGL4450 - African American Novel

Credits: 3

Considers aesthetic dimension and cultural matrix of novels written by Black Americans.

Cross Listed AAST 4450.

USP 2003-2014 Code U3D

Prerequisite: AAST 1000, any AAST 2000 level course, junior/senior standing, six hours of 2000-level literature courses in ENGL.

ENGL4455 - Slavery and Freedom

Credits: 1-4

Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 4455.

Dual Listed ENGL 5455.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: AAST 1000, any AAST 2000-level course, and junior/senior standing, or six credit hours of literature courses in ENGL.

ENGL4460 - American Indian Literature

Credits: 3

Advanced critical study of the history of American Indian literature, emphasizing the authors' views of social change.

Cross Listed NAIS 4460.

USP 2003-2014 Code U3WC

A&S College Core 2015 ASD

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4470 - Studies in Chicano Folklore

Credits: 3

Provides a survey of the origins, development and contemporary folklore of the Mexican American Chicano people of the United States with comparative relation to Mexico and other groups in the United States.

Cross Listed LTST 4470.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H
A&S College Core 2015 ASD
Prerequisite: LTST 1100 and WA/COM1.

ENGL4480 - Regional Literature of the US: The West

Credits: 3
Encompasses major themes and writers in western American literature.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4600 - Studies in (TOPIC)

Credits: 1-6
Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in American, English, or other literatures.

Prerequisite: 6 hours of 2000-level literature courses.

ENGL4640 - Studies in Emerging Fields and Approaches

Credits: 3
Max Credit (Max. 12)

Presents from semester to semester a variety of significant topics in emerging fields or approaches to literature written in English.

A&S College Core 2015 ASG
Prerequisite: six hours of 2000 level literature courses.

ENGL4830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3
An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed ART 4830/GWST 4830.
Dual Listed ENGL 5830.
USP 2003-2014 Code U3CA
A&S College Core 2015 ASG
Prerequisite: ART 2020, GWST 1080/ENGL 1080.

Professional Writing Minor

Focuses on the modes of written, oral, and digital communication that working professionals use in their fields. Courses address topics like grant-writing, writing for the web, and publication editing.

Requirements

Foundations Course: 3 Hours

ENGL2035 - Writing for Public Forums

Credits: 3

Introduction to professional writing that focuses on analyzing and producing texts designed to influence public opinion. Genres may include letters, editorials, web pages, pamphlets, e-mail, speeches, and position papers. Focuses on skills in collaboration and use of technology necessary for ethical, effective participation in public discourse.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: WA/COM1.

OR

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

Program Electives: 6 Hours

Take any 2 of the following courses:

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4020 - Editing for Publication

Credits: 3

Theory and practice of editing in the contexts of book, magazine, newspaper, and web-based publications. Standard editing practices for using grammar, proofreading marks, and computer editing tools.

Prerequisite: WA/COM1, WB/COM2 (ENGL 2035 and ENGL 3000 recommended).

ENGL4025 - Writing for the Web

Covers a variety of issues relevant for composing in the 21st century. As students learn to design and generate effective writing for a particular audience in a digital environment, they will also develop skills with advanced web and print research, basic HTML programming language, and standard web design software. Prerequisites: WB or COM2 and junior standing.

When Offered U3L, U3WC

USP 2003-2014 Code U5C3

Restricted Cannot be enrolled in one of the following Classes:
Freshman (FR)

ENGL4030 - Writing for Magazines

Credits: 3

Students write a variety of articles that would be appropriate for submission to a magazine. Feedback is given through class workshops and consultation with the instructor. Award-winning articles are read and discussed. The business aspect of magazine writing is also covered.

Prerequisite: COM1, COM2, and junior standing.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENGL4970 - Writing Internship

Credits: 3

Students work 6-8 hours per week as "writing interns" for a private business or public agency, performing specific writing/editing tasks for that client. Students are supported and enabled through a series of classroom sessions and individual meetings with the course instructor. Formal progress reports and a comprehensive final report are required.

Prerequisite: successful completion of ENGL 4010, ENGL 4020, or 4050.

Other Electives: 6 Hours

Courses from any discipline that relates to professional writing; consult with a Professional Writing Minor advisor.

Professional Writing Minor Capstone: 3 Hours

ENGL4000 - 21st Century Issues in Professional Writing

The capstone course in the professional writing minor and also satisfies the COM 3 USP requirement. This spring, we will spend some time constructing a theoretical framework geared toward understanding key issues in the study and practice of professional and technical communication. We'll start with some foundational material, looking at the role of rhetoric, design, and audience in increasingly digital professional writing spaces and then move to more focused study of ethics, visual rhetoric, and the impact of technology on professional communication, among other things. More traditionally academic (journal review) and professional (e.g., usability test and documentation) projects will range widely and include both individual and collaborative work done in different media for different audiences, some academic, some professional. Students will develop a final portfolio project at the end of the term.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Graduate

English, M.A.

Advanced graduate study in English Studies. Students can select from one of three tracks: literary studies; rhetoric, composition, and writing studies; or public humanities.

Required Courses

The following courses are required for all concentrations:

ENGL5010 - Rhetoric and Composition: History, Theory, Practice

Credits: 1-4

Max Credit (Max. 4)

Prepares graduate students to teach college composition and rhetoric at UW and beyond, with attention to the intellectual traditions that inform our writing program's pedagogy. It examines the theories that support informed writing instruction and offers classroom strategies that may be applied to any course in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5530 - Modern Critical Theory and Practice

Credits: 1-4
Max Credit (Max. 4)

Major trends in modern poetics and practical criticism.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ENGL5964 - Thesis Writing Workshop

Designed for students who have reached an advanced stage in the writing of the thesis. Provides targeted, personalized support from peers during the research and writing process and runs concurrently with ENGL 5965.

Prerequisite: ENGL 5960 and enrollment in a graduate degree program

ENGL5965 - Thesis Research II

Credits: 1-3
Max Credit (Max. 3)

Designed for students who have reached an advanced stage in the writing of the thesis. Also to inform students of professional genres and practices as well as academic and non-academic careers following the MA degree.

USP 2015 Code U5H

Prerequisite: ENGL 5960 and enrollment in a graduate degree program.

Electives

Additional coursework can be taken from the following courses.

ENGL5000 - Studies In:

Credits: 1-8
Max Credit (Max. 8)

Provides an opportunity for specialized seminar approaches to subjects in literature.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5020 - Public-Facing English Studies

Credits: 1-4
Max Credit (Max. 8)

Introduction to the history and theory of public intellectualism and English studies. Students develop theoretical and practical knowledge and explore alternative applications for academic research for publics beyond the classroom.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5050 - Writing in Public Genres

Credits: 1-4
Max Credit (Max. 8)

Intensive introduction to public-facing writing in English subject areas, including articles, book reviews, think pieces, TED talks, podcasts, and other genres of commentary associated with public intellectual work in English studies.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5055 - Narrative and Storytelling

Credits: 1-4
Max Credit 8

Exploration of the structure and use of narrative, stories, and/or storytelling from a variety of theoretical and disciplinary perspectives. Considers how narrative materials function as foundational to meaning making and to community building.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5061 - Rhetorical Theory and Criticism

Credits: 1-4
Max Credit (Max. 8)

An investigation into how rhetorical theory, spanning from its ancient roots in Aristotelian thinking to its current postmodern components, operates in society. Explores how various critical methods can be utilized to gain a stronger understanding of public communication texts, including newspapers, speeches, music, and film.

Cross Listed COJO 5061.

Dual Listed ENGL 4061.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5062 - Ancient Rhetorics

Credits: 1-4
Max Credit 8

Investigates contemporary problems in composition and rhetorical studies, as they are played out through ancient texts on composing and rhetoric. Course will focus on how ancient texts are enlisted in current debates/concerns over pedagogy, ethics, change, subjectivity, agency, and the social.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5063 - Feminist Rhetorics

Credits: 1-4
Max Credit 8

Analysis of influential women speakers and writers over time. Course focuses on how feminists construct arguments, frame objects of analysis, energize social justice movements, and theorize sex/gender/sexuality in relation to race, class, democracy, and suffrage. Course may include special focus on Wyoming women and suffrage.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5070 - Qualitative Methods in English

Credits: 1-4
Max Credit (Max. 8)

Advanced introduction to qualitative research methods in English and Rhetoric. Students will survey different types of qualitative methods and will learn to evaluate qualitative projects. Includes an emphasis on working with human participants and on ethics.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5071 - Qualitative Analysis

Credits: 1-4
Max Credit (Max 8)

Examination and application of different ways of making knowledge in English studies. Develops understanding of links among theory, methodology, and methods, and engages students in data analysis and evaluation of interpretive moves. "Texts" can encompass a range of artifacts, from print to video games to nonverbal behaviors.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5072 - Topics in Technical Writing

Credits: 1-4
Max Credit 8

Seminar course on one or more topics in technical communication research, theory, or industry practice. Topics may include user experience methods, women in technical communication, activity theory, ethics and technology, information design, narrative practices, workplace cultures, and technical communication and social justice.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5073 - Topics in Rhet-Comp & Tech-Com

Credits: 1-4
Max Credit 8

Seminar on key theories and foundational research in technical and professional communication. Introduces students to pedagogical approaches, topics, and tools suitable for teaching and administering undergraduate technical and professional communication courses and programs.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5074 - Studies in Civic Discourse

Credits: 1-4
Max Credit 8

Seminar focusing on communication in the public sphere. Considers definition of public(s), both terrestrial and online, and the forming of publics and counter-publics. Focuses on rhetorical needs of audiences and may include primary research or partnering with local organizations.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5075 - Non-Profit Writing and Grants

Credits: 1-4
Max Credit (Max. 8)

Non-profit writing from a rhetorical perspective. Students analyze different kinds of non-profit communication, including fundraising, mission development, social media. Participate in grant proposal development or other organizational communication activity.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5220 - Studies in Medieval Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar course in selected genres, figures, and themes in Medieval English literature.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5230 - Studies in English Renaissance Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in selected genres, figures, and themes of the sixteenth and early seventeenth centuries.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5250 - Studies in Shakespeare

Credits: 1-4
Max Credit (Max. 8)

To provide advanced students with the opportunity to study problems of text, sources, staging, theatrical history, and/or critical theory with reference to the works of William Shakespeare.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5270 - Studies in 18c English Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in selected genres, figures, and themes of restoration and eighteenth century English literature.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5280 - Studies in 19c English Literature

Credits: 1-4
Max Credit (Max. 4)

A seminar in selected genres, figures, and themes of the romantic and Victorian periods.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5290 - Studies in 20c English Literature

Credits: 1-4
Max Credit (Max. 8)

A seminar in significant writers of poetry, drama, fiction, and biography from the end of the nineteenth century to the

present.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5310 - Early American Literature

Credits: 4

Seminar designed to acquaint graduate students with selected texts from the colonial period to 1800, relevant secondary works, and scholarly methods.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5320 - Studies in 19c American Literature

Credits: 1-4

Max Credit (Max. 8)

A seminar designed to acquaint graduate students with selected principal works of American literature, relevant secondary works, and scholarly method.

Prerequisite: graduate status of 12 hours or 4000-level work.

ENGL5330 - Studies in 20c American Literature

Credits: 1-4

Max Credit (Max. 8)

A seminar in selected significant writers of poetry, drama, and prose from the end of the nineteenth century to the present.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5340 - Intellectual Currents in Modern American Literature

Credits: 1-4

Max Credit (Max. 4)

Devoted to the study of writers such as Marx and Freud and more recent American writers.

Prerequisite: graduate status or 12 hours or 4000-level work.

ENGL5350 - Global Literatures in English

Credits: 1-4

Max Credit (Max. 8)

Examines significant texts, authors, cultural and historical contexts, and literary and theoretical movements in postcolonial or global literatures. May involve comparative study or may be focused on a single country context.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5355 - Global Englishes

Credits: 1-4
Max Credit 8

Advanced investigation of the spread of English as the lingua franca for business, technology, research, education, and popular culture around the world. Does the spread create cross-cultural communication or intensify global economic inequality? This course explores global Englishes in their historical and present contexts, engaging the fields of linguistics, sociolinguistics, postcolonial studies, and English language teaching.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5360 - Literatures of Diversity

Credits: 1-4
Max Credit (Max. 8)

A study of literature and culture of selected minority or marginalized communities.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5455 - Slavery and Freedom

Credits: 1-4
Max Credit (Max. 8)

Students engage in an in-depth study of the literary voices that emerged from the history of enslavement in the Americas from colonial times through the end of Reconstruction in 1877.

Cross Listed AAST 5455.

Dual Listed ENGL 4455.

Prerequisite: graduate status or 12 hours of 3000-4000 level work.

ENGL5520 - History of Literacy Criticism: Enlightenment and 19th Century

Credits: 4
Historical survey of the mainstream of European literary criticism, including the critics of antiquity and the Renaissance.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5600 - Research in Writing Studies

Credits: 1-4
Max Credit 8

Introductory graduate seminar on research methods in writing studies. Course culminates in an individual research project of professional quality. Course studies books and articles that students identify as particularly powerful examples in order to understand what research is and ways to conduct such research efficiently and ethically.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5830 - Victorian Women's Lives: Their Art, Literature, and Culture

Credits: 3
An interdisciplinary approach to the study of women's issues in art, using literary, cultural, and sociological texts to enlarge the art historical basis. Topics include "domestic goddess," class issues, racial questions, working women, prostitution, education, marriage, and divorce.

Cross Listed GWST 5830.

Dual Listed ENGL 4830.

Prerequisite: ART 2020, GWST 1080, ENGL 1080.

ENGL5835 - Writing Program Administration

Credits: 1-4
Max Credit 8

Seminar introduction to the field of writing program administration. Recognizing that not all universities are research institutions with large numbers of graduate students, this course approaches administration broadly, considering not only the traditional WPA, but other types of WPA work, including research, program building, developing intra-institutional relationships, and more.

Prerequisite: Graduate status or 12 hours of 4000-level ENGL courses

ENGL5880 - Studies in Modern Fiction

Credits: 4
A study of modern fiction, examining theory and practice, and covering works of English, European, and American origin.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5885 - Studies in Popular Culture

Credits: 1-4
Max Credit 8

An interdisciplinary seminar in which students analyze and apply theories and methodologies from multiple disciplines to the study of selected texts, figures, media, and themes of popular culture.

ENGL5890 - Consumption, Markets, Cultures

Credits: 1-4
Max Credit (Max. 8)

An interdisciplinary investigation of the ways in which cultural venues curate and market stories, history, and texts. Analyzes and applies theories and methodologies from literary and cultural tourism studies, as well as marketing and consumer culture, to museums, performances, tourist sites and theme parks. This class will include hands-on field research.

Prerequisite: graduate status or 12 hours of 4000-level work.

ENGL5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 4)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

ENGL5975 - Independent Studies

Credits: 1-4
Max Credit (Max. 6)

Independent study and research experience in a given topic, person, or movement in literature at an advanced level.

Prerequisite: permission of chair; graduate standing.

Additional Requirements

The concentration insures coherence in each student's graduate program; breadth is insured by a distribution of courses. Much of each student's program is taken in courses outside the concentration.

Literary Studies. Working from a variety of perspectives, this concentration focuses on the study of literature and of other culturally significant texts and materials, including, for example, film, oral materials, and political documents.

Rhetoric, Composition, and Writing Studies. This concentration emphasizes scholarship on the production of discourse, broadly conceived, and may include a focus on classical, contemporary, or cultural rhetoric; post-secondary writing pedagogy and program administration; community and adult literacy; or other subjects related to the field of writing studies.

Public Humanities. Designed for students who wish to pursue professions that may span beyond traditional academic work, this concentration prepares graduates for careers in civic, nonprofit, and community-based cultural organizations that engage the humanities, contribute to social reform, and promote the public good.

Minimum coursework required: 26 hours. Minimum thesis hours required: 4 hours See program website for course offerings in a given semester. All coursework must be at the 5000-level.

With approval of the graduate advisor, a student may take a maximum of three hours credit outside the department.

A reading list exam and a Plan A thesis with oral defense. Students may write a traditional thesis, or they may assemble a public-facing thesis portfolio. See program website for more details about thesis options. For information on the Plan B, consult with the program director.

Department of Geology and Geophysics

Geography Program

122 Geology Building, (307) 766-3386

Web site: www.uwyo.edu/geography

Program Director: Mark T. Clementz

Professor Emeritus:

John L. Allen, William L. Baker, Ronald E. Beiswenger, Thomas Buchanan, Deborah D. Paulson, Gerald Webster

Faculty and Staff Affiliates:

Professors

R. MCGREGGOR CAWLEY, B.A. Kearney State College 1971; M.A. Colorado State University 1974; Ph.D. 1981; Professor of Political Science 1997, 1987.

THOMAS A. MINCKLEY, B.S. Northern Arizona University 1987; University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2012.

JACQUELINE J. SHINKER, B.S. University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2005.

BRYAN N. SHUMAN, B.A. Colorado College 1994; M.S. Brown University 1997; Ph.D. 2001; Professor of Geology 2015, 2007.

Associate Professors

YI-LING CHEN, B.S. National Taiwan University 1989; M.S. 1992; Ph.D. Rutgers University 2000; Associate Professor of International Studies and Geography 2015, 2010.

BRANDON McELROY, B.S. University of Michigan 2000; M.S. 2003; Ph.D. University of Texas 2009; Associate Professor of Geology 2019, 2011.

Assistant Professors

NICHOLAS CRANE, B.A. The Ohio State University 2006; M.A. 2008; Ph.D. 2014; Associate Professor of Geography and International Studies 2021, 2016.

ZOE PEARSON, B.A. University of California Los Angeles 2005; M.A. Ohio State University 2010; Ph.D. 2016; Associate Professor of Geography and International Studies 2021, 2016.

The Geography Program is comprised of faculty from across the University of Wyoming campus with interests and expertise in geography and resource management. The program is transdisciplinary with a focus upon the following:

1. The origin and nature of the physical and cultural environment, how the physical environment and its natural resources form, and how the environment and natural resources affect the quality of life.
2. The ways in which people and institutions affect natural resources and the environment.
3. The ways in which human institutions (e.g. political, economic, social) interact to produce diverse human landscapes.

Learning

The Geography Program has identified four fundamental goals of geography to emphasize in its undergraduate curriculum. These four goals are at the intersection of topically important areas in the discipline of geography. We continue to evaluate student learning in our program to insure our curriculum addresses these fundamental goals as effectively as possible.

Goal 1 - Human-Environment Interaction

Students will be able to identify and explain how humans modify the environment and affect Earth's biophysical systems through their human activities.

Goal 2 - Biophysical Systems

Students will be able to identify and explain an array of patterns, processes, and interactions in Earth's biophysical systems occurring at different spatial scales.

Goal 3 - Human-Cultural Systems

Students will be able to identify and explain an array of patterns, processes, and interactions across Earth's human landscapes at different spatial scales.

Goal 4 - Geographic Thought, Methods and Analysis

Students will understand basic geographic concepts and ideas, and will be capable of using them to inform their work. Students will also demonstrate the ability to select and use appropriate tools and techniques for addressing geographic problems and conducting geographic analysis. They will also be able to use multiple methods to examine, represent, and visualize Earth and its geographic characteristics.

Undergraduate Major

In addition to course work required by the university and the college, majors must complete 40 hours of program requirements, all of which must be completed with a grade of C or above, of which at least 15 credits will be 3000-4000 level courses within the selected competencies. All Geography degree students will complete a topical language requirement. Students completing a B.S. degree will need to complete two semesters of a computational or science language (computer programming language, mathematical language or science courses are acceptable) and one additional mathematical, statistical, or science class above the USP Q or PN requirement. Required courses (11 credit hours) include GEOG 1000 or 1020, 1010 or GEOL 1070, and GIST 1100 or GIST 2150. In addition, students are required to complete at least two courses each in Societal and Scientific Competencies and one additional Spatial Competency course. Beyond these requirements students are able to select from any Societal, Scientific, Spatial or Transdisciplinary course listed to complete a total of 40 hours for the B.S. Degree. Courses used to meet program requirements should be discussed with a faculty advisor.

* USP Human Culture: A single language must be taken for two semesters to fulfill the eight hour foreign language requirement for the program. Students taking American Sign Language to fulfill the language requirement of

the major will have to take other courses to fulfill the USP H requirements.¹Can substitute computer programming but it does not fulfill the USP H requirement; consult with an academic advisor.

Undergraduate Minor

The program offers a minor in geography. Credit requirements range from 18-20 hours of required and elective courses, all of which must be completed with a grade of C or above. Information on the minor program is available on the Geography Program website.

Environment and Natural Resources

The program offers a concentration in the university's interdisciplinary program, Environment and Natural Resources. A description of the concentration requirements is available online at the ENR website.

Geology and Geophysics

122 Geology Building, (307) 766-3386

FAX: (307) 766-6679

Web site: www.uwyo.edu/geolgeophys

Department Head: Mark T. Clementz

Professors:

MICHAEL J. CHEADLE, B.A. Oxford University 1981; M.S. Cornell University 1984; Ph.D. Cambridge University 1989; Professor of Geology and Geophysics 2021, 2001.

MARK T. CLEMENTZ, B.S. University of Missouri, Columbia 1996; Ph.D. University of California, Santa Cruz 2002; Professor of Geology 2017, 2005.

DARIO GRANA, B.S. University of Pavia 2003; M.S. 2005; M.S. University of Milano Bicocca 2006; M.S. Stanford University 2013; Ph.D. 2013; Associate Professor of Geology and Geophysics and the School of Energy Resources 2018, 2013.

NEIL F. HUMPHREY, B.S. University of British Columbia 1978; M.S. University of Washington 1983; Ph.D. 1987; Professor of Geology 2002, 1990.

BARBARA E. JOHN, B.A. University of California-Berkeley 1978; Ph.D. University of California-Santa Barbara 1987; Professor of Geology 2002, 1992.

JOHN KASZUBA, B.S. Beloit College 1982; M.S. Virginia Polytechnic Institute & State University 1986; Ph.D. Colorado School of Mines 1997; Professor of Geology and the School of Energy Resources 2019, 2008.

SUBHASHIS MALLICK, B.S. Indian Institute of Technology 1976; M.S. 1978; Ph.D. University of Hawaii 1987; Professor of Geology and Geophysics and the School of Energy Resources 2008.

BRANDON McELROY, B.S. University of Michigan 2000; M.S. 2003; Ph.D. University of Texas 2009; Associate Professor of Geology 2018, 2011.

THOMAS A. MINCKLEY, B.S. Northern Ari-zona University 1987; University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2012.

JAMES D. MYERS, B.S. University of Rhode Island 1973; M.A. The Johns Hopkins University 1977; Ph.D. 1979; Professor of Geology 1993, 1981.

CLIFFORD S. RIEBE, B.S.E. University of Michigan 1992; Ph.D. University of California-Berkeley 2000; Professor of Geology 2020, 2008.

JACQUELINE J. SHINKER, B.S. University of Arizona 1996; M.A. University of Oregon 1999; Ph.D. 2003; Professor of Geography 2019, 2005.

BRYAN N SHUMAN, B.A. Colorado College 1994; M.S. Brown University 1997; Ph.D. 2001; Professor of Geology 2015, 2007.

KENNETH W. W. SIMS, B.A. Colorado College 1986; M.S. University of New Mexico 1989; Ph.D. University of California - Berkeley 1995; Professor of Geology 2014, 2009.

YE ZHANG, B.S. Nanjing University (PR China) 1998; M.S. University of Minnesota 2004; Ph.D. Indiana University 2005; Professor of Geology 2018, 2007.

Associate Professors:

PO CHEN, B.S. Beijing University 2000; Ph.D. University of Southern California 2005; Associate Professor of Geology and Geophysics and the School of Energy Resources 2014, 2008.

ELLEN D. CURRANO, B.S. University of Chicago 2003; Ph.D. Pennsylvania State University 2008; Associate Professor of Geology and Geophysics 2017, 2014.

KENNETH G. DUEKER, B.A. Whitman College 1984; Ph.D. University of Oregon 1994; Associate Professor of Geophysics 2006, 2000.

ANDREW PARSEKIAN, B.S. Dickinson College 2005; Ph.D. Rutgers University 2011; Associate Professor of Geology and Geophysics 2020, 2013.

Assistant Professors:

JAMIE MCFARLIN, B.A. Lawrence University, 2009; M.S. Northwestern University, 2016; Ph.D. Northwestern University, 2019; Assistant Professor of Geology and Geophysics 2022.

Research Scientists:

BRADLEY CARR, B.S. University of Wisconsin-Madison 1987; Ph.D. University of Wyoming 1995; Associate Research Scientist Senior 2017, 2013.

KEVIN R. CHAMBERLAIN, B.A. Colgate University 1979; Ph.D. Washington University 1990; Research Professor 2004, 1990.

JANET C. DEWEY, B.S. Mississippi State University 1990; M.S. Auburn University 1993; Associate Research Scientist 2017, 2011.

LAURA VIETTI, B.S. University of Wyoming 2006; Ph.D. University of Minnesota 2014; Assistant Research Scientist 2015.

Adjunct Professors:

Sarah Aciego, Vladimir Alvarado, Erin Campbell, Barbara Carrapa, Carrick Eggleston, Eric Erslev, Peter H. Hennings, W. Steven Holbrook, Ranie Lynds, Simone Runyon, Jay Chapman

Professors Emeriti:

James I. Drever, William E. Frerichs, B. Ronald Frost, Carol D. Frost, Robert R. Howell, Jason A. Lillegraven, Ronald W. Marrs, Randi Martinsen, James E. McClurg, Scott B. Smithson, Arthur W. Snoke, Ronald C. Surdam, Susan M. Swapp

Geology is the study of the origin, history and structure of the earth. Our undergraduate offerings encompass virtually every aspect of the science, with emphasis on current theory, methods, and applications. The philosophy of the department is to provide sound training in both theory and field observation, and to couple this background with a thorough education in modern laboratory, quantitative, and field techniques required for an understanding of geologic processes.

The setting of the university in the Rocky Mountains is ideal because some of North America's most outstanding geologic features are within a short drive of campus. The semiarid climate in Wyoming has resulted in excellent exposures of diverse rock types ranging in age from Precambrian to Recent. Deformation of the rocks in the region has been extensive, affording the student a field laboratory that exhibits a wide diversity of styles of faulting and folding. Mineral deposits, petroleum resources, and coal abound in the region.

Undergraduate Majors

The Bachelor of Science in geology is designed for those students who intend to become professional geologists and/or those who plan to attend graduate school in geosciences. The program includes courses normally expected of graduate school applicants, including a summer field camp and courses in related sciences and mathematics. This degree program prepares students for the examination for the professional geologist license.

The Bachelor of Arts in geology and Earth sciences is specifically designed for undergraduates who wish to study Earth sciences as a foundation for careers in a variety of areas, such as environmental law, natural resource business, land use planning, Earth science education, science journalism, and many governmental positions. The B.A. program includes a broad spectrum of courses, and focuses both on information about the Earth and on how society makes decisions that affect the Earth system.

The Bachelor of Science in Environmental Geology and Geohydrology is designed for those students who intend to become professionals in environmental fields such as consulting, site assessment, hazard assessment, and remediation. The degree will prepare students for graduate school in environmental disciplines and for entry-level jobs.

Majors in any of the degree programs above may also choose to declare an affiliated degree with the School of Environment and Natural Resources by completing degree requirements for both degrees. Students should consult the section on the School of Environment and Natural Resources.

The Department of Geology and Geophysics also participates in the Earth System Science interdisciplinary program by offering a concentration in geology for the B.S. degree in ESS. Students interested in this major should consult the section on Earth System Science for curriculum requirements.

Geology Program Objectives: Bachelor of Science

The primary mission of our B.S. geology program is to provide a quality educational experience that prepares men and women to enter careers in geology and related fields. We expect that our graduates should:

- Have the basic knowledge and skills demanded for entry-level competence in typical careers in earth science.
- Be able to apply basic scientific and technical knowledge to specific tasks and problems.

- Cultivate the specific scientific and technical skills that will allow them effectively to serve their employers and to enhance their own career development.
- Develop increased capacity in the skills of independent learning, critical thinking, problem definition, and problem solving.
- Develop enhanced numerical skills and computer literacy as part of an undergraduate program designed to deliver a current and relevant knowledge of their discipline.
- Communicate effectively and professionally through oral, written, and graphical means and to participate effectively in their workplace and in individual and team-related activities.
- Have the broad general education needed to appreciate the role of Earth Sciences in the societal context and appreciate the importance of ethics in the practice of the profession.

Geology Program Goals: Bachelor of Science

The department of Geology and Geophysics has the following specific goals for its B.S. program:

- Students in the B.S. program will receive a quality preparatory education in the discipline that is current, relevant, practical, and personal.
- B.S. students who graduate with appropriate grades will be able to compete successfully for positions at graduate schools nationwide.
- B.S. students who graduate with appropriate grades will be well prepared for entry-level positions as professionals within their and other related disciplines.

Geology Program Objectives: Bachelor of Arts

The primary mission of our B.A. geology program is to provide a broad educational experience that prepares men and women for careers in earth science-related fields. We expect that our graduate should:

- Have the basic knowledge and skills demanded for entry-level competence in typical careers in earth science-related fields.
- Be able to apply their knowledge to specific situations or problems.
- Cultivate the skills and ethics that will allow them effectively to serve their employers and to enhance their own career development.
- Develop increased capacity for independent learning, critical thinking, and problem-solving.
- Develop basic numerical skills and computer literacy as part of an undergraduate program designed to deliver a current and relevant knowledge of their discipline.
- Communicate effectively and professionally through oral, written, and graphical means and to participate effectively in the work environment, both in individual and team-related activities.
- Have the broad general education needed to appreciate the role of Earth Sciences in the societal context and appreciate the importance of ethics in the practice of the profession.

Geology Program Goals: Bachelor of Arts

The department of Geology and Geophysics has the following specific goals for its B.A. program:

- Students in the B.A. program will receive a broad preparatory education in earth science and related fields that is current, relevant, practical, and personal.
- B.A. students who graduate with appropriate grades will be able to compete successfully for positions at graduate schools nationwide.
- B.A. students who graduate with appropriate grades will be well prepared for entry-level positions in the geosciences and other related disciplines.

Required Academic Performance

In order to graduate with a Bachelor of Science or Bachelor of Arts degree in geology, the student must earn a letter grade of C (S where appropriate) or better in each course listed herein as part of the required course programs. This grade requirement applies to course work taken outside the department, as well as to transfer courses credited in lieu of resident requirements.

Undergraduate Minor

A minor in geology requires 18 hours of coursework in the Department of Geology and Geophysics. Students are required to take one GEOL 1000-level course; one GEOL 2000-level course; and fulfill remaining hours with GEOL 2000-level or higher courses in consultation with their adviser. A grade of C or better is required in each of these courses.

Graduate Study

The department offers instruction and research programs leading to master of science and doctor of philosophy degrees in both geology and geophysics and to the master of science in geology/water resources.

Program Specific Admission Requirements

All applicants must complete an online departmental application form with statement of intent. Forms are available from the Department of Geology and Geophysics Web site at www.uwyo.edu/geolgeophys.

Application deadline is January 15 of each year.

All applicants should have completed undergraduate coursework including mathematics through calculus, one year of chemistry, basic training in geology, and for most areas, one year of calculus-based physics.

Applicants to the geophysics graduate program should have an undergraduate degree in geophysics, geology, mathematics, physics, or engineering.

Applicants to the Ph.D. program, without a M.S. degree, must have attained an exceptional undergraduate record.

Formal approval of application by the departmental admissions committee.

Formal acceptance by an adviser.

Formal notice of admission by the university.

Program Specific Graduate Assistantships

All applicants to the geology and geophysics graduate program are considered for assistantships. Applicants are NOT required to complete the graduate assistant application form.

Program Specific Degree Requirements

Master of Science in Geology

Plan A (thesis) (26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL 5020 Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geology must complete two semesters of GEOL 5200 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

Master of Science in Geophysics

Plan A (thesis) (26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL 5020 Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geophysics must complete two semesters of GEOL 5210 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

M.S. candidates in geophysics must complete 6 hours of mathematics and three hours of physics or engineering courses at the graduate level.

M.S. candidates must take at least 12 hours of 4000- and 5000-level courses in geophysics. Recommended graduate level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

Doctor of Philosophy in Geology (42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

Completion of GEOL 5020 Fundamentals of Research is required during the first semester of residence.

All graduate students in Geology must complete two semesters of GEOL 5200 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

The Ph.D. dissertation and its defense are described in the regulations section of this Catalog. Specific department examination requirements are available from the department office. The candidate's committee is responsible for monitoring progress of the research, refereeing the written work, and administering the final examination.

Doctor of Philosophy in Geophysics (42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

All graduate students in geophysics must complete two semesters of GEOL 5210 Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

Completion of GEOL 5020 Fundamentals of Research is required during the first semester of residence.

Ph.D. candidates in geophysics must complete at least 6 additional hours of graduate level coursework: 3 in mathematics and 3 in physics or engineering. Recommended graduate-level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering, they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Ph.D. candidates are required to take at least 12 hours of 5000-level geophysics courses exclusive of GEOL 5854. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

The Ph.D. dissertation and its defense are described in the regulations section of this Catalog. Specific department examination requirements are available from the department office. The candidate's committee is responsible for monitoring progress of the research, refereeing the written work, and administering the final examination.

Master of Science in Geology/Water Resources and Master of Science in Geophysics/Water Resources

Please refer to the Water Resources section of the *Catalog* for degree requirements.

Major

Environmental Geology and Geohydrology, B.S.

The Environmental Geology and Geohydrology (EGGH) degree is intended for students interested in becoming professionals in environmental fields and will prepare students for graduate school in environmental disciplines and for entry-level jobs.

Required Courses

One of the Following:

GEOL1005 - Earth History

Credits: 4

Reviews the evolution of the Earth including: the creation of the Universe, formation of a layered earth, development and history of continents, controls on climate change, and the origin and evolution of life. Class introduces basic geologic, chemical, physical and biologic concepts used to decipher Earth history.

USP 2003-2014 Code U3S

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

- GEOL 1200 - Historical Geology Credits: 4

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

And Each of the Following:

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL4444 - Geohydrology

Credits: 4

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 5444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL4777 - Geochemistry of Natural Waters

Credits: 3

Studies physical chemistry applied to natural waters, and chemistry of rock weathering, sources and controls on major, minor and trace elements, plus problems related to introduced pollutants.

Cross Listed GEOL 5777.

Prerequisite: CHEM 1030 OR consent of instructor.

GEOL4880 - Earth Surface Processes

Credits: 3

Quantitative interpretation of Earth's surface processes. Uses a quantitative approach to demonstrate how the development of landforms can be modeled.

Prerequisite: MATH 2205 (MATH 2210 preferred), PHYS 1210.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

Required Allied Math and Science Courses

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

One of the Following:

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Additional Electives

Additional 18 credit hours of Electives, in consultation with advisor

- GEOL 2005 - Intro to Geophysics Credits: 4
- OR**

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat

flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2070 - Introduction to Oceanography

Credits: 4

Survey of ocean processes, including the major subdisciplines of physical, geological, chemical, and biological oceanography. Studies the form of the world ocean; composition and chemistry of seawater; circulation, currents, waves and tides; nutrients and organisms; estuaries and coastal processes; origin and distribution of deep-sea sediments; and impacts of human activities.

When Offered (Normally offered the first half of the fall semester)

Prerequisite: GEOL 1005, GEOL 1100, 1200, GEOL 1500 or ENR 1500; MATH 1405 or MATH 1450.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust. Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GEOL4888 - Glaciology

Credits: 3

Dynamics of frozen water. Covers behavior of ice masses, in the form of glaciers or ice-sheets, and geomorphic aspects of glacial erosion and deposition. Includes forcing and feedbacks between cryosphere and global climate.

When Offered (Offered every second year spring semester)

Prerequisite: MATH 2205, PHYS 1210 (PHYS 1310).

Note:

Students are encouraged, in consultation with their adviser, to design a major that best fits their interests and goals. With this in mind, there are many courses outside the Department of Geology and Geophysics that may be substituted for courses in the Electives (B) list above provided that such substitutions are made with the consent of an adviser. A list of such courses may be obtained from the Department. Students who seek the Geology BS may not also seek EGGH as a double major, and vice versa.

Geology and Earth Science, B.A.

The B.A. in Geology and Earth Science provides students with a broad educational experience in preparation for careers in earth science-related fields.

Required Courses

Each of the following:

- GEOL 1000-level intro lab course(s) Credits: 4-8

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and

constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

Six Courses from the Following

ATSC2000 - Introduction to Meteorology

Credits: 4

First course in meteorology for students with minimal background in math and science. Provides general and practical understanding of weather phenomena. Emphasizes observational aspects of the science, meteorological view of the physical world and the impact the science has on life and society. Includes three hours of lecture and one laboratory per week. Includes atmospheric composition and structure, radiation, winds and horizontal forces, stability and vertical

motions, general circulation, synoptic meteorology, clouds and precipitation, severe storms and atmospheric optics.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

OR

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

- GEOL 2005 - Intro to Geophysics Credits: 4

OR

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL2050 - Principles of Paleontology

Credits: 4

Max Credit 4

Examines principles, biological and geological, that underlie general study of ancient life on Earth. Includes interactions of evolutionary, taphonomic, and paleogeographic concepts within various approaches to paleobiology and systematic paleontology. Optional field trip.

When Offered (Normally offered spring semester)

Prerequisite: 1000-level GEOL or LIFE 1000 or LIFE 1010

GEOL2070 - Introduction to Oceanography

Credits: 4

Survey of ocean processes, including the major subdisciplines of physical, geological, chemical, and biological oceanography. Studies the form of the world ocean; composition and chemistry of seawater; circulation, currents, waves and tides; nutrients and organisms; estuaries and coastal processes; origin and distribution of deep-sea sediments; and impacts of human activities.

When Offered (Normally offered the first half of the fall semester)

Prerequisite: GEOL 1005, GEOL 1100, 1200, GEOL 1500 or ENR 1500; MATH 1405 or MATH 1450.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resource are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3400 - Geologic Hazards: A Historical and Scientific Review

Credits: 4

Geologic hazards include well-known catastrophic events such as earthquakes, volcanic eruptions and landslides, as well as lesser known processes such as soil expansion, land subsidence and ground failure. Economically, the latter processes have a much greater impact each year than the more notorious geologic events. Reviews geologic hazards from a historical and scientific perspective. Describes relevant geologic processes, how geologic evidence is used to identify regions at risk, monitoring procedures and the role of the scientist in predicting catastrophic geologic events. Prehistoric and historic events are used to illustrate temporal and spatial scales of geologic hazards.

USP 2003-2014 Code U3SE

Prerequisite: junior standing.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL4444 - Geohydrology

Credits: 4

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 5444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL4490 - Geochemistry

Credits: 4

Discusses chemical evolution of the Earth and details of chemical thermodynamics, phase rule chemistry, equilibrium reactions and reaction kinetics as applied to geology.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010, CHEM 1020, MATH 2200, MATH 2205.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust. Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL4835 - Applied/Exploration Geophysics

Credits: 3

Discusses the fundamentals of Applied or Exploration Geophysics, encompassing lecture, laboratory classes and discussion of case histories. It covers the Seismic Refraction, Seismic Reflection, Gravity, and Magnetism methods. Provides a solid grounding about the exploration of the Earth's subsurface for mineral and hydrocarbon resources, and environmental issues.

Dual Listed GEOL 5835.

Former Course Number [GEOL 4970]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210 and MATH 2200.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

ECON4400 - Environmental Economics

Credits: 3

The class explores how economics can help guide cost-effective environmental policy. We consider economic growth, the social costs of pollution (water and air), health risks, climate change, loss of biodiversity, and land development/conservation. We consider economic policies such as green taxes, cap-and-trade permit systems, and liability rules. We examine how to value environmental and ecosystem services in a market economy.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

OR

ECON4410 - Natural Resource Economics

Credits: 3

A study of the economics of the use and protection of renewable and nonrenewable resources. We focus on minerals, fossil fuels, fisheries, water, forestry resources, and ecosystem services. We explore optimal extraction and depletion, conservation, market structure, institutional design, and the role of time, space, and uncertainty.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ECON 3020 and Sophomore class standing.

Additional Electives

Additional 12 hours of electives with adviser consultation, at least 6 hours of which must be taken outside of the Department of Geology and Geophysics.

Geology, B.S.

The B.S. in Geology program provides a quality educational experience for students intending to enter careers in geology. Graduates will have gained the scientific and technical skills necessary for graduate programs and professional opportunities in geosciences.

Required Courses

Note: This program represents a minimum proficiency. Students are strongly advised to elect additional courses in geology.

One of the Following:

GEOL1005 - Earth History

Credits: 4

Reviews the evolution of the Earth including: the creation of the Universe, formation of a layered earth, development and history of continents, controls on climate change, and the origin and evolution of life. Class introduces basic geologic, chemical, physical and biologic concepts used to decipher Earth history.

USP 2003-2014 Code U3S

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

- GEOL 1200 - Historical Geology Credits: 4

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

And Each of the Following:

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

- GEOL 2005 - Introduction to Geophysics Credits: 4
- OR**

GEOL3005 - Principles of Geophysics

Credits: 4

Mechanisms and driving forces of Earth deformation, at length-scales from the tectonic to the microstructural. Introduces solid bodies, including stress and strain, with applications to plate tectonics, and surficial processes. Heat flow, electrical and electromagnetic fields are introduced, with applications to tectonic and hydrologic problems.

When Offered (Normally offered fall semester)

Former Course Number [GEOL 2005]

Prerequisite: 1000-level GEOL course with lab, PHYS 1110 or PHYS 1210.

GEOL2010 - Mineralogy

Credits: 3

Introduction to rock forming minerals. Includes introduction to crystallography, crystal chemistry, and the occurrence and identification of the common minerals, with emphasis on silicates. Field trip required.

Prerequisite: GEOL 1005, GEOL 1100, or GEOL 1500; CHEM 1020 or concurrent enrollment.

GEOL2020 - Introduction to Petrology

Credits: 2

Introduces the study of igneous, sedimentary, and metamorphic rocks in hand specimen. Covers textural and mineralogic classification of rocks and the tectonic environments in which they occur. Field trip required.

Prerequisite: a grade of C or better in GEOL 2010.

GEOL2100 - Stratigraphy and Sedimentation

Credits: 4

Introduces principles of stratigraphy, materials and processes of sedimentation. Laboratory includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. Field trip required.

When Offered (Normally offered spring semester)

Prerequisite: GEOL 2010.

GEOL4610 - Structural Geology and Tectonics

Credits: 4

Encompasses lectures, readings and problems dealing with character and causes of structures that deform Earth's crust. Field trips required.

When Offered (Normally offered fall semester)

Prerequisite: GEOL 2010.

GEOL4717 - Field Course in Geology

Credits: 1-8

Reviews field observation of geologic phenomena, methods of geologic mapping and interpretation of data collected. Course includes a six-week field trip.

When Offered (Offered early summer)

Former Course Number [GEOL 5100]

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4820 - Capstone

Credits: 3

Critical examination of landmark papers and their influence on the Earth sciences. Through readings, lectures, discussions and in oral and written presentations, the student will gain a broad perspective over the impact of key issues in the field.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: junior standing and 26 hours in the department.

Additional Geology Courses

Additional 18 credit hours in Geology courses at 2000-level and above:

Allied Math and Sciences Credits: 20 Hours

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

OR

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

OR

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

OPTION A: Fundamental Math

GEOL2120 - Quantitative GeoMethods

Credits: 3

Focuses on fundamental mathematical concepts used in geosciences. This course provides the tools to solve quantitative problems in geosciences applications. Students should demonstrate mathematical skills needed to formulate, analyze, and interpret quantitative arguments in geosciences.

USP 2003-2014 Code U5Q

Prerequisite: Level 5 in Math Placement Test OR 23 in Math ACT OR 600 in Math SAT.

AND

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

OPTION B: Advanced Math

MATH 2200 - Calculus I. Credits: 4

AND

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

OR

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

OR

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

- Eng Physics Credits: 4

Minor

Geology Minor

A minor in geology is intended for those students majoring in other programs who are interested in complementing their degree with a broader understanding of geology and the earth sciences.

Required Courses

Students are required to take 18 hours of coursework in the Department of Geology and Geophysics including one GEOL 1000-level course (3-4); one GEOL 2000-level course (3-4); **and fulfill the remaining credit hours (10-12) with GEOL 2000-level or higher courses in consultation with their adviser.** A grade of C or better is required in each of these courses.

GEOL1005 - Earth History

Credits: 4

Reviews the evolution of the Earth including: the creation of the Universe, formation of a layered earth, development and history of continents, controls on climate change, and the origin and evolution of life. Class introduces basic geologic, chemical, physical and biologic concepts used to decipher Earth history.

USP 2003-2014 Code U3S

OR another 1000-level GEOL course

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

OR another 2000-level GEOL course

AND fulfill remaining credits with 2000-level or higher GEOL courses in consultation with their adviser.

Graduate

Geology, M.S.

Plan A (Thesis)

(26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL5020 - Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geology must complete two semesters of GEOL 5200. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

Geology, Ph.D.

(42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

Completion of GEOL5020 - Fundamentals of Research is required during the first semester of residence.

All graduate students in Geology must complete two semesters of GEOL 5200. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

The Ph.D. dissertation and its defense are described in the regulations section of this *Catalog*. Specific department examination requirements are available from the department office. The candidate's committee is responsible for monitoring progress of the research, refereeing the written work, and administering the final examination.

Geology/Water Resources, M.S.

The purpose of this program is to formalize and broaden strong department offerings at the master of science level in ground water geology, natural waters geochemistry, mathematical hydrology, and fluvial geomorphology.

Admission Requirements

In addition to the department admission requirements, the undergraduate degree program earned by the incoming candidate must meet the minimum undergraduate requirements for the UW geology curriculum in mathematics, physics, and chemistry. The transcript should also demonstrate a strong background in physical geology.

Plan A Thesis Requirement

Only students with a Plan A thesis option are eligible. Students must follow the same program requirements as stated under Geology and Geophysics department section. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee.

Interdisciplinary Component

9 hours (see Water Resources degree requirements)

Coursework and Thesis

Each student must complete a minimum of 26 hours of graduate level coursework and a Plan A thesis. In addition, the following specific core courses are required for the master of science in geology/water resources and geophysics/water resources degrees.

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

One of the Following:

- GEOL 4830 - Introduction Quantitative Methods in Geology Credits: 3
OR

GEOL5050 - Introduction to Isotope Geology

Credits: 3

Understanding of atomic structure, radioactive decay, mass spectrometry, dating techniques and petrologic uses of isotopic systems. Emphasis will be placed on evaluating dating methods in relation to particular geologic problems and possible sources of error. The use of isotopes in defining magmatic sources and crustal contamination are discussed.

Prerequisite: CHEM 1020, CHEM 1110, MATH 2200, MATH 2205.

OR

GEOL4880 - Earth Surface Processes

Credits: 3

Quantitative interpretation of Earth's surface processes. Uses a quantitative approach to demonstrate how the development of landforms can be modeled.

Prerequisite: MATH 2205 (MATH 2210 preferred), PHYS 1210.

Technical/Water Quality Course

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

OR

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

Geophysics, M.S.

Plan A (Thesis)

(26 hours of coursework and 4 hours of thesis)

Preliminary and initial advising shall take place upon acceptance to the graduate program to identify background deficiencies and develop a list of required deficiency coursework to be taken. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

GEOL5020 - Fundamentals of Research is required of ALL graduate students during the first semester of residence.

All graduate students in geophysics must complete two semesters of GEOL 5210. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

All M.S. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure of this exam may result in dismissal from the graduate program.

The candidate's committee shall evaluate the thesis and conduct the final examination. The final exam is an oral presentation of the thesis, oral defense of thesis, and oral responses to questions relating to ancillary topics. Failure of this exam can result in dismissal. Retaking of the exam is subject to the discretion of the candidate's graduate committee.

M.S. candidates in geophysics must complete 6 hours of mathematics and three hours of physics or engineering courses at the graduate level.

M.S. candidates must take at least 12 hours of 4000- and 5000-level courses in geophysics. Recommended graduate level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

Geophysics, Ph.D.

(42 hours of coursework and 30 hours of dissertation research)

Preliminary and initial advising will identify background deficiencies and develop a list of required deficiency coursework. Deficiency coursework must be completed with a grade of B or better early in the student's graduate residence.

All graduate students in geophysics must complete two semesters of GEOL 5210. Distinguished Lecture Series in the first two semesters of residence plus Rocky Mountain Field Trip.

Completion of GEOL5020 - Fundamentals of Research is required during the first semester of residence.

Ph.D. candidates in geophysics must complete at least 6 additional hours of graduate level coursework: 3 in mathematics and 3 in physics or engineering. Recommended graduate-level mathematics courses include differential equations, numerical analysis, and real and complex variables; in physics and engineering, they include classical mechanics, continuum mechanics, elasticity, electricity and magnetism. Ph.D. candidates are required to take at least 12 hours of 5000-level geophysics courses exclusive of GEOL 5854. Substitutions for graduate-level geophysics courses may be made with the permission of the candidate's adviser. Remaining graduate-level course requirements may be made up from courses in physics, engineering, mathematics, and geology.

All Ph.D. students in the Department of Geology and Geophysics will be required to complete a qualifying exam by the end of the second term in residence. Specific department examination requirements are available from the department office. Failure to complete the exam by the end of the second semester in residence without an approved extension will result in suspension of the student's financial support, irrespective of the source of funding. Ph.D. students who fail the exam will be asked to withdraw from the graduate program or to enroll in the M.S. program.

The preliminary examination is administered following completion of 30 hours of 4000-level or higher coursework, not including independent study or research credits. Failure of this exam may, at the discretion of the thesis committee, lead to a re-examination during the following semester in residence, remedial work, or expulsion from the program.

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Geophysics/Water Resources, M.S.

Admission Requirements

In addition to the department admission requirements, the undergraduate degree program earned by the incoming candidate must meet the minimum undergraduate requirements for the UW geology curriculum in mathematics, physics, and chemistry. The transcript should also demonstrate a strong background in physical geology.

Plan A Thesis Requirement

Only students with a Plan A thesis option are eligible. Students must follow the same program requirements as stated under Geology and Geophysics department section. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee.

Interdisciplinary Component

9 hours (see Water Resources degree requirements)

Coursework and Thesis

Each student must complete a minimum of 26 hours of graduate level coursework and a Plan A thesis. In addition, the following specific core courses are required for the master of science in geology/water resources and geophysics/water resources degrees.

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Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

One of the Following:

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OR

GEOL4880 - Earth Surface Processes

Credits: 3

Quantitative interpretation of Earth's surface processes. Uses a quantitative approach to demonstrate how the development of landforms can be modeled.

Prerequisite: MATH 2205 (MATH 2210 preferred), PHYS 1210.

OR

GEOL5050 - Introduction to Isotope Geology

Credits: 3

Understanding of atomic structure, radioactive decay, mass spectrometry, dating techniques and petrologic uses of isotopic systems. Emphasis will be placed on evaluating dating methods in relation to particular geologic problems and possible sources of error. The use of isotopes in defining magmatic sources and crustal contamination are discussed.

Prerequisite: CHEM 1020, CHEM 1110, MATH 2200, MATH 2205.

Technical/Water Quality Course

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

OR

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

Department of History

History

History Building

(307) 766-5101

Website: www.uwyo.edu/history

E-mail: uwhistory@uwyo.edu

Department Chair: Jeffrey Means

Professor:

RENEE LAEGREID, B.A. Washington State University 1982; M.A.L.S. Wesleyan University 1994; Ph.D. University of Nebraska 2002; Professor of History 2015, 2012.

Associate Professor:

ISADORA A. HELFGOTT, B.A. Swarthmore College 1994; A.M. Harvard University 1997; Ph.D. 2006; Associate Professor of History 2015, 2009.

ALEXANDRA KELLY, B.A. University of Chicago 2004; M.A. 2005; Ph.D. Stanford University 2014; Assistant Professor of History and Anthropology 2014.

JEFFREY D. MEANS, B.A. Grand Canyon University 1995; M.A. University of Montana 2001; Ph.D. University of Oklahoma 2007; Associate Professor of History 2013, 2007.

Assistant Professor:

ADAM BLACKLER, B.A. Carroll College 2006; M.A. University of Wyoming 2009; Ph.D. University of Minnesota - Twin Cities 2017; Assistant Professor of History 2018.

BARBARA E. LOGAN, B.A. Queens College, CUNY 1986; Ph.D. University of California-Santa Cruz 2002; Assistant Professor of History 2018, 2011.

MELISSA MORRIS, B.A. Miami University 2004; M.A. Miami University 2010; Ph.D. Columbia University 2017; Assistant Professor of History 2018.

PETER WALKER, B. A. University of Oxford 2008; M. Phil. University of Oxford 2010; Ph. D. Columbia University 2016; Visiting Assistant Professor of History 2019.

Adjunct Faculty:

MICHAEL J. DEVINE, B.A. Loras College 1967; M.A. Ohio State University 1968; Ph.D. 1974; Adjunct Professor of History, 2014, 1991.

Professors Emeriti:

Eric D. Kohler, William H. Moore, Phil Roberts

History Program

History is a foundational discipline that blends the methodologies and perspective of the humanities and social sciences in order to engage with the history of human culture on a global scale. UW's History degree program emphasizes interdisciplinary teaching and research and provides course work, research experiences, and internships on both American and international topics. The History program offers a Bachelor of Arts degree major, minor, Public History Concentration, and a Master of Arts degree.

The study of History at the University of Wyoming provides students with the tools to comprehend the present in order to prepare for the future. Challenging courses are designed to facilitate critical thinking and the development of analytical skills. Each of our courses features the discussion of complex issues, the development of writing and reading skills, and is generally oriented toward promoting individual enrichment. The professional skills that the History program instills transcend our field and allow students to work toward a variety of career choices such as business, law, government service, public history, archives and museum work, education, management, writing, and graduate studies. The ability to develop perspective, render informed judgments, and function as productive citizens of the global community stand as hallmarks of our program.

Learning Outcomes

It is the goal of the History department that our graduates have the following skills and knowledge:

- Students shall be able to demonstrate thinking skills by analyzing, synthesizing, and evaluating historical information from multiple sources.
- Students will develop the ability to distinguish between fact and fiction while understanding that there is no one historical truth.
- Students will produce well-researched written work that engages with both primary sources and the secondary literature.
- Students will develop an informed familiarity with multiple cultures.
- Students will employ a full range of techniques and methods used to gain historical knowledge.
- Students will develop an ability to convey verbally their historical knowledge.
- Students will demonstrate their understanding of cause and effect along with their knowledge of the general chronology of human experience.

Major

History, B.A.

A History B.A. provides the skills needed to succeed in any job, public history, archive and museum work, law, education, business and more. Skills mastered include critical thinking, multi-perspective analysis, and written and oral communication.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

ENGL 1010

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

College of Arts and Sciences Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

History Requirements

The History major requires a minimum of 36 credit hours in History courses or approved substitutions and an additional 12 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages. All courses used to satisfy major requirements - including the language requirement - must be completed with a grade of C or better. To complete the Bachelor of Arts (B.A.) degree in History, all University Studies Program (USP) and college requirements must also be satisfied.

Language

Students must complete three semesters of a single foreign language or the equivalent as determined by the Department of Languages - Modern and Classical. This requirement may be satisfied by American Sign Language.

Two Required Courses: 6 Hours

HIST3020 - Historical Methods

Credits: 3
An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB
Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.
AND

HIST4030 - Senior Capstone Seminar

Credits: 3
Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

Elective: Any Level: 3 Hours

One additional History course at any level.

Lower-Division Electives: 12 Hours

Lower-Division courses are 1000 and 2000 level courses.

HIST1101 - FYS: Hamilton's America: Beyond the Musical

Credits: 3

Over the last few years, Hamilton: An American Musical has taken the world by storm. Taking the musical as a starting point, we will consider the real Alexander Hamilton's life and times; the relationship between history, memory, storytelling, and art; and the newfound love of an historical figure who was, in his own time, less than universally popular. This course fulfills the First-Year Seminar (FYS) requirement of the 2015 University Studies Program.

USP 2015 Code U5FY

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

HIST1210 - United States History I

Credits: 3

Surveys U. S. history 1607-1865. Together with HIST 1220, it is the foundation on which all U. S. history courses offered by the department are based. Students cannot receive credit for both HIST 1210 and HIST 1211 .

USP 2003-2014 Code U3VT

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1220 - United States History II

Credits: 3

Surveys U.S. history from reconstruction to recent past. Together with HIST 1210, it is the foundation for all U. S. history courses offered by the department. Students cannot receive credit for both HIST 1220 and HIST 1221.

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1250 - History of Wyoming

Credits: 3

A study of Wyoming from its beginning to the present. Students cannot receive credit for both HIST 1250 and HIST 1251.

USP 2003-2014 Code U3VT

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1290 - History of the U.S. West

Credits: 3

An introductory survey of the American West, with consideration of developments in both the 19th and 20th centuries.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

HIST2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed ENR 2030.
USP 2003-2014 Code [(none)< >H]

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST2060 - Topics in History

Credits: 2-3

Max Credit 6

Discusses special topics that fall outside traditional chronological and geographical framework of history; content varies from semester to semester in accordance with faculty interest and student demand.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2105 - Medieval Europe in Film

Credits: 3

Historical depictions in films help to shape people's view of the past. Uses commercial films to study major themes in the development of western European civilization between 500 and 1500. Students view, discuss and write about films, learning to evaluate films historically and to view films critically, developing media literacy.

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

HIST2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed RELI 2225.

USP 2015 Code U5H

HIST2230 - The History of Russia to 1855

Credits: 3

General survey of modern Russian history from earliest times to 1855.

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed RELI 2250.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2252 - American Religious History II (1865 to 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed RELI 2252.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed INST 2280.

USP 2015 Code U5C2

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.

USP 2003-2014 Code U3CH, U3D

A&S College Core 2015 ASD

HIST2315 - History of Non-Western Religions

Credits: 3

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed RELI 2315.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

HIST2360 - African-American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed AAST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

HIST2370 - Chicano History: Origins to 1900

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2370/GEOG 2370.
USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2380 - Latin American History 1500 to 2000

Credits: 3

Provides introduction to Latin American history, from colonial contacts to the present. Explores important themes and connections across the colonial and modern periods, such as race, national identity, foreign involvement, indigenous peoples' role in nation-states, religion, social movements, economic systems, and globalization.

USP 2003-2014 Code U3G
USP 2015 Code U5H

HIST2385 - Chicano History : 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2385.
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD

HIST2390 - US West Between the World Wars

Credits: 3

Examines two pivotal decades (1918-1942) in the US West that encompasses prosperity, Depression, and reform, through the use of historical documents, art, film, literature, and music.

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4
Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

HIST2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed ECON 2500.

HIST2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in

long-distance trade.

Cross Listed ANTH 2600.
USP 2015 Code U5H

HIST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/AMST 2700/ANTH 2700.
USP 2003-2014 Code U3CH

HIST2705 - Museology II

Credits: 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes. Cross listed between Anthropology, History, American Studies, and Art.

Cross Listed AMST 2705 / ANTH 2705 / ART 2705

Upper-Division Electives: 15 Hours

Upper-Division courses are 3000 and 4000 level courses.

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.
USP 2003-2014 Code U3D
A&S College Core 2015 ASD
Prerequisite: 6 hours of HIST or NAIS.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/POLS 3050.

Prerequisite: WB or COM2.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/PHIL 3160.

Prerequisite: WB or COM2.

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G
A&S College Core 2015 ASG
Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000 or RELI 2225/HIST 2225.

HIST3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500 - 1500 CE, concentrating on the Latin West. It examines the growth of Christian institutions and practices, the Church's role as sole governing entity, along with conflicts with secular governments as they developed in later centuries.

Cross Listed RELI 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

HIST3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: RELI 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

HIST3275 - World Christianities

Credits: 3

Examines the development of Christianity primarily in Africa, Asia and South America.

Cross Listed RELI 3275

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WB and CH

HIST3300 - Secret History of Science

Credits: 3

Explores developments in science from prehistory to the present. It focuses on the lesser-known men and women who

contributed to science, as well as on seemingly superstitious beliefs that were nonetheless important to advances in knowledge.

Restricted Restricted to junior standing or higher.

Prerequisite: 6 hours in HIST or 6 hours of PN coursework, or a combination of both.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

HIST3500 - Colonial America

Credits: 3

This course covers the history of European colonization from roughly 1492 to 1763. Our geographic focus will be on the (future) United States, but will also learn how transatlantic forces influenced its people.

Prerequisite: 12 hours of HIST courses or permission of instructor.

HIST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia, and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed AAST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/HIST 2360.

HIST3880 - Comparative History

Credits: 3

Explores comparative history from a variety of topics, such as colonialism, memory, nationalisms, frontiers, or cultural history. This course will introduce students to at least one of these themes from at least two regions, time periods, or groups of people to understand patterns and change in human societies through time.

Prerequisite: 6 hours of HIST.

HIST3900 - Historical Archaeology

Credits: 3

This course introduces students to the field of historical archaeology, the archaeological and archival study of literate societies. Students will be introduced to the history of the discipline, a survey of contemporary historical archaeological practice.

Cross Listed ANTH 3900

Former Course Number [none < > none]

Prerequisite: ANTH 1300

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000

Dual Listed HIST 5000

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

HIST4060 - Independent Study

Credits: 1-3

Max Credit 6

Credit not to exceed 6 hours maximum, to be arranged in either European or American history. Primarily for juniors and seniors who can profit from independent work with minimal supervision.

Prerequisite: 12 semester hours in history; written permission of instructor required.

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

HIST4100 - Early Medieval Europe

Credits: 3

Studies development of European civilization from decline of Rome to 12th century.

Dual Listed HIST 5100.

Prerequisite: 9 hours of HIST.

HIST4110 - The High Middle Ages

Credits: 3

Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 5110.

Prerequisite: 9 hours of HIST.

HIST4112 - History of the Medieval City

Credits: 3

After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000 Europe began its rise to world prominence and cities contributed to that rise. Examines development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 5112.

Prerequisite: 9 hours of HIST.

HIST4113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what some would call heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed RELI 4113.

Dual Listed HIST 5113.

Prerequisite: 9 hours of HIST or RELI.

HIST4120 - Europe During the Renaissance

Credits: 3

Intensely studies European history in 14th and 15th centuries.

Prerequisite: 9 hours of HIST.

HIST4130 - Europe During the Reformation

Credits: 3

Intensely studies European history in the 16th century.

Prerequisite: 9 hours of HIST.

HIST4140 - Europe During the Age of the Baroque

Credits: 3

Intensely studies European history in 17th century.

Prerequisite: 9 hours of HIST.

HIST4150 - Europe During the Age of the Enlightenment

Credits: 3

Intensely studies European history in 18th century.

Prerequisite: 9 hours of HIST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed RELI 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

HIST4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed RELI 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 5305.

USP 2003-2014 Code U3G

Prerequisite: 9 hours of HIST, INST, or POLS.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 4380.

Dual Listed HIST 5380.

Prerequisite: 9 hours of HIST or INST.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

HIST4405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African and Asian people from pre-contact through the mid-19th century.

Dual Listed HIST 5405.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 5406

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST.

HIST4410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 5410.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 5415.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 5425.

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4450 - The Civil War and Reconstruction

Credits: 3

Studies crisis of the Union, 1861-1877. Examines experiences of both the North and South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 5450.

Prerequisite: 9 hours of HIST.

HIST4460 - Post-Civil War America: The Gilded Age

Credits: 3

Intensively covers economic, cultural and political developments which marked the U.S. in post-Civil War era, such as rise of industry, emergence of distinctive national culture and party struggles shaping America's Gilded Age.

Dual Listed HIST 5460.

Prerequisite: 9 hours of HIST.

HIST4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed NAIS 4462.

Dual Listed HIST 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

HIST4463 - American Indian History 1783 to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied moving west.

Cross Listed NAIS 4463.

Dual Listed HIST 5463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural, social and political forms that help create an American Indian identity.

Cross Listed NAIS 4464.

Dual Listed HIST 5464.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed NAIS 4466.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST, NAIS, or ANTH.

HIST4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed NAIS 4468.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U. S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between depression of the 1890s and that of the 1930s.

Dual Listed HIST 5470.

Prerequisite: 9 hours of HIST.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

HIST4480 - Growth of Modern America, 1929 to 1960

Credits: 3

Studies political and diplomatic developments in the U.S. in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasizes economic crisis, growth of government, reform traditions, anti-communism and civil rights.

Dual Listed HIST 5480.

Prerequisite: 9 hours of HIST.

HIST4485 - U.S. Latino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U.S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives' responses are stressed.

Cross Listed LTST 4485/INST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Cross Listed LTST 4492.

Dual Listed HIST 5492.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST or INST.

HIST4494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 5494.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or INST.

HIST4495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 5495.

Former Course Number [4720]

Prerequisite: 9 hours of HIST or INST.

HIST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed LTST 4496.

Dual Listed HIST 5496.

Former Course Number [4800]

Prerequisite: 9 hours of HIST or INST.

HIST4505 - The Old South, 1820 to 1861

Credits: 3

Studies history of the South from emergence of southern identity to the Civil War. Emphasizes southern society and culture.

Dual Listed HIST 5505.

Former Course Number [4500]

Prerequisite: 9 hours of HIST.

HIST4510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 5510.

Former Course Number [4950]

Prerequisite: 9 hours of HIST.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

HIST4530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 5530.

Former Course Number [4630]

Prerequisite: 9 hours of HIST.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

HIST4540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 5540.

Former Course Number [4640]

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

HIST4560 - American Social History in the 20th Century

Credits: 3

Explores history of social mobility and conflict in 20th century. Emphasizes impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting and architecture.

Dual Listed HIST 5560.

Prerequisite: 9 hours of HIST.

HIST4582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed INST 4582.

Dual Listed HIST 5582.

Prerequisite: 9 hours of HIST or INST.

HIST4610 - Seminar Topics in the History of Wyoming I

Credits: 3

An intensive research and writing course dealing with topics in the period before statehood in 1890.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4620 - Seminar Topics in the History of Wyoming II

Credits: 3

Allows students to do intensive research and writing dealing with topics in Wyoming history from 1890 to present.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4965 - Senior Thesis

Credits: 3

Working closely with a faculty advisor, a history major will develop a research proposal that, after approval by the History department faculty, will lead to in-depth research and writing, producing a minimum 50-page thesis that demonstrates an excellent grasp of historical methods and a high degree of writing skill.

Prerequisite: 12 hours of HIST; senior class standing; HIST major.

HIST4990 - Topics in _____

Credits: 1-6

Max Credit (Max. 12)

Affords students opportunity to study in-depth various topics in history not offered in regular courses or independent study.

Former Course Number [4080]

Prerequisite: 9 hours of HIST.

History, Public History Concentration, B.A.

Want work in a museum, historical site, park, archive, historical consulting firm, establishing and operating archives and records management systems for private businesses, state agencies, or universities, and more? Then public history is for you.

Public History Concentration

Combined with the History B.A. requirements (below,) students can declare a Public History Concentration. The History B.A. requires a minimum of 36 credit hours in History courses, and 18 of those can qualify to meet the Public History Concentration requirements. The Public History Concentration requires a minimum of 18 hours of History coursework that may be tailored for individual student career goals.

Specific course requirements for the Public History Concentration are as follows:

Required Courses for Public History Concentration

HIST2050 - Introduction to Public History

HIST2700 - Introduction to Museology

HIST3020 - Historical Methods

HIST4400 - Internship

Elective courses for Public History Concentration

2 of the following courses:

HIST4055 - Archival Research Methods

HIST4077 - Book History: Topics

HIST4315 - History, Politics and Memory of the Holocaust in Europe

HIST4320 - Memory and National Identity in Twentieth Century Europe

HIST4400 - Internship (Students are allowed 2 Internship courses if approved by an advisor)

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

ENGL 1010

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

College of Arts and Sciences Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

History BA Requirements

The History major requires a minimum of 36 credit hours in History courses or approved substitutions and an additional 12 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages. All courses used to satisfy major requirements - including the language requirement - must be completed with a grade of C or better. To complete the Bachelor of Arts (B.A.) degree in History, all University Studies Program (USP) and college requirements must also be satisfied.

Language

Students must complete three semesters of a single foreign language or the equivalent as determined by the Department of Languages - Modern and Classical. This requirement may be satisfied by American Sign Language.

Two Required Courses: 6 Hours

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research. Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

AND

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

Elective: Any Level: 3 Hours

One additional History course at any level.

Lower-Division Electives: 12 Hours

Lower-Division courses are 1000 and 2000 level courses.

HIST1101 - FYS: Hamilton's America: Beyond the Musical

Credits: 3

Over the last few years, Hamilton: An American Musical has taken the world by storm. Taking the musical as a starting point, we will consider the real Alexander Hamilton's life and times; the relationship between history, memory, storytelling, and art: and the newfound love of an historical figure who was, in his own time, less than universally

popular. This course fulfills the First-Year Seminar (FYS) requirement of the 2015 University Studies Program.

USP 2015 Code U5FY

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

HIST1210 - United States History I

Credits: 3

Surveys U. S. history 1607-1865. Together with HIST 1220, it is the foundation on which all U. S. history courses offered by the department are based. Students cannot receive credit for both HIST 1210 and HIST 1211 .

USP 2003-2014 Code U3VT

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1220 - United States History II

Credits: 3

Surveys U.S. history from reconstruction to recent past. Together with HIST 1210, it is the foundation for all U. S. history courses offered by the department. Students cannot receive credit for both HIST 1220 and HIST 1221.

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester
USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1250 - History of Wyoming

Credits: 3

A study of Wyoming from its beginning to the present. Students cannot receive credit for both HIST 1250 and HIST 1251.

USP 2003-2014 Code U3VT

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1290 - History of the U.S. West

Credits: 3

An introductory survey of the American West, with consideration of developments in both the 19th and 20th centuries.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

HIST2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed ENR 2030.

USP 2003-2014 Code [(none)< >H]

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST2060 - Topics in History

Credits: 2-3

Max Credit 6

Discusses special topics that fall outside traditional chronological and geographical framework of history; content varies from semester to semester in accordance with faculty interest and student demand.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2105 - Medieval Europe in Film

Credits: 3

Historical depictions in films help to shape people's view of the past. Uses commercial films to study major themes in the development of western European civilization between 500 and 1500. Students view, discuss and write about films, learning to evaluate films historically and to view films critically, developing media literacy.

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

HIST2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed RELI 2225.

USP 2015 Code U5H

HIST2230 - The History of Russia to 1855

Credits: 3

General survey of modern Russian history from earliest times to 1855.

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of

religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed RELI 2250.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2252 - American Religious History II (1865 to 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed RELI 2252.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed INST 2280.
USP 2015 Code U5C2

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

HIST2315 - History of Non-Western Religions

Credits: 3

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed RELI 2315.
USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

HIST2360 - African-American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed AAST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

HIST2370 - Chicano History: Origins to 1900

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2370/GEOG 2370.
USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2380 - Latin American History 1500 to 2000

Credits: 3

Provides introduction to Latin American history, from colonial contacts to the present. Explores important themes and connections across the colonial and modern periods, such as race, national identity, foreign involvement, indigenous peoples' role in nation-states, religion, social movements, economic systems, and globalization.

USP 2003-2014 Code U3G

USP 2015 Code U5H

HIST2385 - Chicano History : 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

HIST2390 - US West Between the World Wars

Credits: 3

Examines two pivotal decades (1918-1942) in the US West that encompasses prosperity, Depression, and reform, through the use of historical documents, art, film, literature, and music.

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4
Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

HIST2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed ECON 2500.

HIST2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in long-distance trade.

Cross Listed ANTH 2600.
USP 2015 Code U5H

HIST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/AMST 2700/ANTH 2700.
USP 2003-2014 Code U3CH

HIST2705 - Museology II

Credits: 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to

these themes. Cross listed between Anthropology, History, American Studies, and Art.

Cross Listed AMST 2705 / ANTH 2705 / ART 2705

Upper-Division Electives: 15 Hours

Upper-Division courses are 3000 and 4000 level courses.

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research.

Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/POLS 3050.

Prerequisite: WB or COM2.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/PHIL 3160.

Prerequisite: WB or COM2.

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000 or RELI 2225/HIST 2225.

HIST3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500 - 1500 CE, concentrating on the Latin West. It examines the growth of Christian institutions and practices, the Church's role as sole governing entity, along with conflicts with secular governments as they developed in later centuries.

Cross Listed RELI 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

HIST3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: RELI 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

HIST3275 - World Christianities

Credits: 3

Examines the development of Christianity primarily in Africa, Asia and South America.

Cross Listed RELI 3275

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WB and CH

HIST3300 - Secret History of Science

Credits: 3

Explores developments in science from prehistory to the present. It focuses on the lesser-known men and women who contributed to science, as well as on seemingly superstitious beliefs that were nonetheless important to advances in knowledge.

Restricted Restricted to junior standing or higher.

Prerequisite: 6 hours in HIST or 6 hours of PN coursework, or a combination of both.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

HIST3500 - Colonial America

Credits: 3

This course covers the history of European colonization from roughly 1492 to 1763. Our geographic focus will be on the (future) United States, but will also learn how transatlantic forces influenced its people.

Prerequisite: 12 hours of HIST courses or permission of instructor.

HIST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia, and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed AAST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/HIST 2360.

HIST3880 - Comparative History

Credits: 3

Explores comparative history from a variety of topics, such as colonialism, memory, nationalisms, frontiers, or cultural history. This course will introduce students to at least one of these themes from at least two regions, time periods, or groups of people to understand patterns and change in human societies through time.

Prerequisite: 6 hours of HIST.

HIST3900 - Historical Archaeology

Credits: 3

This course introduces students to the field of historical archaeology, the archaeological and archival study of literate societies. Students will be introduced to the history of the discipline, a survey of contemporary historical archaeological practice.

Cross Listed ANTH 3900

Former Course Number [none < > none]

Prerequisite: ANTH 1300

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000

Dual Listed HIST 5000

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

HIST4060 - Independent Study

Credits: 1-3

Max Credit 6

Credit not to exceed 6 hours maximum, to be arranged in either European or American history. Primarily for juniors and seniors who can profit from independent work with minimal supervision.

Prerequisite: 12 semester hours in history; written permission of instructor required.

HIST4077 - Book History: Topics

Credits: 3
Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.
Prerequisite: 9 hours of HIST.

HIST4100 - Early Medieval Europe

Credits: 3
Studies development of European civilization from decline of Rome to 12th century.

Dual Listed HIST 5100.
Prerequisite: 9 hours of HIST.

HIST4110 - The High Middle Ages

Credits: 3
Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 5110.
Prerequisite: 9 hours of HIST.

HIST4112 - History of the Medieval City

Credits: 3
After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000 Europe began its rise to world prominence and cities contributed to that rise. Examines development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 5112.
Prerequisite: 9 hours of HIST.

HIST4113 - Medieval Religious Dissent

Credits: 3
Religious dissent in the Middle Ages included what some would call heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed RELI 4113.
Dual Listed HIST 5113.
Prerequisite: 9 hours of HIST or RELI.

HIST4120 - Europe During the Renaissance

Credits: 3

Intensely studies European history in 14th and 15th centuries.

Prerequisite: 9 hours of HIST.

HIST4130 - Europe During the Reformation

Credits: 3

Intensely studies European history in the 16th century.

Prerequisite: 9 hours of HIST.

HIST4140 - Europe During the Age of the Baroque

Credits: 3

Intensely studies European history in 17th century.

Prerequisite: 9 hours of HIST.

HIST4150 - Europe During the Age of the Enlightenment

Credits: 3

Intensely studies European history in 18th century.

Prerequisite: 9 hours of HIST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed RELI 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

HIST4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed RELI 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 5305.

USP 2003-2014 Code U3G

Prerequisite: 9 hours of HIST, INST, or POLS.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 4380.

Dual Listed HIST 5380.

Prerequisite: 9 hours of HIST or INST.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

HIST4405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African and Asian people from pre-contact through the mid-19th century.

Dual Listed HIST 5405.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 5406

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST.

HIST4410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 5410.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 5415.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 5425.

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4450 - The Civil War and Reconstruction

Credits: 3

Studies crisis of the Union, 1861-1877. Examines experiences of both the North and South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 5450.

Prerequisite: 9 hours of HIST.

HIST4460 - Post-Civil War America: The Gilded Age

Credits: 3

Intensively covers economic, cultural and political developments which marked the U.S. in post-Civil War era, such as rise of industry, emergence of distinctive national culture and party struggles shaping America's Gilded Age.

Dual Listed HIST 5460.

Prerequisite: 9 hours of HIST.

HIST4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed NAIS 4462.

Dual Listed HIST 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

HIST4463 - American Indian History 1783 to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied moving west.

Cross Listed NAIS 4463.

Dual Listed HIST 5463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural,

social and political forms that help create an American Indian identity.

Cross Listed NAIS 4464.

Dual Listed HIST 5464.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed NAIS 4466.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST, NAIS, or ANTH.

HIST4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed NAIS 4468.

USP 2003-2014 Code U3D

Prerequisite: 9 hours of HIST or NAIS.

HIST4470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U. S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between depression of the 1890s and that of the 1930s.

Dual Listed HIST 5470.

Prerequisite: 9 hours of HIST.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

HIST4480 - Growth of Modern America, 1929 to 1960

Credits: 3

Studies political and diplomatic developments in the U.S. in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasizes economic crisis, growth of government, reform traditions, anti-communism and civil rights.

Dual Listed HIST 5480.

Prerequisite: 9 hours of HIST.

HIST4485 - U.S. Latino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U.S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives' responses are stressed.

Cross Listed LTST 4485/INST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Cross Listed LTST 4492.

Dual Listed HIST 5492.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST or INST.

HIST4494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 5494.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or INST.

HIST4495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 5495.

Former Course Number [4720]

Prerequisite: 9 hours of HIST or INST.

HIST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed LTST 4496.

Dual Listed HIST 5496.

Former Course Number [4800]

Prerequisite: 9 hours of HIST or INST.

HIST4505 - The Old South, 1820 to 1861

Credits: 3

Studies history of the South from emergence of southern identity to the Civil War. Emphasizes southern society and culture.

Dual Listed HIST 5505.

Former Course Number [4500]

Prerequisite: 9 hours of HIST.

HIST4510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 5510.

Former Course Number [4950]

Prerequisite: 9 hours of HIST.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

HIST4530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 5530.

Former Course Number [4630]

Prerequisite: 9 hours of HIST.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

HIST4540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 5540.

Former Course Number [4640]

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

HIST4560 - American Social History in the 20th Century

Credits: 3

Explores history of social mobility and conflict in 20th century. Emphasizes impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting and architecture.

Dual Listed HIST 5560.

Prerequisite: 9 hours of HIST.

HIST4582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed INST 4582.

Dual Listed HIST 5582.

Prerequisite: 9 hours of HIST or INST.

HIST4610 - Seminar Topics in the History of Wyoming I

Credits: 3

An intensive research and writing course dealing with topics in the period before statehood in 1890.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4620 - Seminar Topics in the History of Wyoming II

Credits: 3

Allows students to do intensive research and writing dealing with topics in Wyoming history from 1890 to present.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4965 - Senior Thesis

Credits: 3

Working closely with a faculty advisor, a history major will develop a research proposal that, after approval by the History department faculty, will lead to in-depth research and writing, producing a minimum 50-page thesis that demonstrates an excellent grasp of historical methods and a high degree of writing skill.

Prerequisite: 12 hours of HIST; senior class standing; HIST major.

HIST4990 - Topics in _____

Credits: 1-6

Max Credit (Max. 12)

Affords students opportunity to study in-depth various topics in history not offered in regular courses or independent study.

Former Course Number [4080]

Prerequisite: 9 hours of HIST.

Minor

History Minor

Only 18 credit hours of classes to learn professional skills vital to any career. Critical thinking, effective written and oral communication, and multi-perspective analysis highlight History's benefits in whatever profession you pursue.

Requirements

The history minor requires at least 18 credit hours of History courses, 9 hours of which must be Upper-Division (3000 and 4000 level) courses. These courses must be taken for letter grades with a minimum earned grade of C. For assistance in tailoring the minor content, contact the Department of History.

HIST1101 - FYS: Hamilton's America: Beyond the Musical

Credits: 3

Over the last few years, Hamilton: An American Musical has taken the world by storm. Taking the musical as a starting point, we will consider the real Alexander Hamilton's life and times; the relationship between history, memory, storytelling, and art; and the newfound love of an historical figure who was, in his own time, less than universally popular. This course fulfills the First-Year Seminar (FYS) requirement of the 2015 University Studies Program.

USP 2015 Code U5FY

HIST1110 - Western Civilization I

Credits: 3

Surveys basics of Western European civilization from decline of Roman Empire to 1700.

USP 2003-2014 Code U3CH

HIST1120 - Western Civilization II

Credits: 3

A broad survey of European history in the Western tradition from 1700 to present.

HIST1210 - United States History I

Credits: 3

Surveys U. S. history 1607-1865. Together with HIST 1220, it is the foundation on which all U. S. history courses offered by the department are based. Students cannot receive credit for both HIST 1210 and HIST 1211 .

USP 2003-2014 Code U3VT

HIST1211 - U.S. to 1865

Credits: 3

Surveys U.S. history through the Civil War which by itself meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the United States and Wyoming. Students cannot receive credit for both HIST 1210 and 1211.

When Offered Normally offered fall semester

USP 2003-2014 Code U3V

USP 2015 Code U5V

HIST1220 - United States History II

Credits: 3

Surveys U.S. history from reconstruction to recent past. Together with HIST 1210, it is the foundation for all U. S. history courses offered by the department. Students cannot receive credit for both HIST 1220 and HIST 1221.

HIST1221 - U.S. From 1865

Credits: 3

Surveys U.S. history from the Civil War to the present and meets the requirements of the Wyoming statutes providing for instruction in the provisions and principles of the constitutions of the U. S. and of Wyoming. Students cannot receive credit for both HIST 1220 and 1221.

When Offered Normally offered spring semester
USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1250 - History of Wyoming

Credits: 3

A study of Wyoming from its beginning to the present. Students cannot receive credit for both HIST 1250 and HIST 1251.

USP 2003-2014 Code U3VT

HIST1251 - Wyoming History

Credits: 3

A survey which encourages an understanding of Wyoming history, how it relates to the history of the West and the rest of America and how it has influenced the present. An important component is to learn about the U.S. and the Wyoming constitutions and how these two documents have influenced Wyoming history. Students cannot receive credit for both HIST 1250 and 1251.

USP 2003-2014 Code U3V
USP 2015 Code U5V

HIST1290 - History of the U.S. West

Credits: 3

An introductory survey of the American West, with consideration of developments in both the 19th and 20th centuries.

HIST1320 - World History to 1500

Credits: 3

A history of the world's peoples and societies from human prehistory to 1500, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

HIST1330 - World History since 1500

Credits: 3

A history of the world's peoples and societies from 1500 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

HIST2020 - American Military History

Credits: 3

Surveys military experiences of U.S. from colonial period to the present. In addition to specific wars, examines military doctrines and political, social and economic forces that shaped conduct of war in American history.

HIST2030 - History and Environmental Science

Credits: 3

This course is designed as an introduction to both the historical work of environmental historians and the scientific work of environmental scientists. No previous background in either history or science is required.

Cross Listed ENR 2030.

USP 2003-2014 Code [(none)< >H]

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2050 - Introduction to Public History

Credits: 3

Introduces the student to the non-teaching, professional uses of history. Topics for consideration include archival work, museum management, public information and publications, historic site development, oral history interviewing, preparation of government reports, historic preservation general concepts and historical programming.

HIST2060 - Topics in History

Credits: 2-3

Max Credit 6

Discusses special topics that fall outside traditional chronological and geographical framework of history; content varies from semester to semester in accordance with faculty interest and student demand.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2105 - Medieval Europe in Film

Credits: 3

Historical depictions in films help to shape people's view of the past. Uses commercial films to study major themes in the development of western European civilization between 500 and 1500. Students view, discuss and write about films, learning to evaluate films historically and to view films critically, developing media literacy.

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

HIST2225 - History of Christianity

Credits: 3

Traces Christianity from its beginnings to late 20th century.

Cross Listed RELI 2225.

USP 2015 Code U5H

HIST2230 - The History of Russia to 1855

Credits: 3

General survey of modern Russian history from earliest times to 1855.

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST2250 - American Religious History I (To 1865)

Credits: 3

Traces the history of religion in America through the Civil War. We will pay particular attention to the intertwining of religion and colonialism; the tension between emerging Protestant hegemony and religious pluralism; and the roles religion has played in justifying oppression and pursuing liberty in American history.

Cross Listed RELI 2250.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2252 - American Religious History II (1865 to 1945)

Credits: 3

Traces American religious history from the Civil War through WWII. Focuses on how race/ethnicity, class, gender, and national origin affected religion, and explores how Americans used religion in oppressing and liberating people; marking and erasing difference; and exporting values abroad as well as reforming society at home.

Cross Listed RELI 2252.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed INST 2280.
USP 2015 Code U5C2

HIST2290 - History of North American Indians

Credits: 3

Studies American Indian history through 500 years and across the continent. Considers Indian political, social and economic continuity and change. Focuses on how Indian peoples experienced and responded to times of dramatic change.

Cross Listed NAIS 2290.
USP 2003-2014 Code U3CH, U3D
A&S College Core 2015 ASD

HIST2315 - History of Non-Western Religions

Credits: 3

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed RELI 2315.
USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H
A&S College Core 2015 ASG

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

HIST2360 - African-American History

Credits: 3

Surveys African-American history in America, particularly emphasizing issues of identity, class, and progress as well as exploring African-Americans' quest for full participation in American life.

Cross Listed AAST 2360.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5C2
A&S College Core 2015 ASD

HIST2370 - Chicano History: Origins to 1900

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2370/GEOG 2370.
USP 2003-2014 Code U3CS, U3D
USP 2015 Code U5H
A&S College Core 2015 ASD

HIST2380 - Latin American History 1500 to 2000

Credits: 3

Provides introduction to Latin American history, from colonial contacts to the present. Explores important themes and connections across the colonial and modern periods, such as race, national identity, foreign involvement, indigenous peoples' role in nation-states, religion, social movements, economic systems, and globalization.

USP 2003-2014 Code U3G
USP 2015 Code U5H

HIST2385 - Chicano History : 1900 to Present

Credits: 3

General survey of the history of the Mexican American Chicano people in the United States. Examines the origins and development of Mexican Americans, Chicanos through the major historical processes which have shaped their experience. Major themes include multicultural, multiethnic context, origins; changing identity, comparative relations to other social, ethnic groups, culture, social structure, politics, economy, immigration, and the influence of United States-Mexico relations.

Cross Listed LTST 2385.

USP 2015 Code U5H

A&S College Core 2015 ASD

HIST2389 - History of Women in the American West

Credits: 3

Surveys the roots of society's marginal historical depiction of women in the American West from the colonial period through the twentieth century. From the perspective of race, class, ethnicity, and gender, the course focuses on the development of a multi-dimensional understanding of women's roles using an interdisciplinary approach.

Cross Listed GWST 2389.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

HIST2390 - US West Between the World Wars

Credits: 3

Examines two pivotal decades (1918-1942) in the US West that encompasses prosperity, Depression, and reform, through the use of historical documents, art, film, literature, and music.

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4
Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

HIST2500 - The Impact of the Union Pacific on Wyoming History

Credits: 3

Students experience and interpret the impact of the building of the Union Pacific Railroad on the history and culture of Wyoming through the lens of three disciplinary perspectives. Students explore how the railroad impacted Wyoming geography, economic development and the people of the state through personal research projects.

Cross Listed ECON 2500.

HIST2600 - Forgotten Africa: Intro to African Civilizations

Credits: 3

This survey course introduces students to African states and empires, dating from classical to modern times. The course challenges depictions of Africa as timeless and underdeveloped within contemporary narratives by highlighting the continent's vibrant cultures, sophisticated technologies, dynamic and complex political systems and participation in long-distance trade.

Cross Listed ANTH 2600.

USP 2015 Code U5H

HIST2700 - Introduction to Museology

Credits: 3

Introduces students to the various roles and responsibilities of museum professionals in the areas of leadership and management, collections, exhibits, education and engagement, and security. Practice-based assignments, readings, discussions, field trips, and meetings with museum professionals will provide students with a solid understanding of key aspects central to the working of all museums, regardless of the nature of the collection, and introduce students to available career paths in these institutions. Crosslisted between American Studies, Anthropology, Art and Art History and History.

Cross Listed ART 2700/AMST 2700/ANTH 2700.

USP 2003-2014 Code U3CH

HIST2705 - Museology II

Credits: 3

Introduces students to the history of museums, as well as major theoretical, legal and political challenges within museum studies. Students are encouraged to think beyond their specific disciplinary background to gain a greater appreciation for the lessons that can be learned from related disciplines and types of repositories, including larger ethical and cultural concerns that have been raised through the creation of modern museum standards. The combination of readings, discussion, and fieldtrips to a variety of museums/repositories will provide students a solid introduction to these themes. Cross listed between Anthropology, History, American Studies, and Art.

Cross Listed AMST 2705 / ANTH 2705 / ART 2705

HIST3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the plains region of the U.S. from prehistory to the present.

Cross Listed NAIS 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

HIST3020 - Historical Methods

Credits: 3

An introduction to the concepts, methods, and techniques used by historians. The main emphasis will be on methods of historical research and analysis, demonstrated through writing. Students will write a number of short papers building skills in various areas of research, analysis, and argumentation, and one longer paper reflecting individual research.

Total pages for the semester: 30-45.

USP 2003-2014 Code U3L, U3WB

Former Course Number [4020]

Prerequisite: junior standing, 12 hours of HIST, and COM1.

HIST3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/POLS 3050.

Prerequisite: WB or COM2.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/PHIL 3160.

Prerequisite: WB or COM2.

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3230 - Early Christianity

Credits: 3

Considers the development of the Christian religion from a small Jewish sect to its place as the official religion of the Roman Empire and beyond. It examines the development of creeds, doctrines and institutions, placing them within their historical context.

Prerequisite: RELI 1000 or RELI 2225/HIST 2225.

HIST3235 - Medieval Christianity

Credits: 3

Traces the development of 'Christendom' in Europe between about 500 - 1500 CE, concentrating on the Latin West. It examines the growth of Christian institutions and practices, the Church's role as sole governing entity, along with conflicts with secular governments as they developed in later centuries.

Cross Listed RELI 3235.

Prerequisite: RELI 2225/HIST 2225, HIST 1110, or RELI 1000.

HIST3240 - Reformation and Enlightenment Christianity

Credits: 3

The years between about 1500 and 1800 saw the permanent dismantling of Christianity in the West as a unified force, as Protestantism brought new ways of viewing the relationship between God and humanity. Once the fragmentation began, it accelerated rapidly as Enlightenment thinking challenged Christianity in new and complex ways.

Cross Listed Cross listed with: RELI 3240.

Prerequisite: RELI 1000, RELI 2225/HIST 2225.

HIST3275 - World Christianities

Credits: 3

Examines the development of Christianity primarily in Africa, Asia and South America.

Cross Listed RELI 3275

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WB and CH

HIST3300 - Secret History of Science

Credits: 3

Explores developments in science from prehistory to the present. It focuses on the lesser-known men and women who contributed to science, as well as on seemingly superstitious beliefs that were nonetheless important to advances in knowledge.

Restricted Restricted to junior standing or higher.

Prerequisite: 6 hours in HIST or 6 hours of PN coursework, or a combination of both.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

HIST3500 - Colonial America

Credits: 3

This course covers the history of European colonization from roughly 1492 to 1763. Our geographic focus will be on the (future) United States, but will also learn how transatlantic forces influenced its people.

Prerequisite: 12 hours of HIST courses or permission of instructor.

HIST3670 - African Diaspora

Credits: 3

Examines process through which aspects of African culture have endured in Diaspora. Analyzes social relations

between Diaspora Africans and non-African populations in N. and S. America, the Caribbean, Britain, Asia, and the Mediterranean. Discusses cultural hybridization as a product of culture contact.

Cross Listed AAST 3670.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: AAST 1000, any AAST 2000-level course, or AAST 2360/HIST 2360.

HIST3880 - Comparative History

Credits: 3

Explores comparative history from a variety of topics, such as colonialism, memory, nationalisms, frontiers, or cultural history. This course will introduce students to at least one of these themes from at least two regions, time periods, or groups of people to understand patterns and change in human societies through time.

Prerequisite: 6 hours of HIST.

HIST3900 - Historical Archaeology

Credits: 3

This course introduces students to the field of historical archaeology, the archaeological and archival study of literate societies. Students will be introduced to the history of the discipline, a survey of contemporary historical archaeological practice.

Cross Listed ANTH 3900

Former Course Number [none < > none]

Prerequisite: ANTH 1300

HIST4000 - Indians of Wyoming

Credits: 3

Examines Native American culture in Wyoming from pre-history to the 21st century. Analyzes social, political, and economic developments of Native peoples of Wyoming before, during, and after contact with Europeans. Discusses interaction between these diverse societies and explores the changing relationships between Indians and Euro-Americans through the periods after contact.

Cross Listed NAIS 4000

Dual Listed HIST 5000

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4020 - The Black West

Credits: 3

This course explores the historical experiences and contributions of people of African descent to the American West

from their earliest recorded presence in the 16th Century through the present.

Cross Listed AAST 4020.

USP 2003-2014 Code U3CH, U3D

Prerequisite: AAST 1000, any AAST 2000-level course, junior/senior standing, or three hours of any level of HIST course.

HIST4030 - Senior Capstone Seminar

Credits: 3

Max Credit (Max. 6)

For undergraduate departmental majors; presented in a small group, non-lecture setting. Under close instructor supervision, students write reviews and essays, present critiques and oral reports and lead discussion on materials read by class.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: advanced standing as a History major and HIST 3020.

HIST4055 - Archival Research Methods

Credits: 3

Students will master advanced research strategies with interdisciplinary applications. Focuses on primary research and the development of advanced skills in information literacy, critical analysis of sources, verification of evidence, techniques for researching underdocumented populations, and interpretation of historical evidence. Advanced writing and oral presentation skills are emphasized.

Dual Listed HIST 5055.

Prerequisite: 9 hours of HIST, including HIST 2050 or HIST 2700.

HIST4060 - Independent Study

Credits: 1-3

Max Credit 6

Credit not to exceed 6 hours maximum, to be arranged in either European or American history. Primarily for juniors and seniors who can profit from independent work with minimal supervision.

Prerequisite: 12 semester hours in history; written permission of instructor required.

HIST4077 - Book History: Topics

Credits: 3

Max Credit (Max. 6)

An in-depth, hands-on study of books within their historical contexts. The topic will vary each time and focus on a particular theme, time period, place, or culture. Taught at the Rare Books Library, American Heritage Center, using

original books or facsimiles. May be repeated once for credit.

Dual Listed HIST 5077.

Prerequisite: 9 hours of HIST.

HIST4100 - Early Medieval Europe

Credits: 3

Studies development of European civilization from decline of Rome to 12th century.

Dual Listed HIST 5100.

Prerequisite: 9 hours of HIST.

HIST4110 - The High Middle Ages

Credits: 3

Studies history of European civilization between the 12th and 15th centuries.

Dual Listed HIST 5110.

Prerequisite: 9 hours of HIST.

HIST4112 - History of the Medieval City

Credits: 3

After the fall of the Western Roman Empire, cities virtually disappeared from Western Europe. Around 1000 Europe began its rise to world prominence and cities contributed to that rise. Examines development of cities in medieval Europe and explores life within those cities.

Dual Listed HIST 5112.

Prerequisite: 9 hours of HIST.

HIST4113 - Medieval Religious Dissent

Credits: 3

Religious dissent in the Middle Ages included what some would call heresy, but also encompasses such marginal groups as Jews and witches. Examines development of orthodoxy and persecution of religious diversity between eleventh and 16th centuries within the historical context of the times.

Cross Listed RELI 4113.

Dual Listed HIST 5113.

Prerequisite: 9 hours of HIST or RELI.

HIST4120 - Europe During the Renaissance

Credits: 3

Intensely studies European history in 14th and 15th centuries.

Prerequisite: 9 hours of HIST.

HIST4130 - Europe During the Reformation

Credits: 3

Intensely studies European history in the 16th century.

Prerequisite: 9 hours of HIST.

HIST4140 - Europe During the Age of the Baroque

Credits: 3

Intensely studies European history in 17th century.

Prerequisite: 9 hours of HIST.

HIST4150 - Europe During the Age of the Enlightenment

Credits: 3

Intensely studies European history in 18th century.

Prerequisite: 9 hours of HIST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4174 - Judaism from Ezra to Jesus

Credits: 3

This course focuses on the religious and historical development of Judaism during the centuries between the end of the Old Testament and the New Testament, studying the arrival of Greek and then Roman culture and the changes Judaism underwent during that time that endure today.

Cross Listed RELI 4174.

Prerequisite: WB or COM2, and RELI 1000 or RELI 2110.

HIST4175 - Judaism at the Dawn of Christianity

Credits: 3

Judaism is the only Mediterranean religion that was practiced in the ancient world as well as in Late Antiquity and beyond. This course helps students analyze how Judaism was able to change and adapt at key moments to provide its adherents with an active, living religion that addressed their needs.

Cross Listed RELI 4175.

Prerequisite: RELI 1000 or RELI 2110, and junior standing.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4305 - Global History

Credits: 3

Thematically focused examinations of interactions or parallel phenomena in multiple world regions. Courses may be comparative (comparing two empires, or multiple revolutions), or may examine the growth of a particular trend globally (e.g. abolition of slavery), or the interaction of many states (e.g. the Cold War).

Dual Listed HIST 5305.

USP 2003-2014 Code U3G

Prerequisite: 9 hours of HIST, INST, or POLS.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

HIST4340 - The Social History of American Women

Credits: 3

Explores everyday life experiences of American women from the 17th century to the present. Focuses on the complex influence of gender, race and class in shaping those experiences; also, analyzes the ways in which women's dissatisfaction with their position in society formed the basis for the development of American feminism and led to the formation of an organized women's movement.

Dual Listed HIST 5340.

USP 2015 Code U5H

Former Course Number [4840]

Prerequisite: 9 hours of HIST or GWST.

HIST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed INST 4380.

Dual Listed HIST 5380.

Prerequisite: 9 hours of HIST or INST.

HIST4400 - Internship

Credits: 1-12

Max Credit (Max. 12)

The internship allows students to gain hands-on experience that will help to bridge the gap between history as an academic discipline and history as practiced in museums, public history agencies and historic sites. Specific arrangements must be made in advance to identify the academic component of the internship and the grading criteria. Such planning will be done in consultation with the department's internship director.

Prerequisite: 9 hours of HIST.

HIST4405 - American Encounters to 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African and Asian people from pre-contact through the mid-19th century.

Dual Listed HIST 5405.

USP 2003-2014 Code U3D

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4406 - American Encounters from 1850

Credits: 3

The history of America as a history of continuous encounters. Examines the history of the American people by focusing on a series of critical encounters between Native American, European, African, and Asian people from the mid-19th century to the present.

Dual Listed HIST 5406

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST.

HIST4410 - America in an Early Modern World

Credits: 3

Explores the American colonial experience as part of a worldwide process of colonial encounters with indigenous peoples between 1400 and 1800. Compares the experiences of early modern colonization in North and South America, Asia, and the Pacific and examines the nature of the colonial societies created by these cross-cultural relationships.

Dual Listed HIST 5410.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed ENR 4412.

Dual Listed HIST 5412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

HIST4415 - Entangled Worlds, Entangled Lives: Indigenous People and Colonizers Before 1850

Credits: 3

The experiences of indigenous people and colonizers in Africa, Eurasia, the Americas, and the Pacific as they forged new colonial societies in the first global age (1400-1850). Emphasis throughout the course will be on the often-overlooked role of indigenous people in creating colonial societies.

Dual Listed HIST 5415.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

Prerequisite: 9 hours of HIST.

HIST4425 - Britain's Global Empires: 1558 to the Present

Credits: 3

Britain's four distinctive empires from Elizabeth I through the present. Emphasis throughout the course will be on the creation and operation of these distinctive but related empires with a special focus on the impact empires had on both colonized people and the people of Britain.

Dual Listed HIST 5425.

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST.

HIST4450 - The Civil War and Reconstruction

Credits: 3

Studies crisis of the Union, 1861-1877. Examines experiences of both the North and South during the Civil War and restoration of the Union after the war.

Dual Listed HIST 5450.

Prerequisite: 9 hours of HIST.

HIST4460 - Post-Civil War America: The Gilded Age

Credits: 3

Intensively covers economic, cultural and political developments which marked the U.S. in post-Civil War era, such as rise of industry, emergence of distinctive national culture and party struggles shaping America's Gilded Age.

Dual Listed HIST 5460.

Prerequisite: 9 hours of HIST.

HIST4462 - American Indian History to 1783

Credits: 3

Surveys the history of American Indians from the period before contact to the end of the American Revolution. Examines the various contacts between American Indians and Europeans and considers what the American Revolution meant to the continent's Native peoples.

Cross Listed NAIS 4462.

Dual Listed HIST 5462.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or NAIS.

HIST4463 - American Indian History 1783 to 1890

Credits: 3

Surveys the history of American Indians during the era of westward expansion. Examines the impact of American westward movement and also the manifold changes that accompanied moving west.

Cross Listed NAIS 4463.

Dual Listed HIST 5463.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: 9 hours of HIST or NAIS.

HIST4464 - American Indians in the Twentieth Century

Credits: 3

Surveys the history of American Indians during the twentieth century. Examines the development of new cultural, social and political forms that help create an American Indian identity.

Cross Listed NAIS 4464.
Dual Listed HIST 5464.
USP 2003-2014 Code U3D
Prerequisite: 9 hours of HIST or NAIS.

HIST4466 - American Indian Ethnohistory

Credits: 3

Surveys ethnohistorical methods and concepts and provides students concrete opportunities to use these methodologies in writing exercises. American Indian ethnohistory explores Native American experiences within their own cultural contexts.

Cross Listed NAIS 4466.
USP 2003-2014 Code U3D
Prerequisite: 9 hours of HIST, NAIS, or ANTH.

HIST4468 - American Indians in the North American West

Credits: 3

One of the defining features of the North American West is the presence of American Indians. Through the discussion of varied readings and primary document research, the history of American Indians in the West is examined, with particular emphasis on the Great Plains and California.

Cross Listed NAIS 4468.
USP 2003-2014 Code U3D
Prerequisite: 9 hours of HIST or NAIS.

HIST4470 - The Birth of Modern America, 1890 to 1929

Credits: 3

Studies political and diplomatic developments in the U. S. in the wake of industrialization and massive immigration. Some attention to cultural and social themes. Emphasizes shifting nature of reform between depression of the 1890s and that of the 1930s.

Dual Listed HIST 5470.
Prerequisite: 9 hours of HIST.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.
Former Course Number [4670]

Prerequisite: 9 hours of HIST.

HIST4480 - Growth of Modern America, 1929 to 1960

Credits: 3

Studies political and diplomatic developments in the U.S. in Depression, World War II and early Cold War periods. Some attention to cultural and social themes. Emphasizes economic crisis, growth of government, reform traditions, anti-communism and civil rights.

Dual Listed HIST 5480.

Prerequisite: 9 hours of HIST.

HIST4485 - U.S. Latino Diaspora

Credits: 3

Combines classroom activities and a week-long stay abroad in examining the historical creation and contemporary spread of the Latino Diaspora from the Caribbean to the Yucatan and beyond. U.S. Latina/o history, multiculturalism, pan-Latino identity, assimilation, migration trends and natives' responses are stressed.

Cross Listed LTST 4485/INST 4485.

Prerequisite: 9 hours of LTST, HIST, and/or INST related coursework.

HIST4490 - Modern America, 1960 to Present

Credits: 3

Studies political and diplomatic aspects of the U.S. since 1960. Emphasizes impact of Cold War, social and political tensions at home, civil rights and government policies.

Dual Listed HIST 5490.

Prerequisite: 9 hours of HIST.

HIST4492 - Revolutions in Latin America

Credits: 3

Explores the meaning and impact of revolution in Latin America's modern history, focusing on political ideology, cultural expression, foreign relations, human rights, and globalization. Offers in-depth analysis of revolutions from the early nineteenth century to the present.

Cross Listed LTST 4492.

Dual Listed HIST 5492.

USP 2003-2014 Code U3CS, U3G

A&S College Core 2015 ASG

Prerequisite: 9 hours of HIST or INST.

HIST4494 - The U.S. in Latin America

Credits: 3

This course explores Latin America's experiences with the United States during the twentieth century. The class addresses U.S.-Latin American relations from a variety of angles, covering topics from military intervention and

government policies, to informal imperialism and cultural exchanges through film and literature.

Dual Listed HIST 5494.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or INST.

HIST4495 - Borderlands in Latin America

Credits: 3

Examines borderlands and frontiers in Latin American history, focusing on the U.S.-Mexico border region, the Southern Cone, and the Caribbean. Key issues include cultural contact zones, colonialism, military expansion and conflict, and nation-building.

Dual Listed HIST 5495.

Former Course Number [4720]

Prerequisite: 9 hours of HIST or INST.

HIST4496 - History of Mexico

Credits: 3

Intensive course in Mexican development. Emphasizes the 20th century especially the Mexican Revolution of 1910, showing how this nation transformed itself into a modern nation-state. Includes diplomatic relations with the U.S., incorporation of Indians, church-state relations, uses of land and other natural resources, role of the military and growth of Mexican nationalism.

Cross Listed LTST 4496.

Dual Listed HIST 5496.

Former Course Number [4800]

Prerequisite: 9 hours of HIST or INST.

HIST4505 - The Old South, 1820 to 1861

Credits: 3

Studies history of the South from emergence of southern identity to the Civil War. Emphasizes southern society and culture.

Dual Listed HIST 5505.

Former Course Number [4500]

Prerequisite: 9 hours of HIST.

HIST4510 - Modern East Asia

Credits: 3

Focuses on the emergence of the modern East Asian states China, Japan, Korea, and Vietnam as individual states and members of this important region historically and in contemporary era, understanding the emergence of those states as responses to internal forces and external pressures such as imperialism, nationalism, Communism and Capitalism.

Dual Listed HIST 5510.

Former Course Number [4950]

Prerequisite: 9 hours of HIST.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

HIST4530 - 19th Century American West

Credits: 3

A study of the westward movement with emphasis on the trans-Mississippi West.

Dual Listed HIST 5530.

Former Course Number [4630]

Prerequisite: 9 hours of HIST.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

HIST4540 - 20th Century American West

Credits: 3

A study of the modern American West, with consideration of social, economic and political continuity and change.

Dual Listed HIST 5540.

Former Course Number [4640]

Prerequisite: 9 hours of HIST.

HIST4545 - The Multicultural West

Credits: 3

Explores the American West as a meeting ground of diverse peoples and their diverse cultures. Focuses on the sustained cross-cultural interchange between Native Americans, Euro-Americans, African Americans, Latin Americans, and Asian Americans from trans-Appalachia to the Pacific Coast from the eighteenth century to the present.

Prerequisite: 9 hours of HIST.

HIST4560 - American Social History in the 20th Century

Credits: 3

Explores history of social mobility and conflict in 20th century. Emphasizes impact of industrialization, rapid urbanization, massive immigration, ethnic minorities, race, religion, women and the family, painting and architecture.

Dual Listed HIST 5560.

Prerequisite: 9 hours of HIST.

HIST4582 - 20th Century U.S. Foreign Relations

Credits: 3

Studies Twentieth Century United States foreign relations with a focus on the Cold War period. Examines economic sources of policy decisions, elites and mass public opinion, as well as cultural, religious, ethnic, racial, and gender issues.

Cross Listed INST 4582.

Dual Listed HIST 5582.

Prerequisite: 9 hours of HIST or INST.

HIST4610 - Seminar Topics in the History of Wyoming I

Credits: 3

An intensive research and writing course dealing with topics in the period before statehood in 1890.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4620 - Seminar Topics in the History of Wyoming II

Credits: 3

Allows students to do intensive research and writing dealing with topics in Wyoming history from 1890 to present.

Prerequisite: 9 hours of HIST, including HIST 1251.

HIST4965 - Senior Thesis

Credits: 3

Working closely with a faculty advisor, a history major will develop a research proposal that, after approval by the History department faculty, will lead to in-depth research and writing, producing a minimum 50-page thesis that demonstrates an excellent grasp of historical methods and a high degree of writing skill.

Prerequisite: 12 hours of HIST; senior class standing; HIST major.

HIST4990 - Topics in _____

Credits: 1-6

Max Credit (Max. 12)

Affords students opportunity to study in-depth various topics in history not offered in regular courses or independent study.

Former Course Number [4080]

Prerequisite: 9 hours of HIST.

Graduate

History, M.A.

Wyoming's M.A. in history will open both professional and academic pathways. A student may pursue this degree as the final step in their educational journey or go on to pursue a doctoral degree and, eventually, a teaching or research position.

Program Specific Admission Requirements

General Regulations

The M.A. in History requires 18 hours of undergraduate history courses as minimum preparation for admission. The rules under which the student enters remain those governing the program for the duration of the student's continued enrollment. In accordance with university graduate regulations, students are responsible for meeting all deadlines and for fulfilling all requirements for the degree.

Application and Admissions

To be eligible for financial support in the form of a Graduate Assistantship, the Department of History must receive all materials by March 1. All other application materials must be received by the Department of History no later than May

1. The application process is now completely online. In addition to the application, applicants must upload the following documents via the UW Admissions website (www.uwyo.edu/admissions):

1. Three letters of recommendation that assess the student's academic and research abilities.
2. Transcripts from all undergraduate institutions and graduate programs.
3. A writing sample of 10-20 pages, typically either a portion of a senior thesis or an upper-level seminar paper.
4. A statement of purpose of 250-500 words, explaining the applicant's preparation, interests, and plans. Please indicate if you would like to be considered for a graduate assistantship.

Program Specific Graduate Assistantships

When applicants submit their materials to the program in History, they should indicate their wish to be considered for a Graduate Assistantship. Anyone receiving financial support must be registered as a full-time (9 hours per semester) student and must be making acceptable progress towards degree completion. Renewal of Graduate Assistantships is contingent on such progress. Support is not given for more than two academic years.

Requirements

Program Specific Degree Requirements for the History Master's Program are as follows:

Required Courses

Candidates for the Master of Arts degree are expected to complete the program in 2 years. Graduate Students are required to complete a minimum of 31 credit hours of graduate (5000) level courses. Students must complete 27 hours of coursework, of which at least 24 hours must be in History. Students will work with their advisor to plan the course of study that will include:

(3 credit hours) HIST5880 - History Theory

(12 credit hours) 5000-level, non-dual-listed courses in HIST (excluding HIST 5880)

(12 credit hours) Additional graduate-level course work, of which at least 9 credit hours must be in HIST courses.

(4 credit hours) HIST5960 - Thesis Research

Foreign Language

Students must demonstrate a reading knowledge of a foreign language appropriate to their research. In special cases, other relevant historical tools may substitute for the language requirement upon approval of the thesis adviser and the Graduate Coordinator. Generally, either of the following options may meet the language requirement:

- Passing a language exam administered by the Department of History. This must be completed by the end of the first year with the appropriate faculty.
- Completing the equivalent of the fourth semester of a language as offered at the University of Wyoming. All courses must be passed with a grade of C or better (may be taken pass/fail).

Thesis

- Graduate students will identify two "fields" of study, in consultation with their main advisor: one time/place field (such as Modern U.S. History), and one thematic field (such as Environmental History), both of which correspond to the student's thesis research.

- In the spring semester of the first year the student will publicly defend his/her thesis proposal, which must include a written research prospectus and bibliography.
- At the end of the second year the student will successfully defend the thesis before an approved Graduate Committee.

Department of Languages - Modern and Classical

116 Hoyt Hall, (307) 766-4177

FAX: (307) 766-2727

Website: www.uwyo.edu/modlang

Department Chair: Joy Landeira

Professor:

CONXITA DOMÈNECH, B.A. Universitat Autònoma de Barcelona 1990; Licenciatura 1992; M.A. University of Colorado Boulder 2006; Ph.D. 2010; Professor of Spanish 2020.

JOY LANDEIRA, B.A. University of Wyoming 1973; M.A. 1975; Ph.D. University of Colorado, Boulder 1981. Professor of Spanish 2015. Department Chair.

Associate Professors:

EKATERINA ALEXANDROVA, B.A. Saint Joseph's University 2003; M.A. Dartmouth College 2004; Ph.D. University of Pennsylvania 2012; Associate Professor of French 2018, 2012.

IRENE CHECA-GARCÍA, B.A. University of Granada 1997; M.A. Linguistics University of Granada 2000; Ph.D. Universidad de Almería 2004; Associate Professor of Spanish 2018, 2012.

REBECCA E. STEELE, B.A. LeibnizAcademie 2001; M.A. Rutgers, The State University of New Jersey 2008; Ph.D. 2009; Associate Professor of German 2015, 2009.

KHAMA-BASSILI TOLO, G3: Gradué en Pédagogie Appliquée, Option: FrançaisLinguistique Africaine, Université Nationale du Zaïre 1976; L2: Licencié en Pédagogie Appliquée, Option: Français, 1978; M.A. Vanderbilt University 1986; Ph.D. 1989; Associate Professor of French 1996, 1990.

Assistant Professors:

CHELSEA ESCALANTE, B.A. Stanford University 2005; M.A. University of Arizona 2009; Ph.D. University of California, Davis 2018; Assistant Professor of Spanish 2018.

SONIA RODRIGUEZ HICKS, Ph.D. University of New Mexico 2017. Assistant Professor of Spanish 2020.

Senior Academic Professional Lecturers:

LAURA DE LOZIER, B.A. Beloit College 1990; M.A. University of Wisconsin 1992; Ph.D. 2002; Senior Academic Professional Lecturer in Classics, Greek, and Latin 2014, 2003.

MARK W. PERSON, B.A. University of Wyoming 1983; M.A. 1986; Senior Academic Professional Lecturer in German 2017, 2008.

BÉNÉDICTE SOHIER, B.A. Stephen F. Austin State University 2006; M.A. Indiana University Bloomington 2008; Associate Academic Professional Lecturer in French 2015, 2009.

YAN ZHANG, B.A. Harbin Institute of Technology 2000; M.A. Heilongjiang Provincial Academy of Social Sciences 2002; Senior Academic Professional Lecturer in Chinese 2016, 2006.

Associate Academic Professionals Temporary Lecturers:

Noah Miles, Adriana Noya-Salgueiro

Professors Emeriti:

M. Ian Adams, Lewis Bagby, Lowell A. Bangerter, Klaus D. Hanson, Francis S. Heck, Philip G. Holt, Joseph Krafczik, Hannelore Mundt, Jean-Louis G. Picherit, Duane Rhoades, Pavel Sigalov

The Modern and Classical Languages department offers work leading to the B.A. degree with majors and minors in French, German, and Spanish. A minor is offered in Classical Civilizations, Chinese, Latin and Japanese. The M.A. is available in Spanish. Courses are also offered in literature, linguistics and translation.

Foreign Language Requirements

All candidates for the B.A. and B.S. degree in the College of Arts and Sciences who matriculated before Fall 2015 are required to complete the equivalent of 8 semester hours of work in a single modern or classical language. Students with prior exposure to the language may be granted college credit after taking an online examination administered by the department; students must take this examination before completing registration for a language course (for regulations governing credit by examination, refer to Credit Available to Undergraduate Students in this *Catalog*). An advanced placement, AP, examination in the language with a score of 4 or higher satisfies the language requirement in most languages, as do CLEP and IB scores (see section on Credit by Examination on the department website).

Students who have had a foreign language in high school should take the online examination to determine the course in which they should enroll and to avail themselves of the opportunity to receive credit by examination. Students who have completed their language requirement can enroll for additional language courses of their choice, something strongly advised for those who wish to reach adequate levels of proficiency in the language or wish to study abroad. Check the Catalog or website for special sections targeted for students with varied experiences in the language.

Undergraduate Major

A language major usually requires 30-31 semester hours of work in a single language beyond 2030. To include a language option in the humanities/fine arts interdisciplinary program, students must complete at least 12 hours above the 2030 level.

Students completing an undergraduate major in our department will meet the following learning goals:

1. attain proficiency in another language in all four of the basic skills (speaking, listening, reading, and writing);
2. gain understanding of other cultures; and

3. develop skills in research critical thinking, analysis, and writing on subjects appropriate to the field of study. Students will meet the following learning outcomes to:

1. demonstrate proficiency in conversation;
2. demonstrate reading comprehension of texts written in the language;
3. produce grammatical, idiomatic compositions in the target language;
4. gain essential knowledge about the history, traditions, customs, and ways of thinking of at least one other culture;
5. demonstrate understanding of works of literature read in the original language; and
6. produce well-reasoned and clearly articulate research papers on subjects appropriate to their field.

Minor

In general, students desiring to complete a minor in a foreign language will be required to complete a program of 18 semester hours above 2030.

Teaching Certification

For those wishing to pursue teaching certification, contact the Department of Secondary Education.

Native Language Credit

Students are not allowed university credit for language courses in their native language below the 4000 level, but may receive credit for literature courses below that level.

Study Abroad

There are many opportunities for students to study abroad and students are encouraged to do so.

Graduate Study

The Department of Modern and Classical Languages offers programs leading to the master of arts degree in Spanish. Contact the department for further details or check the department website.

Program Specific Admission Requirements

Admission to the graduate program in a specific language is open to students who have completed an undergraduate major, or the equivalent, in the same subject and who meet the minimum requirements set forth in this *Catalog*.

Students entering the graduate program from other institutions may be required to make up deficiencies in areas covered by required courses in this department's undergraduate programs.

Major

French, B.A.

The main goal of French courses will be to emphasize "the development of communication skills in French through the four language skills: listening, speaking, reading, and writing". Each course introduces students to French and Francophone cultures.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Prerequisites - 12 Credits

FREN1010 - First Year French I

Credits: 4
Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

FREN1020 - First Year French II

Credits: 4
Fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: FREN 1010 or two years of high school French.

FREN2030 - Second Year French I

Credits: 4

Emphasizes the development of communication skills (listening, speaking, reading and writing) so as to help students function effectively in real-life contexts. Provides a systematic review of grammatical structures necessary for successfully communicating in French.

USP 2015 Code U5H

Prerequisite: FREN 1020 or three years of high school French.

A language major requires 30 hours of credit in a single language above 2030

Required Courses

FREN2040 - Second Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2130 - Contemporary French Culture

Credits: 3

Designed as an introduction to contemporary French culture. It gives students an in-depth insight into contemporary French life. It also deals with issues affecting the French-speaking world in general: Quebec, Africa, New Caledonia, Switzerland, Monaco, etc.

USP 2015 Code U5H

Prerequisite: FREN 1020 or equivalent.

OR

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

FREN4100 - A Survey of French Literature I

Credits: 3

A study of French Literature and civilization from the Middle Ages through the 18th century.

Prerequisite: FREN 2140 or equivalent.

FREN4110 - A Survey of French Literature II

Credits: 3

A study of French Literature and civilization from the 19th century to the present.

Prerequisite: FREN 2140 or equivalent.

- Plus 6 hours of electives in French at the 4000-level (See Electives list in Minor Requirements)

Minor Program Requirements - 18 Credit Hours

Required Minor Classes

FREN2040 - Second Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

- Electives - 9 hours of French Courses at the 3000 course level or 4000 course level (Choose from Elective list below)

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

FREN3990 - Independent Study

Credits: 1-4

Books or periodicals of special interest to the student, selected in consultation with a member of the staff; independent reading and reports.

Prerequisite: FREN 2030.

FREN4080 - Studies in the French Language

Credits: 3

Max Credit (Max. 9)

The topics explored under this general heading include: translation, history of the French language, French of the media and conversation.

Dual Listed FREN 5080.

Prerequisite: FREN 3060.

FREN4100 - A Survey of French Literature I

Credits: 3

A study of French Literature and civilization from the Middle Ages through the 18th century.

Prerequisite: FREN 2140 or equivalent.

FREN4110 - A Survey of French Literature II

Credits: 3

A study of French Literature and civilization from the 19th century to the present.

Prerequisite: FREN 2140 or equivalent.

FREN4120 - Medieval French Literature

Credits: 3

A survey of medieval French literature: epic, courtly poetry, Arthurian romance, theatre and the poetry of Villon.

Dual Listed FREN 5120.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4140 - 17th Century French Literature

Credits: 3

A survey of representative works from the major literary genres from the formative period to classicism and its aftermath.

Dual Listed FREN 5140.

USP 2003-2014 Code U3WC

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4200 - Introduction to Research

Credits: 3

Senior seminar on a topic varying from year to year.

USP 2015 Code U5C3

Prerequisite: COM2 (FREN 3050), Survey I and II courses (FREN 4100 and FREN 4110).

FREN4250 - 19th Century French Literature

Credits: 3

Development of romanticism from Rousseau on with excerpts from Chateaubriand and romantic poets like Hugo and Vigny. The period of realism-naturalism focuses on novels of Flaubert and Zola, while the symbolist school of poetry is represented by Baudelaire, Verlaine and Rimbaud.

Dual Listed FREN 5250.

Former Course Number [4150]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4260 - 20th Century French Literature

Credits: 3

The era since 1900 is divided into four parts: pre-World War I, between the wars, post-World War II and the New Wave. These periods are represented by authors including Valery, Proust, Malraux, Saint-Exupery, Camus, Sartre and others.

Dual Listed FREN 5260.

Former Course Number [4160]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4350 - Studies in French and Francophone Literatures

Credits: 3

An intensive study of a topic, period or author (pertaining to French or Francophone literature), to be selected according to interest and currency).

Dual Listed FREN 5350.

Prerequisite: FREN 3060; FREN 4100 and FREN 4110 strongly recommended.

FREN4990 - Advanced Independent Study

Credits: 1-3

Special projects designed to meet the needs of individual students, designed in consultation with instructor.

Prerequisite: FREN 3050 and consent of instructor.

German, B.A.

As a German Major, you will develop your speaking, listening, and communication skills as a German speaker. You will gain a better understanding of perspectives and experiences of German speaking cultures.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses - 9 credits

A language major requires 30 hours of credit in a single language above 2030.

GERM2040 - Second Year German II

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5H

Prerequisite: GERM 2030 or three years of high school German.

GERM3050 - Third Year German I

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3060 - Introduction to German Literature

Credits: 3

Introduces literature of Germany. Analyzes major literary types and elements of criticism. Emphasizes compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Prerequisite: GERM 3050.

Electives - 21 credits

All electives must be above GERM 2030. At least three courses should be at the 4000-level.

GERM3006 - 20th Century German Culture and Civilization

Credits: 3

Major political, ideological and cultural developments in Germany between 1871 and the present. An interdisciplinary approach (history, art history, film and literature) allows students to explore and assess a nation's culture and civilization as well as far-reaching events (WWI, WWII and the Holocaust) from various perspectives.

USP 2003-2014 Code U3CH, U3WC

Prerequisite: junior standing.

GERM3150 - German History and Culture

Credits: 3

Taught in English, this class engages students both theoretically and practically with German history and culture throughout the ages from the Middle Ages to today. Reading content is complemented with outings to culturally and historically significant sites in Germany as part of a summer study abroad program.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WA or equivalent.

GERM3990 - Independent Study

Credits: 1-4

Focuses on books or periodicals of special interest to the student selected in consultation with a staff member; independent reading and reports.

Prerequisite: GERM 2030.

GERM4070 - Fourth Year German

Credits: 3

Emphasizes weekly compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Dual Listed GERM 5070.

When Offered (Offered every other year)

Prerequisite: GERM 3060.

GERM4080 - German-English and English- German Translation

Credits: 3

Encompasses written translation exercises based on contemporary and relevant texts in both English and German. Addresses specific translation problems arising in both English and German, when translating into the other language.

When Offered (Offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: GERM 3050 and/or GERM 3060.

GERM4100 - A Survey of German Literature I

Credits: 3

Studies German literature and civilization from the Middle Ages to the 17th century.

Dual Listed GERM 5100.

Prerequisite: GERM 2140 or equivalent.

GERM4110 - A Survey of German Literature II

Credits: 3

Studies German literature and civilization from the 18th century to the end of the 20th century.

Dual Listed GERM 5110.

Prerequisite: GERM 2140 or equivalent.

GERM4145 - Weimar Classicism

Credits: 3

Introduces student to Weimar Classicism, one of the crucial periods in German literature and culture. Explores the foundation of the movement, its cultural and historical contexts, aesthetic and philosophical principles, and significant works during this period. Primary language for instruction for this course is German.

Dual Listed GERM 5145.

Prerequisite: GERM 2140 or equivalent.

GERM4180 - German Poetry

Credits: 3

Surveys poetry from the Middle Ages to the present. Emphasizes poetry after 1600. Treats formal elements and genre categories.

Dual Listed GERM 5180.

Prerequisite: GERM 2140.

GERM4200 - Introduction to Research

Credits: 3

Max Credit 9

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2015 Code U5C3

Prerequisite: 12 hours of 4000-5000-level courses.

GERM4240 - German Literature of the Romantic Period

Credits: 3

Introduces the philosophical bases of German Romanticism and analyzes representative works of prose and poetry.

Dual Listed GERM 5240.

Prerequisite: GERM 2140 or equivalent.

GERM4255 - 19th Century German Novellas

Credits: 3

Studies a wide selection of significant German novellas from the period when this genre flourished in the German-speaking world, with a popularity unparalleled in the rest of Europe. Examines the form's origins, evolution, reception, and theory.

Dual Listed GERM 5255.

Prerequisite: GERM 2140 or equivalent.

GERM4275 - Contemporary Migration Literature

Credits: 3

Introduces students to a range of recent cultural production by artists identified with immigrant communities or communities of color. Topics examined include intersections of gender, race, nation, culture, and class; experiences of different minorities; question of national and transnational identity, self-representation, immigration, multiculturalism and integration debates. Course is taught in German.

Dual Listed GERM 5275.

Prerequisite: GERM 2140 or equivalent.

GERM4285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities. Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the Americanization of German culture, minorities in contemporary Germany.

Dual Listed GERM 5285.

Prerequisite: WB.

GERM4990 - Advanced Independent Study

Credits: 1-3

Encompasses special projects designed to meet needs of individual students, designed in consultation with instructor.

Prerequisite: GERM 2140 and consent of instructor.

Spanish B.A.: Language-Linguistics Track

Requirements

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

OR

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

SPAN3060 - Third Year Spanish II

Credits: 3

Intensively reviews grammar and composition-skill development. Also emphasizes specialized lexicons, written and oral translation, as well as conversational fluency.

A&S College Core 2015 ASD

Prerequisite: SPAN 3050.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course is focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3
Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

SPAN4080 - Spanish Advanced Grammar

Credits: 3
Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

OR

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectal variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

- additional 12 hours of electives above SPAN 2030.

Highly Recommended Electives

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed LTST 3080.

USP 2015 Code U5H

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

SPAN4070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 5070.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectical variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

It is Possible to Take

It is possible to take one class from the following:

SPPA3160 - Speech and Language Development

Credits: 4

Deals with the development of speech sound production, phonology, semantics, syntax, morphology, discourse, and pragmatics for typically-developing children from infancy to adolescence. Includes prelinguistic and paralinguistic communication, the cognitive correlates of communication, and written language. Considers the effects of sociocultural context and multiple language acquisition. Application component provides weekly experience in language sample analysis.

Former Course Number [4160]

Prerequisite: SPPA 2210 or instructor permission.

- ANTH 4775 - Language and Gender

ANTH4785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 5785.

Prerequisite: ANTH 1200 or ANTH 2000.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

Total: 31 Hours

Spanish, B.A.

As a Spanish Major, you will develop your speaking, listening, and communication skills as a Spanish speaker. You will gain a better understanding of perspectives and experiences of Spanish speaking cultures.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Tracks

The undergraduate degree in Spanish has two tracks for students to select: Culture, Literature, and Cinema Track or Language-Linguistics Track.

There are multiple entry points into the major depending on previous Spanish language experience. Students should consult a Modern and Classical Languages advisor about the appropriate placement and credit-by-exam options.

A language major usually requires 30-31 semester hours of work in a single language beyond 2030. To include a language option in the humanities/fine arts interdisciplinary program, students must complete at least 12 hours above the 2030 level.

Spanish offers two major tracks:

Spanish B.A. : Culture, Literature, and Cinema Track

Spanish B.A. : Language-Linguistics Track

Prerequisites for both Spanish Tracks

SPAN1010 - First Year Spanish I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

SPAN1020 - First Year Spanish II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading.

USP 2015 Code U5H

Prerequisite: SPAN 1010 or two years of high school Spanish.

SPAN2030 - Second Year Spanish I

Credits: 4

Encompasses reading, grammar review, compositions and conversation.

USP 2015 Code U5H

Prerequisite: SPAN 1020 or three years of high school Spanish.

Language and Linguistics Track

Requirements

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

OR

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

SPAN3060 - Third Year Spanish II

Credits: 3

Intensively reviews grammar and composition-skill development. Also emphasizes specialized lexicons, written and oral translation, as well as conversational fluency.

A&S College Core 2015 ASD

Prerequisite: SPAN 3050.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course is focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3
Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

SPAN4080 - Spanish Advanced Grammar

Credits: 3
Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.
OR

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectal variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

- **PLUS** 12 hours of electives from the following:

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3070 - Intensive Spanish Abroad

Credits: 3
Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed LTST 3080.

USP 2015 Code U5H

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

SPAN4070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 5070.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

It is possible to take one class from the following:

SPPA3160 - Speech and Language Development

Credits: 4

Deals with the development of speech sound production, phonology, semantics, syntax, morphology, discourse, and pragmatics for typically-developing children from infancy to adolescence. Includes prelinguistic and paralinguistic

communication, the cognitive correlates of communication, and written language. Considers the effects of sociocultural context and multiple language acquisition. Application component provides weekly experience in language sample analysis.

Former Course Number [4160]

Prerequisite: SPPA 2210 or instructor permission.

ANTH4785 - Language and Racism

Credits: 3

Explores the ways in which racist ideology and socially-based racial categories are reinforced and changed through language and linguistic usage. The forms of language used in the construction of covertly and overtly racist communication, and the media through which racism is communicated also will be investigated.

Dual Listed ANTH 5785.

Prerequisite: ANTH 1200 or ANTH 2000.

ANTH4795 - Language Change

Credits: 3

Considers how languages change over time, due to both internal and external forces. The effects of language contact, borrowing, and structural change are discussed. The use of linguistic data for questions of migration and cultural contact are also explored.

Dual Listed ANTH 5795.

Prerequisite: ANTH 2000.

Culture, Literature, and Cinema Track

Requirements

SPAN2040 - Second Year Spanish II

Credits: 4

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2015 Code U5H

Prerequisite: SPAN 2030 or three years of high school Spanish.

SPAN2140 - Introduction to Reading

Credits: 3

This course introduces a varied selection of readings and other cultural media in an immersive, intensive language class. Through the study of short stories, media articles, films, etc. , students learn cultural aspects of the Spanish-speaking world and are able to practice and improve their communicative abilities.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2030 or equivalent.

SPAN3030 - Spanish for Heritage Speakers

Credits: 3

Stresses academic use of the Spanish language by native or near-native speakers, through composition, cultural readings, oral presentations, and digital interactions. This class will prepare native and near-native speakers for Spanish upper division classes. It will review spelling rules, grammatical terminology, dialectal and register differences, and academic vocabulary.

USP 2015 Code U5C2

Prerequisite: SPAN 2040 and consent of instructor.

OR

SPAN3050 - Third Year Spanish I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: SPAN 2040.

SPAN3100 - Survey of Spanish Literature

Credits: 3

Studies Spanish literature from the Middle Ages to the end of the 17th century.

Prerequisite: SPAN 2140 or equivalent. SPAN 3140 strongly recommended.

OR

SPAN3110 - Survey of Contemporary Spanish Literature

Credits: 3

Studies Spanish literature from the 18th to the 21st century. SPAN 3110 is a continuation of SPAN 3100, which studies Spanish literature from the Middle Ages to the end of the 17th century. In order to take 3110, students do not need to take SPAN 3100. SPAN 3140 strongly recommended.

Prerequisite: SPAN 2140 or equivalent.

OR

SPAN3120 - Survey of Spanish American Literature

Credits: 3

Surveys Spanish American literature from colonial period to the present.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or equivalent.

SPAN3140 - Introduction to Literature

Credits: 3

This course introduces literary analysis by focusing on different genres from the Hispanic tradition. The course is focused on developing interpretation strategies and it introduces key elements of literary criticism. Students are required to produce complex ideas about the texts, give oral presentations, and write essays on the texts read.

USP 2003-2014 Code U3CH,U3G

A&S College Core 2015 ASG

Prerequisite: SPAN 2140 or SPAN 3030 or SPAN 3050.

SPAN3300 - Introduction to Hispanic Linguistics

Credits: 3

Max Credit (Max. 9)

Overview of basic concepts and approaches to linguistics with examples from and emphasis on Spanish description. Basic concepts in semiotics, formal and non-formal linguistics, core areas in linguistics (phonetics & phonology, morphosyntax, semantics & pragmatics), as well as an overview of subfields of linguistics (psycholinguistics, sociolinguistics, computational linguistics, etc.).

Former Course Number [4310]

Prerequisite: SPAN 3030 or SPAN 3050 or equivalent proficiency

- **PLUS** 12 hours of electives from the following:

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3200 - Spanish Culture and Civilization

Credits: 3

Studies the evolution of Spanish culture through its main artistic, sociological and intellectual expressions.

Prerequisite: SPAN 2040, SPAN 2140.

SPAN3220 - Spanish-American Cultures in Context

Credits: 3

Introduction to the Spanish-speaking cultures of Latin America and the United States through a historical overview and a focus on contemporary politics and culture.

Prerequisite: SPAN 2040 or SPAN 2140 or consent of instructor.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

Minor

Chinese Minor

A Minor in Chinese consists of a minimum of 18 credit hours, including successful completion of 10 credit hours of Chinese language and culture courses at and above CHIN2040 on campus and 9 credit hours of an intensive summer study in China.

Prerequisites

Completion of:

CHIN1010 - First Year Chinese I

Credits: 4

Fundamentals of grammar, conversation, and reading. Introduction to Chinese culture through the language.

USP 2015 Code U5H

CHIN1020 - First Year Chinese II

Credits: 4

Fundamentals of grammar, conversation, and reading. Introduction to Chinese culture through the language.

USP 2015 Code U5H

Prerequisite: CHIN 1010 or equivalent.

CHIN2030 - Second Year Chinese I

Credits: 4

Grammar, composition, conversation and more vocabulary in Chinese.

Prerequisite: CHIN 1020 or equivalent.

Requirements

CHIN2040 - Second Year Chinese II

Credits: 4

Further studies in grammar composition, conversation and more vocabulary in Chinese.

Prerequisite: CHIN 2030 or CHIN equivalent.

CHIN3055 - Business Chinese

Credits: 3

Comprehensive course on business language skills. For students with proficiency in Mandarin at the Intermediate Mid level or higher. Focus is on language functions for the workplace. Productive skills, both spoken and written, will include the composition of extended frequently-used business documents

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: CHIN 3050 or equivalent.

CHIN3160 - See Movies, Touch China

Credits: 3

This course combines exploration of classical and contemporary Chinese cultures through prominent Chinese films. The audio-video materials selected will be discussed in their historical context. Students will explore the transformations China has undergone, and will seek to understand the Chinese mindset.

USP 2003-2014 Code [(none)< >H]

Prerequisite: COM1.

Or

CHIN4070 - Business Chinese II

Credits: 3

Apply previously acquired skills in complex Chinese language and business topics to the thorough analysis of case studies in Chinese business scenarios. Students will be able to read, discuss, and reach conclusions based on case studies of international companies in China and Chinese companies in international markets.

Prerequisite: CHIN 3055.

Study Abroad

Summer Study in China is required for completion of 9 credit hours of coursework:

CHIN2041 - Contemporary and Traditional Chinese Culture

Credits: 3

Designed to provide those with a serious interest in China and Chinese language with a cultural context for learning Chinese language. Incorporates economic and social material to give students a clear view of Chinese culture with an emphasis on Chinese language instruction.

Prerequisite: CHIN 2030.

CHIN3050 - Intermediate Composition and Conversation

Credits: 3

Develop abilities to read and write complex Chinese texts with an intermediate level of understanding, including texts in both conversational and narrative styles. Reading and writing skills will build considerably on the skills learned in two years of university study in Chinese language.

Prerequisite: CHIN 2040 or equivalent.

CHIN3065 - Intermediate Composition and Conversation II

Credits: 3

Students will not only understand and construct complex speech and writing but will gain the ability to do so effectively to persuade, discuss and communicate accurately with native Chinese speakers. Students will be able to relate topics such as personal experience, daily routine, reports, opinions and judgment in well-written Chinese paragraphs.

Prerequisite: CHIN 3050 or equivalent.

Total: 19 Hours

Note: Study abroad is required for completion of 12 credit hours of coursework for this minor.

Classical Civilizations Minor

As a Classical Civilizations Minor, you will develop an interdisciplinary understanding of Classical Greek and Roman material, intellectual, and cultural traditions that have helped shape western systems and values.

Requirements

CLAS2020 - Classical Greek Civilization

Credits: 3

Examines some of the most important developments of ancient Greek culture. Includes development of government in the city-states, with particular attention to Athenian democracy; tragedies of Aeschylus, Sophocles and Euripides; comedies of Aristophanes; crisis of values of the Peloponnesian War; and philosophy of Plato.

USP 2003-2014 Code U3C, U3WB

USP 2015 Code U5H

Prerequisite: WA or COM1.

OR

HIST2120 - Ancient Greece and the Near East

Credits: 3

Examines development of civilization in Eastern Mediterranean from prehistory to Alexander the Great.

CLAS2040 - Classical Roman Civilization

Credits: 3

Examines some of the most interesting political, legal, artistic, literary, and engineering developments of the Republic and Principate (510 BC-AD 212) These include representational government, citizens' rights, sanctioned violence, Rome's infrastructure, and major literary works of oratory, comedy, history, epic, and philosophy.

USP 2003-2014 Code U3CH, U3WB

Prerequisite: WA or COM1.

OR

HIST2130 - Ancient Rome

Credits: 3

Studies history of the growth of Roman power from city-state to world power.

Electives

12 hours chosen from Classics 3000-level or above; PHIL 3120, PHIL 4020, or PHIL 4030:

CLAS3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed HIST 3050/POLS 3050.

Prerequisite: WB or COM2.

CLAS3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed HIST 3160/PHIL 3160.

Prerequisite: WB or COM2.

CLAS4230 - Greek Tragedy

Credits: 3

Reading and discussion of major plays by Aeschylus, Sophocles, and Euripides, together with examination of the performance and social context of Greek drama, its use of traditional myths, and selected issues in contemporary scholarship on the tragedies.

Cross Listed ENGL 4230/THEA 4230.

Prerequisite: WB or COM2.

CLAS4270 - Classical Epic Poetry

Credits: 3

Reading and discussion of major works of Greek and Latin epic poetry, centered on Homer and Vergil. Also includes consideration of the background of these works (both mythological and historical) and the development of the epic tradition in the ancient world.

Cross Listed ENGL 4270.

Prerequisite: WB or COM2.

CLAS4975 - Independent Study

Credits: 1-4
Max Credit (max. 12)

Specialized study in aspects of Greek or Roman civilization of interest to the student, with topic and plan of work to be worked out by the student and the instructor together.

When Offered (Offered based on sufficient demand and resources)
Prerequisite: 6 hours of Classics courses or consent of instructor.

CLAS4990 - Topics in Classical Civilization

Credits: 1-4
Max Credit (max. 12)

Study in depth of special areas in ancient civilization that are not covered in regularly offered courses.

When Offered (Offered based on sufficient demand and resources)
Prerequisite: 6 hours of Classics courses or consent of the instructor.

PHIL3120 - Ancient Greek Philosophy

Credits: 3
Surveying some of ancient Greek philosophy. Begins with the works of the earliest extant philosophical thinkers, the pre-Socratics. Remainder of focus on Plato and Aristotle.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL4020 - Plato

Credits: 3
Detailed examination of selected dialogues of Plato.

Dual Listed PHIL 5020.
Prerequisite: PHIL 3120.

PHIL4030 - Aristotle

Credits: 3
Detailed examination of selected works of Aristotle.

Dual Listed PHIL 5030.
Prerequisite: PHIL 3120.

Other courses about ancient Mediterranean cultures that are not taught under Classics may be submitted for approval to the Classics section head.

Up to 6 hours of Latin at the 3000-level or above may be counted as electives:

LATN3110 - Vergil, The Aeneid I

Credits: 3

Reading portions of the Aeneid and consideration of its literary interpretation.

Former Course Number [2110]

Prerequisite: LATN 2030 or equivalent.

LATN3120 - Vergil, The Aeneid II

Credits: 3

Reading further portions of the Aeneid and consideration of its literary interpretation.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [2120]

Prerequisite: LATN 3110.

LATN3140 - Caesar

Credits: 2

Acquaints students with war-memoir genre of Latin literature.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3150 - Livy

Credits: 3

Reading portions of Livy's historical works, and consideration of the history he covers and how the Romans viewed their past.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3160 - Ovid

Credits: 2

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3990 - Independent Study

Credits: 1-4

Books or texts of special interest to the student, selected in conjunction with the instructor; independent reading and reports.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4110 - Horace

Credits: 3

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4115 - Latin Philosophers

Credits: 3

An introduction to Latin philosophical traditions. Readings will be selected either from one author, such as Lucretius (ca. 99-55 BCE) or Seneca the Younger (ca. 4 BCE-65 CE), or from different authors about a given theme.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

Total: 18 Hours

French Minor

As a French Minor, you will develop your speaking, listening, and communication skills as a French speaker. You will gain a better understanding of perspectives and experiences of French speaking cultures.

Requirements

FREN2040 - Second Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2015 Code U5H

Prerequisite: FREN 2030, three years of high school French or FREN 1010, FREN 1020 with grade of B or better.

FREN2140 - Introduction to Reading

Credits: 3

Introduction to the literature of France; analysis of major literary types and elements of criticism.

USP 2003-2014 Code U3CH, U3G

Prerequisite: FREN 2030.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

Electives

- 9 hours chosen from French at the 3000 or 4000 level.
- Minors are encouraged to take one to two 4000 level courses with a traditional course load consisting of one 3000 level course and two 4000 level courses
- Elective courses include:

FREN3005 - French Phonetics and Pronunciation

Credits: 3

Focus on the phonetic structures of French through systematic pronunciation drills and phonetic transcriptions. Varied oral activities and exercises will help develop an awareness of spoken French and improve students' pronunciation.

Prerequisite: FREN 2040 or equivalent.

FREN3050 - Third Year French I

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: FREN 2040.

FREN3060 - Third Year French II

Credits: 3

A course stressing the usage of the language through composition, conversation, oral presentations and grammar review.

Prerequisite: FREN 3050.

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

FREN3990 - Independent Study

Credits: 1-4

Books or periodicals of special interest to the student, selected in consultation with a member of the staff; independent reading and reports.

Prerequisite: FREN 2030.

FREN4080 - Studies in the French Language

Credits: 3

Max Credit (Max. 9)

The topics explored under this general heading include: translation, history of the French language, French of the media and conversation.

Dual Listed FREN 5080.

Prerequisite: FREN 3060.

FREN4100 - A Survey of French Literature I

Credits: 3

A study of French Literature and civilization from the Middle Ages through the 18th century.

Prerequisite: FREN 2140 or equivalent.

FREN4110 - A Survey of French Literature II

Credits: 3

A study of French Literature and civilization from the 19th century to the present.

Prerequisite: FREN 2140 or equivalent.

FREN4120 - Medieval French Literature

Credits: 3

A survey of medieval French literature: epic, courtly poetry, Arthurian romance, theatre and the poetry of Villon.

Dual Listed FREN 5120.

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4140 - 17th Century French Literature

Credits: 3

A survey of representative works from the major literary genres from the formative period to classicism and its aftermath.

Dual Listed FREN 5140.

USP 2003-2014 Code U3WC

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4200 - Introduction to Research

Credits: 3

Senior seminar on a topic varying from year to year.

USP 2015 Code U5C3

Prerequisite: COM2 (FREN 3050), Survey I and II courses (FREN 4100 and FREN 4110).

FREN4250 - 19th Century French Literature

Credits: 3

Development of romanticism from Rousseau on with excerpts from Chateaubriand and romantic poets like Hugo and Vigny. The period of realism-naturalism focuses on novels of Flaubert and Zola, while the symbolist school of poetry is represented by Baudelaire, Verlaine and Rimbaud.

Dual Listed FREN 5250.

Former Course Number [4150]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4260 - 20th Century French Literature

Credits: 3

The era since 1900 is divided into four parts: pre-World War I, between the wars, post-World War II and the New Wave. These periods are represented by authors including Valery, Proust, Malraux, Saint-Exupery, Camus, Sartre and others.

Dual Listed FREN 5260.

Former Course Number [4160]

Prerequisite: FREN 3050; FREN 4100 and FREN 4110 strongly recommended.

FREN4350 - Studies in French and Francophone Literatures

Credits: 3

An intensive study of a topic, period or author (pertaining to French or Francophone literature), to be selected according to interest and currency).

Dual Listed FREN 5350.

Prerequisite: FREN 3060; FREN 4100 and FREN 4110 strongly recommended.

FREN4990 - Advanced Independent Study

Credits: 1-3

Special projects designed to meet the needs of individual students, designed in consultation with instructor.

Prerequisite: FREN 3050 and consent of instructor.

Total: 18 Hours

German Minor

As a German Minor, you will develop your speaking, listening, and communication skills as a German speaker. You will gain a better understanding of perspectives and experiences of German speaking cultures.

Requirements

GERM2040 - Second Year German II

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2015 Code U5H

Prerequisite: GERM 2030 or three years of high school German.

GERM3050 - Third Year German I

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3060 - Introduction to German Literature

Credits: 3

Introduces literature of Germany. Analyzes major literary types and elements of criticism. Emphasizes compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Prerequisite: GERM 3050.

Electives

- 9 hours chosen from German at the 3000 or 4000 level.

GERM3006 - 20th Century German Culture and Civilization

Credits: 3

Major political, ideological and cultural developments in Germany between 1871 and the present. An interdisciplinary approach (history, art history, film and literature) allows students to explore and assess a nation's culture and civilization as well as far-reaching events (WWI, WWII and the Holocaust) from various perspectives.

USP 2003-2014 Code U3CH, U3WC

Prerequisite: junior standing.

GERM3050 - Third Year German I

Credits: 3

Encompasses formal grammar review; weekly composition; as well as drill of oral skill including pronunciation, oral reports and free conversation.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: GERM 2040.

GERM3150 - German History and Culture

Credits: 3

Taught in English, this class engages students both theoretically and practically with German history and culture throughout the ages from the Middle Ages to today. Reading content is complemented with outings to culturally and historically significant sites in Germany as part of a summer study abroad program.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WA or equivalent.

GERM3990 - Independent Study

Credits: 1-4

Focuses on books or periodicals of special interest to the student selected in consultation with a staff member; independent reading and reports.

Prerequisite: GERM 2030.

GERM4070 - Fourth Year German

Credits: 3

Emphasizes weekly compositions and corrective practice, stylistic analysis of representative texts and group discussion on prepared topics.

Dual Listed GERM 5070.

When Offered (Offered every other year)

Prerequisite: GERM 3060.

GERM4080 - German-English and English- German Translation

Credits: 3

Encompasses written translation exercises based on contemporary and relevant texts in both English and German. Addresses specific translation problems arising in both English and German, when translating into the other language.

When Offered (Offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: GERM 3050 and/or GERM 3060.

GERM4100 - A Survey of German Literature I

Credits: 3

Studies German literature and civilization from the Middle Ages to the 17th century.

Dual Listed GERM 5100.

Prerequisite: GERM 2140 or equivalent.

GERM4145 - Weimar Classicism

Credits: 3

Introduces student to Weimar Classicism, one of the crucial periods in German literature and culture. Explores the foundation of the movement, its cultural and historical contexts, aesthetic and philosophical principles, and significant works during this period. Primary language for instruction for this course is German.

Dual Listed GERM 5145.

Prerequisite: GERM 2140 or equivalent.

GERM4180 - German Poetry

Credits: 3

Surveys poetry from the Middle Ages to the present. Emphasizes poetry after 1600. Treats formal elements and genre categories.

Dual Listed GERM 5180.

Prerequisite: GERM 2140.

GERM4200 - Introduction to Research

Credits: 3

Max Credit 9

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2015 Code U5C3

Prerequisite: 12 hours of 4000-5000-level courses.

GERM4240 - German Literature of the Romantic Period

Credits: 3

Introduces the philosophical bases of German Romanticism and analyzes representative works of prose and poetry.

Dual Listed GERM 5240.

Prerequisite: GERM 2140 or equivalent.

GERM4255 - 19th Century German Novellas

Credits: 3

Studies a wide selection of significant German novellas from the period when this genre flourished in the German-speaking world, with a popularity unparalleled in the rest of Europe. Examines the form's origins, evolution, reception, and theory.

Dual Listed GERM 5255.

Prerequisite: GERM 2140 or equivalent.

GERM4275 - Contemporary Migration Literature

Credits: 3

Introduces students to a range of recent cultural production by artists identified with immigrant communities or communities of color. Topics examined include intersections of gender, race, nation, culture, and class; experiences of different minorities; question of national and transnational identity, self-representation, immigration, multiculturalism and integration debates. Course is taught in German.

Dual Listed GERM 5275.

Prerequisite: GERM 2140 or equivalent.

GERM4285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities. Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the Americanization of German culture, minorities in contemporary Germany.

Dual Listed GERM 5285.

Prerequisite: WB.

GERM4990 - Advanced Independent Study

Credits: 1-3

Encompasses special projects designed to meet needs of individual students, designed in consultation with instructor.

Prerequisite: GERM 2140 and consent of instructor.

Total: 18 Hours

Japanese Minor

As a Japanese Minor, you will develop your speaking, listening, and communication skills as a Japanese speaker. You will gain a better understanding of perspectives and experiences of Japanese speaking cultures.

Prerequisites

JAPN1010 - First Year Japanese I

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered fall semester)

USP 2015 Code U5H

JAPN1020 - First Year Japanese II

Credits: 4

Studies fundamentals of grammar, composition, conversation and reading. Introduces Japanese culture through the language.

When Offered (Offered spring semester)

USP 2015 Code U5H

Prerequisite: JAPN 1010 or equivalent.

JAPN2030 - Second Year Japanese I

Credits: 4

Encompasses reading, speaking and writing in original Japanese syllabaries, including elementary kanji characters for daily practical application.

When Offered (Offered fall semester)

Prerequisite: JAPN 1020 or equivalent.

Minor Program Requirements

A Japanese minor requires 18 credit hours of coursework which include JPN 2040 and above, and all courses required for a minor in Japanese are offered as online courses. These courses include:

JAPN3050 - Third Year Japanese I

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 2040 or equivalent.

JAPN3060 - Third Year Japanese II

Credits: 3

Stresses usage of the language through composition, conversation, oral presentation and grammar review.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: JAPN 2040 and JAPN 3050 or equivalent.

JAPN2070 - Conversational Japanese Abroad

Credits: 4

Japanese language and cultural study in Japan led by UW faculty.

Prerequisite: JAPN 1020.

LANG2150 - Manga: History and Culture

Credits: 3

Manga is one of the most important art forms to emerge from Japan. Its importance as a medium of visual culture and storytelling cannot be denied. Through reading and examination of texts, students will understand the relevance of comics in Japanese society.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: COM1.

LANG3140 - Anime: History and Culture

Credits: 3

An introduction to the history, development, and cultural significance of Japanese animation. Through the examination of a variety of anime genres, students will gain insight into contemporary Japan as well as important historical periods. We will read analyses of particular anime, emphasizing the unique characteristics of the art and the mystery of its popularity in the US.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Prerequisite: completion of WA.

LANG4800 - Advanced Instruction In: (TOPIC)

Credits: 1-3

Max Credit (Max. 12)

Advanced study and projects designed to meet special needs and interests of students, to be selected in consultation with a suitable member of the faculty.

Prerequisite: consent of instructor.

LANG3105 - Major Themes in Chinese and Japanese Literature

Credits: 3

Explores mindsets of two rich and ancient civilizations, China and Japan. Considers distinctive characters of each civilization, while illuminating basic elements that we share with these peoples.

Prerequisite: ENGL 1010.

HP3151 - Modes of Understanding

Credits: 3

Max Credit (Max. 6)

Introduces study of nature and grounds of knowledge, its limits and validity. Examines epistemological basis of selected areas of academic thought. Topics vary from year to year. Required of UW Honors Program students.

Former Course Number [3150]

Prerequisite: COM1, COM2

History and Culture classes (LANG 2150, 3140, 3105, and 4800) rotate every two years, as one History and Culture class is offered a semester. Modern Japanese Society (HP/LANG 3151) is offered twice a year, with one of these classes being a study abroad opportunity.

Latin Minor

As a Latin Minor, you will develop the communication skills necessary to read an original text of Classical Latin in prose or verse as well as the cultural knowledge essential to understand and analyze it.

Requirements

LATN3110 - Vergil, The Aeneid I

Credits: 3

Reading portions of the Aeneid and consideration of its literary interpretation.

Former Course Number [2110]

Prerequisite: LATN 2030 or equivalent.

LATN3140 - Caesar

Credits: 2

Acquaints students with war-memoir genre of Latin literature.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4120 - Catullus and the Elegiac Poets

Credits: 3

Discusses Latin lyric poetry of late Republic and early Empire, excluding works of Horace and Ovid, and elegiac tradition in Latin.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4130 - Cicero

Credits: 3

Introduction to the prose of the statesman Marcus Tullius Cicero (106-43 BCE). Readings will be selected from his political speeches, correspondences, or treatises on philosophical, rhetorical, and religious topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

Electives

7 hours chosen from Latin at the 3000-level or above.

LATN3120 - Vergil, The Aeneid II

Credits: 3

Reading further portions of the Aeneid and consideration of its literary interpretation.

When Offered (Offered based on sufficient demand and resources)

Former Course Number [2120]

Prerequisite: LATN 3110.

LATN3150 - Livy

Credits: 3

Reading portions of Livy's historical works, and consideration of the history he covers and how the Romans viewed their past.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3160 - Ovid

Credits: 2

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN3990 - Independent Study

Credits: 1-4

Books or texts of special interest to the student, selected in conjunction with the instructor; independent reading and reports.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4110 - Horace

Credits: 3

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

LATN4115 - Latin Philosophers

Credits: 3

An introduction to Latin philosophical traditions. Readings will be selected either from one author, such as Lucretius (ca. 99-55 BCE) or Seneca the Younger (ca. 4 BCE-65 CE), or from different authors about a given theme.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: LATN 2030 or equivalent.

Total: 18 Hours

Spanish Minor

As a Spanish Minor, you will develop your speaking, listening, reading, writing, and presentational skills in Spanish. You will gain a better understanding of perspectives and experiences of Spanish speaking cultures.

Electives

- 18 hours of electives in Spanish at the 2000-level or above (excluding SPAN 2030).
- Elective courses include:

SPAN3040 - Spanish Conversation

Credits: 3

Emphasizes speaking and listening comprehension through structured and monitored individual, pair, small group and class work, while providing socio-cultural competence, vocabulary acquisition and grammar review. Provides enhanced language skills in a manner that otherwise could only be attained through an extended stay in a Hispanic country.

Prerequisite: SPAN 2040; limited to Spanish majors/minors with no previous experience abroad.

SPAN3070 - Intensive Spanish Abroad

Credits: 3

Max Credit (Max. 9)

Spanish language and cultural study in Spanish-speaking countries led by UW faculty.

Prerequisite: SPAN 2030 or consent of instructor.

SPAN3080 - Spanish Language in the USA

Credits: 3

This course studies the Spanish language in its social context as a language of the United States, through concepts such as: social and individual bilingualism, Spanglish, dialects, language contact, borrowings, code switching, language policy, or language ideology.

Cross Listed LTST 3080.

USP 2015 Code U5H

Prerequisite: SPAN 3050 or SPAN 3060 or instructor's consent.

SPAN3200 - Spanish Culture and Civilization

Credits: 3

Studies the evolution of Spanish culture through its main artistic, sociological and intellectual expressions.

Prerequisite: SPAN 2040, SPAN 2140.

SPAN3220 - Spanish-American Cultures in Context

Credits: 3

Introduction to the Spanish-speaking cultures of Latin America and the United States through a historical overview and a focus on contemporary politics and culture.

Prerequisite: SPAN 2040 or SPAN 2140 or consent of instructor.

SPAN4070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 5070.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4080 - Spanish Advanced Grammar

Credits: 3

Max Credit (Max. 9)

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 5080.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectical variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 5090.

Prerequisite: SPAN 3300 or LANG 4750 or consent of instructor.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

Total: 18 Hours

Graduate

Spanish, M.A.

As a Spanish Masters Student, you will develop your speaking, listening, reading, writing, and presentational skills in Spanish. You will gain a better understanding of perspectives and experiences of Spanish speaking cultures.

Required Courses

Program Specific Degree Requirements

A total of 27 graduate-level course hours are required.

Plus 4 thesis hours.

SPAN4200 - Introduction to Research

Credits: 3

Max Credit (Max. 9)

Senior seminar on a topic varying from year to year. Includes study of standard bibliographical guides. Minimum of 3 hours recommended for majors.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SPAN 3030 or SPAN 3050 and 3 hours of 4000 or 5000-level courses.

SPAN5900 - Practicum in College Teaching

Credits: 3
Max Credit 3

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

- One 5000 level course in SPAN Linguistics Credits: 3
 - One 5000 level course in SPAN Literature Credits: 3
 - Spanish elective credits at the graduate level Credits: 15
- One 5000 level course (3 credits) can be taken outside the department with the approval of the thesis advisor or the graduate advisor

Graduate-level courses include:

SPAN5070 - Spanish Variation and Change

Credits: 3

Provides a general overview of issues in language change in the contemporary Spanish-speaking world. General topics include language vs. dialect, social factors affecting language variation/acquisition/maintenance, mechanisms of change, language contact effects, language attitudes, policy and planning, style and register and mixing of languages and bilingualism, among other, as they are seen in the Spanish language.

Dual Listed SPAN 4070.

Prerequisite: graduate standing.

SPAN5080 - Spanish Advanced Grammar

Credits: 3

Intensive practice of Spanish grammar through syntactic analysis to raise language awareness. Study of Spanish grammar in connection with information theory and semantic roles, with a focus on complex sentences and different phenomena such as preposition requirements, word order, emphatic structures, etc.

Dual Listed SPAN 4080.

Prerequisite: graduate standing.

SPAN5090 - Spanish Phonetics and Phonology

Credits: 3

Provides a description of Spanish sound system and general survey of the language's major dialectal variations. Will touch upon acoustic phonetics and focus on articulatory phonetics. Practice of phonological processes that affect the pronunciation of the language. It includes an explanation of main sources for a foreign accent in Spanish.

Dual Listed SPAN 4090.

Prerequisite: graduate standing.

SPAN5100 - Hispanic Thought

Credits: 3

intensive study of a topic, author, or philosophical movement. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature at 4000-5000 level.

SPAN5110 - Peninsular Spanish Literature

Credits: 1-3

Max Credit (Max. 9)

An intensive study of a topic or an author. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature at 4000-5000 level.

SPAN5120 - Spanish American Literature

Credits: 1-3

Max Credit (Max. 9)

An intensive study of a topic or an author. Designed for upper level and graduate students.

Prerequisite: 12 hours of Spanish literature.

SPAN5130 - Masterpieces of Spanish Renaissance Literature

Credits: 3

A study of the Spanish Renaissance, taking into consideration social, political, economic, religious philosophical, and aesthetic aspects of the culture as a context for and as reflected in the literature.

Dual Listed SPAN 4130.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5140 - Masterpieces of Spanish Baroque Literature

Credits: 3

Studies of the Spanish Baroque, taking into consideration social, political, economic, religious, philosophical, and aesthetic aspects of the culture as a context for and as reflected in the literature. Also covers the relationship between the Spanish Renaissance and the Baroque.

Dual Listed SPAN 4140.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5150 - Spanish Romanticism

Credits: 3

A comprehensive study of the romantic movement in Spain. Close reading and commentary of texts by representative

authors including Espronceda, Rivas, Zorilla, Becquer and de Castro.

Dual Listed SPAN 4150.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5160 - Graduate Readings

Credits: 1-5

Max Credit (Max. 6)

Prerequisite: graduate standing.

SPAN5170 - Special Problems

Credits: 1-2

Max Credit (Max. 6)

Prerequisite: graduate standing.

SPAN5180 - Advanced Cultural Studies in Hispanic Lit/Media

Credits: 3

Advanced analysis of Hispanic cultural phenomena. Focus on the Spanish-speaking cultures of Spain or the Spanish-speaking Americas or both. The Texts consulted vary according to instructor and may include the visual arts, such as film, paintings, and performance, academic theory, websites, and other fiction and non-fiction readings.

Dual Listed SPAN 4180.

Prerequisite: SPAN 2140 or equivalent and one 4000-level course.

SPAN5190 - 20th and 21st Century Spanish- American Texts

Credits: 3

Provides students the opportunity to study representative literary texts that reflect the tendencies and trends in 20th and 21st Century Spanish-language works of the Americas.

Dual Listed SPAN 4190.

Prerequisite: 6 hours of SPAN at the 4000-level.

SPAN5260 - The Realist Novel in Spain

Credits: 3

Studies of the major novelists of nineteenth century Spain from 1850 until the Generation of '98.

Dual Listed SPAN 4260.

Prerequisite: SPAN 3030 or SPAN 3050, and SPAN 3140.

SPAN5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

Total: 31 Hours

Life Sciences Program

Life Sciences Program

107 Aven Nelson Building, 766-4158 Web site: www.uwyo.edu/lifescience

Program Director: Jonathan Prather

The Life Sciences Program consists of all LIFE prefix courses. These courses support a wide range of life science majors and several non-life science majors across campus. The number of LIFE courses taken by students in each major is determined by the departments that offer the majors. The curriculum intends to provide science majors with both breadth and depth in the basic life sciences, and nonscience majors with exposure to key concepts in biology and an understanding of the connections between science and society. The program courses also expose students to the fields of cell and molecular biology, genetics, ecology, and evolution, and they familiarize students with the diversity of life on the planet. Courses within the curriculum address four fundamental goals at a level appropriate for each course: 1. Acquisition, Application and Synthesis of Knowledge 2. Communication Skills 3. Critical Thinking and Problem Solving 4. Research Skills The Life Sciences courses listed below were previously offered under the BIOL prefix. All courses listed below are now offered through the LIFE prefix.

Professor:

JONATHAN F. PRATHER, B.S. University of Virginia 1995; Ph.D. Emory University 2001; Professor of Zoology and Physiology 2021, 2009.

Other Programs

Life Sciences

Life Sciences Program

107 Aven Nelson Building, 766-4158 Web site: www.uwyo.edu/lifescience

Program Director: Jonathan Prather

The Life Sciences Program consists of all LIFE prefix courses. These courses support a wide range of life science majors and several non-life science majors across campus. The number of LIFE courses taken by students in each major is determined by the departments that offer the majors. The curriculum intends to provide science majors with both breadth and depth in the basic life sciences, and nonscience majors with exposure to key concepts in biology and an understanding of the connections between science and society. The program courses also expose students to the fields of cell and molecular biology, genetics, ecology, and evolution, and they familiarize students with the diversity of life on the planet. Courses within the curriculum address four fundamental goals at a level appropriate for each course: 1. Acquisition, Application and Synthesis of Knowledge 2. Communication Skills 3. Critical Thinking and Problem Solving 4. Research Skills The Life Sciences courses listed below were previously offered under the BIOL prefix. All courses listed below are now offered through the LIFE prefix.

Department of Music

Music 2049 Buchanan Center for the Performing Arts, (307) 766-5242
FAX: (307) 766-5326
Web site: www.uwyo.edu/music
Department Head: J. Scott Turpen

Professors:

ROBERT BELSER, B.M.E. Central Missouri State University 1977; M.S. M.E University of Illinois 1982; D.M.A. University of Iowa 1994; Professor of Music 2008, 1995. Director of Bands, Conducting, Music Education.

THERESA L. BOGARD, B.M. University of Colorado 1983; M.M. Eastman School of Music 1985; D.M.A. University of Colorado 1990; Professor of Music 2004, 1992. Keyboard, Keyboard Area Coordinator, Piano.

JOHN FADIAL, B.M. North Carolina School of the Arts 1987; M.M. Eastman School of Music 1989; D.M.A. University of Maryland 1995; Professor of Music 2015, 2008. Violin.

ANNE GUZZO, B.M. University of New Mexico 1992; M.A. University of California, Santa Cruz 1996; Ph.D. University of California, Davis 2002; Associate Professor of Music 2011, 2006. Composition, Theory.

MICHAEL GRIFFITH, B.M.E. Michigan State University 1973; M.M. 1975; D.M.A. University of Colorado 1994; Professor of Music 2001, 1989. Conducting, Woodwinds.

JAMES PRZYGOCKI, B.M. Western Michigan University 1979; M.M. Indiana University 1984; Professor of Music 2005, 1993. Viola, String Methods, Music Education.

J. SCOTT TURPEN, B.M.E. Boise State University 1994; M.M. University of Georgia 1996; D.M.A. 1999; Professor of Music 2012, 2001. Saxophone.

KATRINA ZOOK, B.M. Oberlin College 1986; M.M. University of California-Santa Barbara 1992; D.M.A. Eastman School of Music 2000; Professor of Music 2011, 1999. Voice, Vocal Pedagogy, Music History, Associate Chair.

Associate Professors:

HOLLY DALRYMPLE, BM, Texas State University; MM, University of Texas-Austin; DMA, University of North Texas; Associate Professor of Music 2019, 2013. Director of Choral Activities.

BLAKE MCGEE, B.M. University of Minnesota 2001; M.M. 2004; D.M.A. University of Oregon 2008; Associate Professor of Music 2016, 2010. Clarinet, Musicology.

CRYSTAL SIEGER, B.M. Ohio State University 1992; M.M. University of Arizona 1994; Ph.D. 2012; Assistant Professor of Music 2014. Music Education.

BETH VANDERBORGH, B.M. Manhattan School of Music 1988; M.M. Eastman School of Music 1990; D.M.A. University of Maryland 1995; Associate Professor of Music 2014, 2008. Cello, Graduate Coordinator.

CHI-CHEN WU, B.F.A. National Taiwan Normal University 1998; M.M. 2202; D.M.A. New England Conservatory 2006; Assistant Professor of Music 2012. Piano and Collaborative Piano.

Assistant Professors:

JOSEPH CARVER, B.M.E. 2007 Ohio University; M.M. 2014 Ohio University; Ph.D. 2019 The Ohio State University. Associate Director of Bands.

BEN MARKLEY, B.M. Fort Hays State University 2005; M.A. New York University 2007; D.M.A. University of Colorado-Boulder 2010; Assistant Professor of Music 2016. Jazz Studies.

BRIAN MURRAY, B.M. University of North Texas 2010; MME, Florida State University 2015; DMA, University of North Texas 2020. Assistant Professor of Music 2020. Choral Music Education.

TIGER ROBISON, B.M.E. University of Hartford 2005; M.S. Central Connecticut State University 2012; Ph.D. University of Hartford 2016; Assistant Professor of Music 2017. Music Education.

DAVID WHARTON, B.M. Oberlin Conservatory 2009, M.M. Yale School of Music 2011, D.M.A. University of Connecticut 2019. Assistant Professor of Music 2020. Trumpet.

ANDREW WHEELOCK, B.M.E. Central Michigan University 2013; M.M. University of Illinois 2015; D.M.A. 2018; Assistant Professor of Music 2018. Percussion.

Academic Professional Lecturers:

SHERRY SINIFT, B.M. Western Michigan University 1979; M.M. Indiana University 1981; Academic Professional Lecturer 2010. Violin, UW String Project.

JENNIFER TURPEN, B.M.E. SUNY-Potsdam 1996; M.M. University of Georgia 2000; D.M.A. 2000; Academic Professional Lecturer, Senior 2017, 2003. Theory, Saxophone.

Lecturers:

Kato, Riner

Part-time Lecturers:

Erlandson, Flagg, Fourt, Harvey, Hoffman, Latchininsky, Smith, Strampe, Stucki, Teppa, Uno-Jack, Watt

Professors Emeriti:

Steve Barnhart, David Brinkman, Gordon Childs, Julia Combs, Rodney Garnett, Frederick Gersten, Brian Hanly, Larry Hensel, Edgar Lewis, Kathleen McKeage, William Stacy, Carlyle Weiss

The Department of Music offers undergraduate and graduate degree programs which combine scholarship with performance, theory with practice and the academic with the creative. It also provides an opportunity for the study and performance of music by university students who are not majors in music. By giving concerts, workshops and lectures throughout the state of Wyoming through the Fine Arts Outreach Program, the music department serves as a musical resource for the entire state. The music department is fully accredited by the National Association of Schools of Music.

Procedures and requirements are listed in the music department *Student Handbook* which is available online at www.uwyo.edu/music/forms/index.html. The music department *Student Handbook* and the *University Catalog* are binding documents for the degree programs listed below. Students must receive a "C" or better in all courses designated MUSC to satisfy department requirements. The foreign language requirement for the Bachelor of Music in Performance Vocal Emphasis degree may be satisfied with a "C" or better in all courses. A student's transfer courses must meet all of these requirements to be accepted for credit.

An audition is required to become a Music major or minor. The 3 Steps to Becoming a Music Major are:

1. Apply for admission to the University of Wyoming (www.uwyo.edu/admissions/).
2. Audition for admittance as a Music major and for Music scholarships. Audition and scholarship information may be found at www.uwyo.edu/music. All Music majors and minors MUST audition to be admitted to the Music program.
3. Perform at an acceptable level, and you are in!

Degrees

Bachelor of Arts (with major in music): A program designed for the student who desires a broadly-based liberal arts program.

Bachelor of Music Performance: A fouryear course of study designed for students who wish to prepare for a professional career as performer and applied teacher.

Bachelor of Music Education: A fouryear course of study for the student who wishes to prepare for a career as a teacher of music in elementary or secondary schools in the instrumental, vocal, and general music fields.

Certificates

Music Entrepreneurship Certificate: The certificate provides a basic understanding of music marketing principles and practical hands-on experience that allows one to enter the workforce with a marketable skill set in the areas of arts promotion and management. A certificate may be pursued on its own or in conjunction with any university degree program. https://www.uwyo.edu/music/certificates/music_entrep_index.html

Audio Technology Certificate: The certificate provides a basic understanding of audio principles and practical hands-on experience that allows one to enter the commercial music workforce with a marketable skill set. Students will learn how to record and manipulate recorded sounds as well as provide live sound reinforcement for live concerts or events. Certificate may be pursued on its own or in conjunction with any university degree program.

Performer's (post-baccalaureate) Certificate

A non-degree course of study for the student seeking to improve professional performance skills. The program consists of a total of 30 credit hours from applied lessons, ensembles and electives to be selected in consultation with the major adviser. Prerequisites are demonstrated evidence of advanced performance proficiency through a live or recorded audition, undergraduate degree in music, and admission to the university.

Music for Other Students

Music as an elective subject. Students from other departments of the university may, with consent of their adviser and applied instructor, elect private or class lessons in applied music (with or without previous training) and may enroll in any theory, music literature or activity course for which they are qualified. See the music department Student Handbook for requirements for a minor in music.

Organizations. Performance organizations include the Happy Jacks, Marching Band, Symphonic Band, Wind Ensemble, Collegiate Chorale, Symphony Orchestra, Chamber Orchestra, Singing Statesmen, Bel Canto, Women's Choir, and Opera Theatre. Other groups are brass, woodwind, string, percussion and piano ensembles, Vocal Jazz, Civic Chorus and Jazz Ensemble. Membership is open to qualified students in all colleges and departments of the university. Each year, in addition to frequent appearances on the campus, several of these organizations and groups tour the region.

Music Fees

For Individual Instruction:

One 1/2-hour lesson weekly, per semester	\$150.00
One 1-hour lesson weekly, per semester	\$300.00

For Music 4510, 4520, 4530, 4540, 4550 and 4560 (courses taken in the form of private lessons) a fee of \$85.00 is assessed each semester.

Practice Rooms:

per semester	\$35.00
Music instrumental fee, per semester	\$25.00
Music locker fee, per student per semester	\$15.00
Public School Methods fee, per class	\$5.00

Undergraduate Study

Learning Outcomes

Bachelor of Arts in Music

All music majors must successfully complete MUSC 0200 Convocation (0 credit, S/U) each semester in residence and must enroll in lessons and one major ensemble per semester. Each ensemble course is deemed to be a unique course

even though the course number is not unique. To fulfill this degree requirement students will be expected to enroll in ensembles at the lower and upper divisions a minimum of four times with a career maximum of 8. Consult your advisor and the Music Handbook for specific information.

Learning Outcomes

Graduates of the UW Department of Music will develop the skills, concepts, and sensitivities essential to the professional life of a musician (NASM Handbook, p. 85).

At the completion of the Bachelor of Arts degree in Music, students will be able to: (1) demonstrate a level of competence as solo and ensemble performers appropriate for a musician educated in the liberal arts, (2) demonstrate specific knowledge in music theory, music history, and general studies appropriate for their professional goals, and (3) demonstrate the ability to think, speak, and write clearly and effectively about the art of music.

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	1
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3
USP H Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	1
A 1000-level Ensemble.....	1
USP Q Course	3
USP H Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 2030.....3
MUSC 2035.....1
MUSC 2050.....3
MUSC 3000-level Applied Lessons III.....1
A 1000-level Ensemble.....1
USP V Course3
USP PN Course3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 2055.....3
MUSC 3255.....0
MUSC 3000-level Applied Lessons III.....1
A 1000-level Ensemble.....1
USP PN Course3
USP COM2 Course.....3
Elective3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 4070.....3
Upper division MUSC electives.....6
MUSC 4000-level Applied Lessons IV.....1
A 3000-level Ensemble.....1
A&S Core Diversity in the U.S. Course3
Elective3

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 4000-level Applied Lessons IV.....1
A 3000-level Ensemble.....1

A&S Core Global Awareness Course	3
Upper division MUSC elective*	3
Electives	6

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 5000-level Applied Lessons V.....	1
A 3000-level Ensemble.....	1
USP COM3 Course.....	3
Upper division MUSC elective.....	3
Electives	6

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 5000-level Applied Lessons V.....	1
A 3000-level Ensemble.....	1
Upper division MUSC electives*.....	6
Electives	6

Degree Total 120

*Upper Division MUSC Electives: See complete list in Undergraduate Music Handbook.

University and College Requirements

In addition to the major requirements listed above, students must complete all university and College of Arts and Sciences requirements listed elsewhere in this *Catalog*. A minimum of 42 hours of the total degree must be at the junior/senior level. Check with your adviser about music courses which fulfill University Studies Program requirements.

Bachelor of Music in Performance

All music majors must successfully complete MUSC 0200 Convocation (0 credit, S/U) each semester in residence and must enroll in lessons and one major ensemble per semester. Each ensemble course is deemed to be a unique course even though the course number is not unique. To fulfill this degree requirements students will be expected to enroll in ensembles at the lower and upper divisions a minimum of four times with a career maximum of 8. All string and vocal emphases must pass the piano proficiency test during their sophomore year. Class Piano 1-4 is highly recommended for those with little piano background. All wind and percussion emphases must pass Class Piano 1-2 with a B or better or may substitute the Piano Literacy exam in their place. Consult your advisor and the Music Handbook for specific information.

Learning Outcomes

Graduates of the UW Department of Music will develop the skills, concepts, and sensitivities essential to the professional life of a musician (NASM Handbook, p. 85).

At the completion of the Bachelor of Music degree in Performance, students will be able to: (1) demonstrate excellence as solo and ensemble performers to provide a basis for a professional career as a musician, (2) demonstrate specific knowledge in music theory, music history, and instrumental pedagogy to provide a basis for a professional career as a performing musician, and (3) demonstrate the ability to think, speak, and write clearly and effectively about the art of music.

University and College Requirements

In addition to the major requirements listed above, students must complete all university and College of Arts and Sciences requirements listed elsewhere in this Catalog. A minimum of 42 hours of the total degree must be at the junior/senior level. Check with your adviser about music courses which fulfill University Studies Program requirements.

Upper Division Music Electives

Upper division music electives vary per emphasis. Please see the Undergraduate Music Handbook for a full listing.

Winds and Percussion Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	2
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	2
A 1000-level Ensemble.....	1
USP Q Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 2030.....	3
MUSC 2035.....	1
MUSC 2050.....	3
MUSC 3000-level Applied Lessons III.....	2
A 1000-level Ensemble.....	1
USP PN Course	3
A&S Core Global Awareness Course	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 2040.....	3
MUSC 2045.....	1
MUSC 2055.....	3
MUSC 3255.....	0
MUSC 3000-level Applied Lessons III.....	2
A 1000-level Ensemble.....	1
USP PN Course	3
A&S Core Diversity in the U.S. Course	3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4070.....	3
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	6
USP COM2 Course.....	3

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 3500.....	0
MUSC 4615.....	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	6
USP V Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4040.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP COM3 Course.....	3
USP H Course	3
Elective	3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4590.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP H Course	3
Elective	3

Degree Total 120

String Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3

MUSC 10351

MUSC 1290.....1

Passing the Piano Literacy exam any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....2

A 1000-level Ensemble.....1

USP COM1 Course3

USP FYS Course3

USP H Course3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 1003.....3

MUSC 1040.....3

MUSC 1045.....1

MUSC 1295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....2

A 1000-level Ensemble.....1

USP Q Course3

USP H Course3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0

MUSC 2030.....3

MUSC 2035.....1

MUSC 2290.....1

MUSC 2050.....3

MUSC 3000-level Applied Lessons III.....2

A 1000-level Ensemble.....1

USP PN Course3

USP V Course3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 2040.....	3
MUSC 2045.....	1
MUSC 2050.....	3
MUSC 2295.....	1
MUSC 2395.....	0
MUSC 3255.....	0
MUSC 3000-level Applied Lessons III.....	2
A 1000-level Ensemble.....	1
USP PN Course	3
USP COM2 Course.....	3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4070.....	3
MUSC 4651.....	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	6

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 3500.....	0
MUSC 4615.....	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	3
A&S Core Global Awareness Course	3
Elective	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4040.....	2

MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	6
USP COM3 Course.....	3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4590.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
A&S Core Diversity in the U.S. Course	3
Elective	3

Degree Total 120

Vocal Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2320.....	2
MUSC 2270-06.....	2
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1040.....	3

MUSC 1045.....1

MUSC 1295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2325.....2

MUSC 2000-level Applied Lessons II.....2

A 1000-level Ensemble.....1

USP Q Course3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0

MUSC 2030.....3

MUSC 2035.....1

MUSC 2050.....3

MUSC 2290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 3000-level Applied Lessons III.....2

A 1000-level Ensemble.....1

USP H Course/Foreign Language4

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....0

MUSC 2040.....3

MUSC 2045.....1

MUSC 2055.....3

MUSC 2295.....3

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2395.....0

MUSC 3255.....0

MUSC 3000-level Applied Lessons III.....2

A 1000-level Ensemble.....1

USP H Course/Foreign Language4

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 4070.....	3
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	5
USP COM2 Course.....	3

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 3500.....	0
MUSC 4610	2
MUSC 4000-level Applied Lessons IV.....	2
A 3000-level Ensemble.....	1
Upper division MUSC electives.....	5
UPS V Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP COM3 Course.....	3
USP PN Course	3
A&S Core Diversity in the U.S. Course	3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4590.....	2
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
Upper division MUSC elective.....	3
USP PN Course	3
A&S Core Global Awareness Course	3

Degree Total 120

Keyboard Emphasis:

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 2000-level Applied Lessons II.....	2
MUSC 1280.....	1
USP COM1 Course	3
USP FYS Course	3
USP H Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 2000-level Applied Lessons II.....	2
MUSC 1280.....	1
USP Q Course	3
USP H Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 2030.....	3
MUSC 2035.....	1
MUSC 2050.....	3
MUSC 3000-level Applied Lessons III.....	2
MUSC 1280.....	1
USP PN Course	3
USP V Course	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 2040.....3
MUSC 2045.....1
MUSC 2055.....3
MUSC 2395.....0
MUSC 3255.....0
MUSC 3000-level Applied Lessons III.....2
MUSC 1280.....1
USP PN Course3
USP COM2 Course.....3

JUNIOR YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 4070.....3
MUSC 4600.....2
MUSC 4000-level Applied Lessons IV.....2
MUSC 3280.....1
Upper division MUSC electives.....6

JUNIOR YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 3500.....0
MUSC 4000-level Applied Lessons IV.....2
MUSC 3280.....1
Upper division MUSC electives.....5
A&S Core Global Awareness Course3
Elective3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 4040.....2
MUSC 4650.....3

MUSC 5000-level Applied Lessons V.....	2
MUSC 3280.....	1
Upper division MUSC elective.....	3
USP COM3 Course.....	3

SENIOR YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 4590.....	2
MUSC 5000-level Applied Lessons V.....	2
MUSC 3280.....	1
Upper division MUSC elective.....	3
A&S Core Diversity in the U.S. Course	3
Elective	3

Degree Total 120

Bachelor of Music Education

All music majors must successfully complete MUSC 0200 Convocation (0 credit, S/U) each semester in residence and must enroll in lessons and one major ensemble per semester. Each ensemble course is deemed to be a unique course even though the course number is not unique. To fulfill this degree requirement students will be expected to enroll in ensembles at the lower and upper divisions a minimum of four times with a career maximum of 8. All music majors must pass the piano proficiency test during their sophomore year. Class Piano 1-4 is highly recommended for majors with little piano background. Consult your advisor and the Music Handbook for specific information.

Learning Outcomes

Graduates of the UW Department of Music will develop the skills, concepts, and sensitivities essential to the professional life of a musician (NASM Handbook, p. 85).

At the completion of the Bachelor of Music Education degree, students will be able to: (1) demonstrate skill as solo and ensemble performers who can work as professional educators, (2) demonstrate specific knowledge in music theory, music history, and instrumental and vocal pedagogy to provide a basis for a professional career as a music educator, (3) demonstrate the ability to think, speak, and write clearly and effectively about the art of music, and (4) demonstrate the pedagogical background and teaching experience to function as effective K-12 music educators.

University and College Requirements

In addition to the major requirements listed below, students must complete all university requirements listed elsewhere in this Catalog. A minimum of 42 hours of the total degree must be at the junior/senior level. Check with your adviser about music courses which fulfill University Studies Program requirements.

Bachelor of Music Education - Brass, Woodwind, & Percussion Emphasis

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 1370.....	1
MUSC 2000-level Applied Lessons II.....	1
USP COM1 Course	3
USP FYS Course	3
USP H Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1025.....	2
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....	1
A 1000-level Ensemble.....	1
USP Q Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1340.....	1
MUSC 1352	2
MUSC 1360.....	1

MUSC 2030.....	3
MUSC 2035.....	1
MUSC 2050.....	3
MUSC 2290.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP COM2 Course.....	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1312	2
MUSC 1332.....	2
MUSC 2040.....	3
MUSC 2045.....	1
MUSC 2055.....	3
MUSC 2295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2395.....	0
MUSC 3255.....	0
MUSC 3265.....	0
MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP V Course	3

JUNIOR YEAR: Fall Hrs.

EDST 2450.....	3
MUSC 0200.....	0
MUSC 1322.....	2
MUSC 4070.....	3
MUSC 4455.....	3
MUSC 4705.....	1

MUSC 4750.....	1
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1

JUNIOR YEAR: Spring Hrs.

EDEX 2484.....	3
MUSC 0200.....	0
MUSC 4380.....	2
MUSC 4460.....	3
MUSC 4620.....	1
MUSC 4780.....	2
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1
USP PN Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 3015.....	3
MUSC 4155	0
MUSC 4465.....	3
MUSC 4715	1
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
USP PN Course	3

SENIOR YEAR: Spring* Hrs.

MUSC 4700.....	8
MUSC 4710	8

*No other coursework may be taken during residency; requires 2.750 UW GPA and 3.000 GPA in major content courses.

Degree Total 121

Bachelor of Music Education - String Emphasis

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 1030.....3
MUSC 10351
MUSC 1290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....1
A 1000-level Ensemble.....1
USP COM1 Course3
USP FYS Course3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 1003.....3
MUSC 1025.....2
MUSC 1040.....3
MUSC 1045.....1
MUSC 1295.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2000-level Applied Lessons II.....1
A 1000-level Ensemble.....1
USP Q Course3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....0
MUSC 13522
MUSC 1340.....1
MUSC 1360.....1
MUSC 2030.....3
MUSC 2035.....1
MUSC 2050.....3
MUSC 2290.....1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP COM2 Course.....	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1312	2
MUSC 1332.....	2
MUSC 2040.....	3
MUSC 2045.....	1
MUSC 2055.....	3
MUSC 2295.....	1

Passing the Piano Literacy exam at any time will substitute for the Class Piano requirement. See student handbook.

MUSC 2395.....	0
MUSC 3255.....	0
MUSC 3265.....	0
MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP V Course	3

JUNIOR YEAR: Fall Hrs.

EDST 2450.....	3
MUSC 0200.....	0
MUSC 1322.....	2
MUSC 4455.....	3
MUSC 4705.....	1
MUSC 4070.....	3
MUSC 1*** Second String Instrument	1
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1

JUNIOR YEAR: Spring Hrs.

EDEX 2484.....	3
MUSC 0200.....	0
MUSC 4460.....	3
MUSC 4620.....	1
MUSC 4780.....	2
MUSC 1*** Second String Instrument	1
MUSC 4000-level Applied Lessons IV.....	1
A 3000-level Ensemble.....	1
USP PN Course	3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 3015.....	3
MUSC 4155	0
MUSC 4715	1
MUSC 4465.....	3
MUSC 5000-level Applied Lessons V.....	2
A 3000-level Ensemble.....	1
USP PN Course	3
USP H Course	3

SENIOR YEAR: Spring* Hrs.

MUSC 4700.....	8
MUSC 4710	8

*No other coursework may be taken during residency; requires 2.750 UW GPA and 3.000 GPA in major content courses.

Degree Total 126

Bachelor of Music Education - Vocal Emphasis

FRESHMAN YEAR: Fall Hrs.

MUSC 0200.....	0
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MUSC 1030.....	3
MUSC 1035	1
MUSC 1290.....	1
MUSC 2320.....	2
MUSC 2270-06.....	1
A 1000-level Ensemble.....	1
USP COM1 Course	3
USP FYS Course	3

FRESHMAN YEAR: Spring Hrs.

MUSC 0200.....	0
MUSC 1003.....	3
MUSC 1025.....	2
MUSC 1040.....	3
MUSC 1045.....	1
MUSC 1295.....	1
MUSC 2000-level Applied Lessons II.....	1
A 1000-level Ensemble.....	1
USP Q Course	3

SOPHOMORE YEAR: Fall Hrs.

MUSC 0200.....	0
MUSC 1340.....	1
MUSC 1352	2
MUSC 1360.....	1
MUSC 2030.....	3
MUSC 2035.....	1
MUSC 2050.....	3
MUSC 2290.....	1
MUSC 3000-level Applied Lessons III.....	1
A 1000-level Ensemble.....	1
USP COM2 Course.....	3

SOPHOMORE YEAR: Spring Hrs.

MUSC 0200.....0
MUSC 13122
MUSC 1332.....2
MUSC 2040.....3
MUSC 2045.....1
MUSC 2055.....3
MUSC 2295.....1
MUSC 2395.....0
MUSC 3255.....0
MUSC 3265.....0
MUSC 3000-level Applied Lessons III.....1
A 1000-level Ensemble.....1
USP V Course3

JUNIOR YEAR: Fall Hrs.

EDST 2450.....3
MUSC 0200.....0
MUSC 1322.....2
MUSC 4455.....3
MUSC 4705.....1
MUSC 4070.....3
MUSC 4000-level Applied Lessons IV.....1
A 3000-level Ensemble.....1

JUNIOR YEAR: Spring Hrs.

EDEX 2484.....3
MUSC 0200.....0
MUSC 4460.....3
MUSC 4620.....1
MUSC 4790.....2
MUSC 4000-level Applied Lessons IV.....1

A 3000-level Ensemble.....1

USP PN Course3

SENIOR YEAR: Fall Hrs.

MUSC 0200.....0

MUSC 3015.....3

MUSC 41550

MUSC 4465.....3

MUSC 47151

MUSC 5000-level Applied Lessons V.....2

A 3000-level Ensemble.....1

USP PN Course3

USP H Course3

SENIOR YEAR: Spring* Hrs.

MUSC 4700.....8

MUSC 47108

*No other coursework may be taken during residency; requires 2.750 UW GPA and 3.000 GPA in major content courses.

Degree Total 124

Graduate Study

The Department of Music offers programs leading to the Master of Music in Performance and to the Master of Music Education.

The following prerequisites and credit hours will pertain to individual lessons for all the instruments and voice listed below. All students enrolled in MUSC 5080 through MUSC 5670 levels will be required to take a jury examination at the end of the semester to determine, in part, the final grade. (See current fee schedule for listing of fees in Individual Lessons.)

Program Specific Admission Requirements

In addition to the minimum requirements set forth in this *Catalog*, the Department of Music requires that applicants for graduate programs submit supplementary documentation of their preparation for advanced study in music.

Those interested in graduate study in music are encouraged to contact the Graduate Studies Coordinator for the Department of Music, Dr. Beth Vanderborgh (bvander@uwyo.edu), or the Area Coordinator for each instrument or voice cited on the Department of Music website (www.uwyo.edu/music/).

In order to apply, please submit the following via the University of Wyoming's online application system (www.uwyo.edu/admissions/apply.html):

- three letters of recommendation
- the Graduate Teaching Assistantship application
- academic transcripts

A minimum undergraduate cumulative GPA of 3.000 is required. The GRE is not required for admission consideration.

All accepted graduate students in the Mast of Music (MM) or Master of Music Education (MME) programs will take the Graduate Entrance Examinations in music history and music theory prior to matriculation. If a student does not pass one or more sections, they must take an online refresher course prior to undertaking advanced coursework.

International applicants who are not native English speakers must submit TOEFL or IELTS scores (TOEFL minimum = 76, IELTS minimum = 6.5). If an international applicant wishes to be considered for a Graduate Teaching Assistantship, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center if you have questions regarding the OPI (www.uwyo.edu/elc/international-teaching-assistants/graduate_admissions/index.html).

Applicants for the MM program should also request an audition and apply for music scholarship consideration via the Audition and Scholarships link found on the Graduate page of the Department of Music website (www.uwyo.edu/music/graduate_students/index.html). Applicants for the MME program should send their supporting documents (video of teaching/rehearsing, statement of music education philosophy, writing sample) directly to Dr. Crystal Sieger, Music Education Coordinator (csieger@uwyo.edu).

Master of Music Education

An earned, documented Bachelor of Music Education degree from an accredited institution of higher learning.

One year of teaching experience plus: An active background in music education, A DVD of classroom teaching and/or rehearsing,

A one- to three-page statement of music education philosophy,

Three letters of recommendation, one from an immediate supervisor, of teaching effectiveness.

A writing sample from an extensive undergraduate research paper.

Learning Outcomes

1. Students will demonstrate the advanced musical and pedagogical knowledge and research/writing skills necessary to enhance their teaching abilities in a P-16 vocal and/or instrumental teaching position.
2. Students will demonstrate the advanced musical and pedagogical knowledge and research/writing/and communication skills necessary to solve contemporary music problems.

Master of Music in Performance

An earned, documented bachelor of music performance or bachelor of arts from an accredited institution of higher learning.

Live audition (preferred), live remote video audition, or links to an online video demonstrating:

A strong sense of musicality, Technical proficiency, Stylistically correct performance practices in at least three historical periods, where applicable,

A working knowledge of the standard repertoire,

Also, a portfolio of work showing concentrated activity on the major instrument or voice area.

Learning Outcomes

1. Graduate students will be excellent performers on voice or instrument.
2. Graduate students will demonstrate the advanced musical and pedagogical knowledge and research writing skills necessary to begin their professional performing career and/or demonstrate their readiness to teach at the college and/or university level and/or pursue
doctoral degrees.

Program Specific Graduate Assistantships

Graduate assistantships are awarded on a competitive basis to defray some of the costs of graduate study and to provide practical experience working under the guidance of faculty members.

Criteria that are taken into account in awarding assistantships include: academic preparation, performing ability, and special skills that would prove valuable in carrying out the duties of the assistantship, as well as, needs of the department.

To be considered for a graduate assistantship, the candidate must be fully admitted through the university. The application for an assistantship is accessed via the UW Graduate Admissions application. After considering the merits of the application, the department then nominates candidates to the university. Applications for assistantships are due by February 15.

Program Specific Degree Requirements

Master's Programs

Each of the degree programs consists of 30 semester hours of work composed of the following elements:

Basic music core (11 hours)

MUSC 5310. Bibliographical Research, 2 hours

Upper-division music history, 3 to 6 hours

Upper-division music theory, 3 to 6 hours

Major area courses (12-16 hours)

Thesis requirement (Plan A, four hours); (Plan B, zero hours)

The thesis requirement may be fulfilled under the Plan B paper/lecture-recital as appropriate to the specific degree program. A proposal for a thesis or Plan B paper must be submitted to and approved by the student's graduate committee chair.

Electives (0 to 7 hours)

Master of Music Education Plan A or Plan B

To earn a Master of Music Education, students must complete the following requirements:

Basic music core, (11 hours)

Major area courses (12 - 15 hours)

EDRE 5530. Introduction to Research, 3 hours

MUSC 5760. Music Education Seminar, 2 hours

MUSC 5720. Music Supervision, 2 hours

Music education electives, 5-8 hours

Thesis requirement (0 to 4 hours) Plan A:

MUSC 5960. Thesis Research, four hours (the thesis must be on a music education topic), or

Plan B: Plan B paper, plus extra courses, 0 hours Electives (4 to 7 hours)

Master of Music in Performance Plan B

To earn a Master of Music in Performance, students must complete the following requirements:

Basic music core (11 hours minimum)

Major area courses (16 hours minimum)

MUSC 5480-5670. Private Lessons in major instrument or voice. A minimum of 8 hours.

MUSC 5770-5890. Ensembles, 2 hours

MUSC 5680. Graduate Recital, 2 hours.

A faculty jury must approve a recital given for credit one month prior to the performance. The faculty jury will determine the grade after the performance.

MUSC 5390. Performance Practice and Interpretation, 2 hours

MUSC 5320. Advanced Seminar, 3 hours MUSC 4***. Pedagogy (instrument specific), 2 hours

Requirement in lieu of thesis:

Plan B paper, or 1-hour lecture-recital

Foreign language requirement (voice majors only). Singers must demonstrate acceptable proficiency in singing in Italian, German, French, and English.

Electives (0 to 3 hours)

Both degrees require successful completion of the written comprehensive exams, which cover theory, history, and the major area.

Music (MUSC)

Individual Lessons: All students enrolled in MUSC 2080 through MUSC 5670 levels will be required to take a jury examination at the end of the semester to determine, in part, the final grade. (See current fee schedule for listing of fees in individual lessons.)

Students must receive a "C" or better in all courses designated MUSC to satisfy department degree requirements. A student's transfer courses in music must also reflect a "C" or better to be accepted for credit.

USP Codes are listed in brackets by the 2003 USP code followed by the 2015 USP code (e.g. [QB♦Q]).

Major

Jazz Performance, B.M.

The BM in Jazz Performance is a jazz intense professional degree intended to prepare students for graduate school as well as a career in performing music. Acceptance to the program is by audition only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Jazz Performance, B.M.: 120 Credits

Music Core: 56 Credits

- Students must complete at least one ensemble per semester enrolled, total 8.

MUSC0200 - Music Convocation

Credits: 0
Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

Students must complete 8 semesters of Convocation, 1 each semester they are in residence.

MUSC1290 - Class Piano I

Credits: 1
Encompasses group instruction for the beginner at the keyboard. First semester of four-semester sequence. Enrollment limited to music or music education majors whose principal performance area is not piano.

When Offered (Offered fall semester)

MUSC1295 - Class Piano II

Credits: 1
Continues skills begun in MUSC 1290 including all major scales, beginning minor scales, prescribed chord progressions, harmonization, transposition, sight reading and repertoire.

When Offered (Offered spring semester)

Prerequisite: MUSC 1290 or successful completion of final exam requirements for MUSC 1290.

MUSC1030 - Written Theory I

Credits: 3
First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- One hour of Applied Lessons on the students major instrument must be taken every semester starting at the 2000 level.
MUSC 2*** Applied Lessons II: 4 Credits
MUSC 3*** Applied Lessons III: 4 Credits
MUSC 4*** Applied Lessons IV: 4 Credits
MUSC 5*** Applied Lessons V: 4 Credits

Instrumental Emphasis: 2 Credits

MUSC4615 - Instrumental Pedagogy

Credits: 2

Surveys teaching materials in solo and chamber literature, techniques, practices, and methods for applicable instrument.

Prerequisite: 8 credit hours of individual study in a specific instrument.

Jazz Core Requirements: 11 Credits

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

Upper Division Music Electives: 9 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050, MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin, viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4990 - Topics in:

Credits: 1-12

Max Credit (Max. 12)

Encompasses various topics in music. Specific subjects vary from year to year as course is often taught by distinguished visiting artists and lecturers or music faculty. Presents topics of special interest to music majors, graduate students and music educators. Please check class schedule for course titles each semester.

Prerequisite: consent of instructor.

MUSC5035 - Advanced Theory

Credits: 3

To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combing historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

General Electives: 6 Credits

Music Education, B.M.

The **BM in Music Education** is a professional degree intended to prepare students for careers as K-12 music educators. Acceptance to the program is by audition only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Music Education: B.M.

Music Core: 43 Credits

- Students must complete at least one ensemble per semester enrolled, total 7.

MUSC0200 - Music Convocation

Credits: 0
Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

MUSC1030 - Written Theory I

Credits: 3
First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2390 - Piano Literacy Exam

Credits: 0

The Piano Literacy test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2390 a maximum of two times. Consult the Music Department Handbook for specific requirements.

Restricted MUSIC, BA and BM Instrumental Performance only

- Students who are Brass, Woodwind, and Percussion Emphasis may fulfill this requirement by passing Class Piano 1 and 2 with a B or higher.
OR

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

- Required for all Vocal and String emphasis students. Class Piano 1-4 is recommended to prepare for this exam.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4155 - Senior Music Education Recital

Credits: 0

Music Education students perform a recital which may be a part of a Convocation or a separate performance. Consult your studio teacher for individual studio requirements.

Prerequisite: senior standing and studio teacher consent.

- Applied lessons are required each semester of residency:
MUSC 2*** Applied Lessons II: 2 Credits
MUSC 3*** Applied Lessons III: 2 Credits
MUSC 4*** Applied Lessons IV: 2 Credits
MUSC 5*** Applied Lessons V: 2Credits

Music Education Core: 13 Credits

Prerequisite: MUSC 1040 & 1045

MUSC1025 - Introduction to Music Education

Credits: 2

Introduces music teacher education. Includes overview of vocal and instrumental music education and teaching processes in grade levels K-12. Requires on-site visits and observations of music programs.

When Offered (Offered spring semester)
Former Course Number [1020]

Prerequisite: music majors only.

MUSC1312 - Public School Tech: Brass

Credits: 2

This course is designed to teach the fundamentals of brass pedagogy and performance for music education majors. The course consists of two components applied study on brass instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1322 - Public School Tech: Percussion

Credits: 2

This course is designed to teach the fundamentals of percussion pedagogy and performance for music education majors. The course consists of two components applied study on percussion instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1332 - Public School Tech: Strings

Credits: 2

This course is designed to teach the fundamentals of string pedagogy and performance for music education majors. The course consists of two components applied study on string instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1340 - Public School Methods: Voice I

Credits: 1

Max Credit (Max. 2)

Encompasses group instruction in vocal methods for music education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1352 - Public School Tech: Woodwinds

Credits: 2

This course is designed to teach the fundamentals of woodwind pedagogy and performance for music education majors. The course consists of two components applied study on woodwind instruments and study/discussion of current pedagogy and methods.

Restricted Restricted to Music Education majors.

Prerequisite: MUSC 1040, MUSC 1045.

MUSC1360 - Public School Methods: Guitar

Credits: 1

Max Credit (Max. 2)

Prerequisite: MUSC 1040, MUSC 1045.

MUSC3265 - Music Education Proficiency Review

Credits: 0

This course is required for entrance into upper-division Music Education coursework. The review will assess competency in oral and written communication skills, preliminary teacher performance, sight singing, and error detection. Completion is in the sophomore year or in the first semester for transfer students.

Prerequisite: sophomore standing.

MUSC4620 - Practicum in Music Education

Credits: 1

Provides opportunity to gain experience in music classroom in area public schools. Includes work on meeting educational standards of Wyoming necessary to begin student teaching and continued work on developing a teaching portfolio.

Prerequisite: MUSC 1050 and junior status.

Emphasis: Choose One, 4-5 credits

String Emphasis: 4 credits

- String majors must take lessons on a secondary string instrument. 2 credits

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

Vocal Emphasis: 4 credits

MUSC2320 - Diction for Singers I

Credits: 2

Studies phonetic sounds of English and Italian.

When Offered (Offered fall semester)

MUSC4620 - Practicum in Music Education

Credits: 1

Provides opportunity to gain experience in music classroom in area public schools. Includes work on meeting educational standards of Wyoming necessary to begin student teaching and continued work on developing a teaching portfolio.

Prerequisite: MUSC 1050 and junior status.

Brass, Woodwind, and Percussion Emphasis: 5 credits

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

Professional Education Requirements: 33 Credits

EDST2450 - Foundations of Development and Learning

Credits: 3

Introduces students to the essential understandings of child/adolescent development and learning. The course emphasizes various theories and concepts related to student development with attention to cognitive, social, and physical perspectives.

When Offered (Offered each semester)

USP 2003-2014 Code U3CS

USP 2015 Code U5H

Former Course Number [EDFD 2450]

Prerequisite: 2.500 UW institutional GPA.

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

MUSC4455 - Elem General Music Methods

Credits: 3

This course is designed to prepare students for a career in K-6 music teaching while emphasizing the need for music teachers to recognize diverse student needs, including those unique qualities brought into the classroom by marginalized populations.

A&S College Core 2015 ASD

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent enrollment in MUSC 4705.

MUSC4460 - Choral Music Methods

Credits: 3

This course is designed to help pre-professional music educators gain tools for teaching secondary choral music. Topics to be explored include choral literature, methodology involving strengthening musicianship, rehearsal techniques, and issues pertaining to the development of a choral ensemble program.

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent Enrollment in MUSC 4715 for choral emphasis students.

MUSC4465 - Instrumental Music Methods

Credits: 3

Based on a comprehensive instrumental music education model, this course acquaints students with curriculum development, instructional planning, and materials and techniques designed for teaching musical concepts and skills in instrumental ensemble and class lesson settings.

USP 2015 Code U5C3

Restricted Restricted to Music Education majors.

Prerequisite: Completion of MUSC 2040, MUSC 2045 and MUSC 2055. Concurrent enrollment in MUSC 4715 for instrumental emphasis students.

MUSC4705 - Elementary Music Ed Practicum

Credits: 1

Practicum experience is integral to development as a music teacher. As part of the Music Teaching Methods Sequence, pre-service music teachers will be immersed into authentic elementary and secondary music settings.

Restricted Restricted to Music Education majors.

Prerequisite: Concurrent enrollment with MUSC 4455 for instrumental emphasis students.

MUSC4715 - Secondary Music Ed Practicum

Credits: 1

Practicum experience is integral to development as a music teacher. As part of the Music Teaching Methods Sequence, pre-service music teachers will be immersed into authentic elementary and secondary music settings.

Restricted Restricted to Music Education majors.

Prerequisite: Concurrent enrollment with MUSC 4460 or MUSC 4465.

MUSC4700 - Elementary Student Teaching in Music

Credits: 8

The final professional academic semester of the teacher education program. A full-time residency with an elementary mentor teacher.

Prerequisite: 2.750 cumulative GPA, 3.000 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

MUSC4710 - Secondary Student Teaching in Music

Credits: 8

The final professional academic semester of the teacher education program. A full-time residency with a secondary mentor teacher.

Prerequisite: 2.750 cumulative GPA, 3.000 GPA in major content courses, completion of all content courses, successful completion of Phase IIIa specific pedagogy and practicum, complete review of the prospective teacher's record.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

Music Performance, B.M.

The **BM in Performance** is a professional degree intended to prepare students for graduate school as well as a career in performing music. Acceptance to the program is by audition only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

B.M. Performance, Vocal Emphasis: 120 Total Hours

Music Core: 54 Credits

- Ensembles: 1 per semester, minimum 8

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Applied lessons are required each semester of residency:
 - MUSC 2*** Applied Lessons II: 4 Credits
 - MUSC 3*** Applied Lessons III: 4 Credits
 - MUSC 4*** Applied Lessons IV: 4 Credits
 - MUSC 5*** Applied Lessons V: 4 Credits

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

Vocal Emphasis: 6 Credits

MUSC2320 - Diction for Singers I

Credits: 2

Studies phonetic sounds of English and Italian.

When Offered (Offered fall semester)

MUSC2325 - Diction for Singers II

Credits: 2

Studies phonetic sounds of French and German. (Usually offered spring semester)

MUSC4635 - Vocal Pedagogy

Credits: 2

This specialized course addresses anatomy and physiology of the vocal instrument and the scientific principles surrounding it, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private voice studio. The last quarter of the class includes an in-class, supervised teaching unit. Students enrolled in the graduate level (5635) will undertake an extensive research paper/project and additional teaching.

Dual Listed MUSC 5635.

When Offered (Offered alternate spring semesters)

Former Course Number [4610]

Prerequisite: 8 credits of voice or permission of instructor.

Upper Division Music Electives: 16 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4040 - Composition

Credits: 2
Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4315 - America's Ethnic Music

Credits: 3
Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D
A&S College Core 2015 ASD
Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3
An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3
Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4380 - Jazz Techniques

Credits: 2
Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)
Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3
This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600 s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

B.M. Performance, Keyboard Emphasis: 120 Hours Total

Music Core: 56 Hours

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

- Students must be enrolled in Convocation every semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3
Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Applied lessons are required each semester of residency:
MUSC 2*** Applied Lessons II: 4 Credits
MUSC 3*** Applied Lessons III: 4 Credits
MUSC 4*** Applied Lessons IV: 4 Credits
MUSC 5*** Applied Lessons V: 4 Credits

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC1280 - Collaborative Piano I

Credits: 1-2

Max Credit (Max. 8)

Encompasses supervised practice in the art of collaborative piano playing. Discusses traditional usages as applicable to various schools and periods of vocal and instrumental duo literature.

Prerequisite: audition required.

- Ensembles: MUSC 1280 is intended for freshman and sophomores; MUSC 3280 is intended for juniors and seniors. You must be registered for a minimum of one ensemble per semester.

MUSC3280 - Collaborative Piano II

Credits: 1-2

Max Credit (Max. 8)

Encompasses supervised practice in the art of collaborative piano playing. Discusses traditional usages as applicable to various schools and periods of vocal and instrumental duo literature.

Prerequisite: audition required.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

Keyboard Emphasis: 5 Credits

MUSC4625 - Piano Pedagogy

Credits: 2

Max Credit (Max. 2)

This specialized course addresses the teaching of piano to children with special emphasis on the development of correct technique, studio teaching techniques, student learning styles, repertoire assignment, and all aspects of establishing a private studio. The last quarter of the class includes an in-class, supervised teaching unit.

Dual Listed MUSC 5625.

Former Course Number [4600]

Prerequisite: 8 credit hours of piano study.

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600 s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

Upper Division Music Electives: 17 Hours

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

B.M. Performance, String Emphasis: 120 Total Hours

Music Core: 56 Credits

- Ensembles: 1 per semester, minimum 8

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

- Students must be enrolled in Convocation every semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2395 - Piano Proficiency

Credits: 0

Piano proficiency test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2395 a maximum of 2 times. Consult the Music Department Handbook for specific requirements.

- Class Piano 1-4 is highly recommended for students with little or no piano experience. All music majors must pass a piano proficiency test during their sophomore year (MUSC 2395). If a student opts not to take Class Piano, then four (4) hours of elective credits must be taken to ensure 120 hours for graduation.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

Applied lessons are required each semester of residency:

MUSC 2*** Applied Lessons II: 4 Credits

MUSC 3*** Applied Lessons III: 4 Credits

MUSC 4*** Applied Lessons IV: 4 Credits

MUSC 5*** Applied Lessons V: 4 Credits

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4070 - Conducting

Credits: 3

Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3500 - Junior Recital

Credits: 0

Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

String Emphasis: 4 Credits

MUSC4615 - Instrumental Pedagogy

Credits: 2

Surveys teaching materials in solo and chamber literature, techniques, practices, and methods for applicable instrument.

Prerequisite: 8 credit hours of individual study in a specific instrument.

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin, viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

Upper Division Music Electives: 18 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular

music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600 s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

B.M. Performance, Winds & Percussion Emphasis: 120 Total Hours

Music Core: 58 Credits

- Ensembles: 1 per semester, minimum 8

MUSC0200 - Music Convocation

Credits: 0

Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

Students must be enrolled in Convocation every semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC2040 - Written Theory IV

Credits: 3

Fourth semester of a two-year series. Explores the instruments of the band and orchestra, and the capabilities of writing for voices and piano. Arranging for various instrumental combinations and vocal ensembles.

Prerequisite: MUSC 2030.

MUSC2045 - Aural Theory IV

Credits: 1

Second semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 2035.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Applied lessons are required each semester of residency:
MUSC 2*** Applied Lessons II: 4 Credits
MUSC 3*** Applied Lessons III: 4 Credits
MUSC 4*** Applied Lessons IV: 4 Credits
MUSC 5*** Applied Lessons V: 4 Credits

MUSC1290 - Class Piano I

Credits: 1

Encompasses group instruction for the beginner at the keyboard. First semester of four-semester sequence. Enrollment limited to music or music education majors whose principal performance area is not piano.

When Offered (Offered fall semester)

AND

MUSC1295 - Class Piano II

Credits: 1

Continues skills begun in MUSC 1290 including all major scales, beginning minor scales, prescribed chord progressions, harmonization, transposition, sight reading and repertoire.

When Offered (Offered spring semester)

Prerequisite: MUSC 1290 or successful completion of final exam requirements for MUSC 1290.

OR

MUSC2390 - Piano Literacy Exam

Credits: 0

The Piano Literacy test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2390 a maximum of two times. Consult the Music Department Handbook for specific requirements.

Restricted MUSIC, BA and BM Instrumental Performance only

MUSC4040 - Composition

Credits: 2
Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4070 - Conducting

Credits: 3
Examines basic techniques of baton, score reading, familiarization with standard works, practical experience in directing choral and instrumental groups. For graduate credit, students must present extra paper or project determined by instructor.

Prerequisite: MUSC 2030, MUSC 2035, MUSC 2040, and MUSC 2045.

MUSC3500 - Junior Recital

Credits: 0
Students will perform a 30 minute (minimum) recital of appropriate repertoire. Consult your studio teacher for individual studio requirements.

Prerequisite: 4 semesters of private instruction, consent of instructor.

MUSC4590 - Senior Recital

Credits: 2
Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

Instrumental Emphasis: 2 Credits

MUSC4615 - Instrumental Pedagogy

Credits: 2
Surveys teaching materials in solo and chamber literature, techniques, practices, and methods for applicable instrument.

Prerequisite: 8 credit hours of individual study in a specific instrument.

Upper Division Music Electives: 18 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3
Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.
USP 2003-2014 Code U3G, U3WB
A&S College Core 2015 ASG
Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D
A&S College Core 2015 ASD
Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600 s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

Music, B.A.

The **BA in Music** is a broad liberal arts degree with a 58-credit core music curriculum. Majors have the freedom to explore the potential for future careers in the music and arts industry such as arts management, entrepreneurship, and audio technology.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Music Core: 40 Credits

- Students must complete at least one ensemble per semester enrolled, total 8.

MUSC0200 - Music Convocation

Credits: 0
Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.

- All music majors must enroll in and successfully complete Convocation each semester they are enrolled, maximum of 8.

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC2030 - Written Theory III

Credits: 3

First semester of a one-year series. Studies chromatic harmony, contrapuntal techniques and twentieth-century practices.

Prerequisite: MUSC 1030 and MUSC 1040.

MUSC2035 - Aural Theory III

Credits: 1

First semester of a one-year series. Continues MUSC 1035 and MUSC 1045.

Prerequisite: MUSC 1035 and MUSC 1045.

MUSC1003 - Historical Perspectives in Music I

Credits: 3

The first semester of a three semester sequence covering the study of composers and music repertoire from antiquity to 1600.

USP 2003-2014 Code U3I, U3L

Prerequisite: Music majors and minors, or by permission of the instructor.

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

MUSC2055 - Historical Perspectives III

Credits: 3
Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

MUSC2390 - Piano Literacy Exam

Credits: 0

The Piano Literacy test is offered at the end of each fall and spring semester. Students may enroll in MUSC 2390 a maximum of two times. Consult the Music Department Handbook for specific requirements.

Restricted MUSIC, BA and BM Instrumental Performance only

- The Piano Literacy Exam must be completed by the end of Sophomore year. It may be substituted by passing Class Piano 1 and 2 with a B or higher.

MUSC3255 - Sophomore Qualifying Performance Jury

Credits: 0

An extended performance jury at the end of the sophomore year. Music majors may not continue to 4000-level lessons without successful completion of the sophomore jury. Transfer students with junior standing must take the jury at the end of their first semester in residence. Contact your studio teacher for the individual Sophomore Jury requirements. Students may register for this course up to 2 times.

Prerequisite: 4 semesters of private instruction, consent of instructor.

- Students must be enrolled in instrument specific lessons every semester they are enrolled. They must complete the following:
 - MUSC 2*** Applied Lessons II, 2 credits
 - MUSC 3*** Applied Lessons III, 2 Credits
 - MUSC 4*** Applied Lessons IV, 2 Credits
 - MUSC 5*** Applied Lessons V, 2 Credits

Upper Division Electives: 18 Credits

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC3025 - Fundamentals of Jazz Improvisation

Credits: 2

Continuation of Jazz Aural Theory IV, MUSC 1045. More advanced topics will be covered and more challenging repertoire will be explored. A strong emphasis will be placed on common practice techniques in mainstream jazz.

Prerequisite: MUSC 2045.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4020 - Advanced Jazz Improvisation

Credits: 2

Continuation of Fundamentals of Jazz and Improvisation , MUSC 3025. Students will learn the harmonic and melodic language of bebop and hard bop through performance and composition of tunes in these idioms.

Prerequisite: MUSC 3025.

MUSC4025 - Jazz Composition and Arranging

Credits: 2

Continuation of Advanced Jazz Improvisation , MUSC 4020. Students explore developments in jazz improvisation and composition since 1960. Advanced theoretical concepts are covered in lectures and workshop sessions.

Prerequisite: MUSC 4020.

MUSC4040 - Composition

Credits: 2

Max Credit (Max. 12)

Prerequisite: MUSC 4010.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D
A&S College Core 2015 ASD
Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4380 - Jazz Techniques

Credits: 2

Max Credit (Max. 2)

Surveys jazz structure, styles, techniques and materials with respect to public school music programs. Intended for music education major.

When Offered (Offered spring semester)

Prerequisite: MUSC 2035.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC4590 - Senior Recital

Credits: 2

Max Credit (Max. 4)

Prerequisite: at least 14 semester hours in one performance field and senior standing.

MUSC4650 - Keyboard Literature

Credits: 3

An overview of solo ensemble keyboard literature from the 1600 s to the present, focusing on major composers and common compositional forms. Includes listening assignments and examinations as well as individual research papers and class presentations.

Restricted BM MMM MME PC; MUSC 5655 Graduate Standing

Prerequisite: MUSC 4655, MUSC 2050 , MUSC 2055

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4750 - Marching Band Techniques

Credits: 1

Applies specific various drill design techniques including corps style, military, show band and computer applications.

MUSC4780 - Instrumental Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to instrumental group rehearsals concerning such problems as intonation, phrasing, dynamics, balance, etc. Overviews appropriate selection procedures for band and orchestral literature.

Prerequisite: MUSC 4070 and MUSC 2395.

MUSC4790 - Choral Conducting and Repertory

Credits: 2

Applies specific basic conducting techniques to choral group rehearsals concerning such problems as intonation, good vocal production, phrasing, diction, dynamics, balance, etc. Overviews appropriate choral literature.

Prerequisite: MUSC 4070 and passed piano proficiency requirement.

MUSC4990 - Topics in:

Credits: 1-12
Max Credit (Max. 12)

Encompasses various topics in music. Specific subjects vary from year to year as course is often taught by distinguished visiting artists and lecturers or music faculty. Presents topics of special interest to music majors, graduate students and music educators. Please check class schedule for course titles each semester.

Prerequisite: consent of instructor.

MUSC5035 - Advanced Theory

Credits: 3
To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combining historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

A&S Core

A&S Diversity - 3 Credits

A&S Global - 3 Credits

Minor

Music Minor: 18 Credits

A **Minor in Music** consists of 18 credit hours intended to broaden a student's musical skills as well as foster musical talents while they are pursuing a separate major. Acceptance to the minor is by audition only.

Required Courses

- **Ensembles:** Minimum 2 semesters required
- **Applied Lessons:** Complete at least 2 hours of Applied Lessons (2 semesters, minimum 30 minutes each)

MUSC0200 - Music Convocation

Credits: 0
Weekly recital hour for student, faculty and guest performances.

Prerequisite: intended for, and required of music majors.
2 Semesters Required

MUSC1030 - Written Theory I

Credits: 3

First semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: music majors/minors only.

MUSC1035 - Aural Theory I

Credits: 1

First semester of a one-year series. Studies ear training and sight singing.

MUSC1040 - Written Theory II

Credits: 3

Second semester of a one-year series. Studies fundamentals of music and written harmony.

Prerequisite: MUSC 1030 and music majors/minors only.

MUSC1045 - Aural Theory II

Credits: 1

Second semester of a one-year series. Studies ear training and sight singing.

Prerequisite: MUSC 1035.

Choose one of the following:

MUSC2050 - Historical Perspectives in Music II

Credits: 3

Continuation of materials and topics covered in Historical Perspectives in Music I. Study of composers and repertoire from 1600-ca. to 1800.

USP 2003-2014 Code U3CA

Prerequisite: MUSC 1003, or by permission of instructor.

OR

MUSC2055 - Historical Perspectives III

Credits: 3

Max Credit (Max. 6)

Second semester of one-year series. Studies history and literature of music from the Classical Era to present.

Prerequisite: ability to read music.

Choose at least 3 credits from the following. Final credit hours for the minor must equal 18.

MUSC3015 - Introduction to the Music of the World's Peoples

Credits: 3

Students develop three primary interconnected literacies for the study and understanding of musics of other cultures: analytical music listening, understanding the concept of music culture, and interpretation of musical events. Student writing is a primary tool for developing these literacies. Texts from the Oxford University Press Global Music Series to study musics of Africa, Indonesia, India, and Eastern Europe are used.

Cross Listed ANTH 3015.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [2015]

Prerequisite: MUSC 1000 or permission of instructor and WA.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

Graduate

Music Education, M.M.

Each of the degree programs consists of 30 semester hours of work composed of the following elements:

Plan A or Plan B

To earn a Master of Music Education, students must complete the following requirements:

Basic Music Core (11 Hours)

No more than 12 credits can be counted from 4000-level courses toward any graduate program of study.

MUSC5310 - Music Research Methods

Credits: 2

Prepares students to be knowledgeable consumers of music and interdisciplinary information. Topics include the musicology research process, information ethics, and critical analyses and integration of information sources into writing. Information literacy principles and research techniques equip students for both graduate-level music research and the post-graduate, professional world.

Prerequisite: graduate standing in music.

- Choose a total of at least THREE courses from the following (minimum 9 credits from the following two categories):
- **Upper-Division Music History** (3-6 Credits):

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC5320 - Advanced Seminar

Credits: 2-6

Max Credit (Max. 6)

Such topics as The Music of J. S. Bach, The Chamber Music of Mozart, and Contemporary Music will be pursued and will terminate in oral reports and a research paper.

Prerequisite: MUSC 5310.

- **Upper-Division Theory** (3-6 hours):

MUSC5035 - Advanced Theory

Credits: 3

To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combining historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

MUSC5340 - Advanced Composition

Credits: 1-4

Max Credit (Max. 6)

A project course to be conducted by individual appointment with the instructor. The result should be the production of a major work suitable for performance by one of the campus organizations. Evaluation is made by a faculty committee on completion and performance of the composition.

Prerequisite: 4 hours of MUSC 4040.

MUSC5350 - Advanced Analysis

Credits: 3

Consideration of the analytical techniques of Harder, Piston, and Schillinger for traditional music, of Hanson and Hindemith for modern tonal music, and of Schoenberg and Reti for serial music.

Prerequisite: graduate standing in music.

Major Area Courses (12-15 Hours)

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

MUSC5760 - Music Education Seminar

Credits: 2

A study and discussion of trends, objectives, and curricula of the various phases of music education.

MUSC5720 - Musical Supervision: Choral

Credits: 2

Examination of the administrative responsibilities of the music teacher, the music department chairman, and the district music supervisor in the public schools, as well as the responsibilities of a music festival chairman and officers of the state music educators association.

Prerequisite: graduate standing in music.

- Music education electives Credits: 5-8

Thesis Requirement (0-4 Hours)

Plan A

Four hours (the thesis must be on a music education topic)

MUSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Plan B

The thesis requirement may be fulfilled under the Plan B paper/lecture-recital as appropriate to the specific degree program. A proposal for a thesis or Plan B paper must be submitted to and approved by the student's graduate committee chair.

- Plan B paper, plus extra courses Credits: 0

Electives (4 to 7 Hours)

Require successful completion of the written comprehensive exams, which cover theory, history, and the major area.

Music Performance, M.M.

Each of the degree programs consists of 30 semester hours of work composed of the following elements

Plan B

To earn a Master of Music in Performance, students must complete the following requirements:

Basic Music Core (11 Hours Minimum)

No more than 12 credits can be counted from 4000-level courses toward any graduate program of study.

MUSC5310 - Music Research Methods

Credits: 2

Prepares students to be knowledgeable consumers of music and interdisciplinary information. Topics include the musicology research process, information ethics, and critical analyses and integration of information sources into writing. Information literacy principles and research techniques equip students for both graduate-level music research and the post-graduate, professional world.

Prerequisite: graduate standing in music.

- Choose a total of at least THREE courses from the following (minimum 9 credits from the following two categories):
- **Upper-Division Music History** (3-6 Credits):

MUSC4315 - America's Ethnic Music

Credits: 3

Surveys music of ethnic groups in America.

USP 2003-2014 Code U3CA, U3D

A&S College Core 2015 ASD

Former Course Number [3000]

Prerequisite: MUSC 1000.

MUSC4330 - Undergraduate Seminar

Credits: 3

An in-depth study in Musicology or Music History topic. Class time will be centered on exploring unique topics in music repertoire through lectures, guided listening, and discussion.

USP 2015 Code U5C3

Prerequisite: MUSC 2050 and MUSC 2055.

MUSC4350 - History and Literature of Jazz

Credits: 3

Surveys details of American jazz music from the turn of the 20th century to present. Acquaints students with basic jazz materials, techniques and styles, as well as work of selected jazz masters. For graduate credit, students must present extra paper or project determined by instructor.

USP 2015 Code U5H

Prerequisite: consent of instructor.

MUSC4651 - String Solo Literature

Credits: 3

Provide a survey of the masterpieces of string solo literature (violin,viola, cello and bass literature) in a historical and musical context. Includes listening assignments and examinations as well as class presentations.

Prerequisite: 8 hours of lessons in string instruments.

MUSC4490 - History of Rock and Roll

Credits: 3

This course will examine music styles prior to rock and roll and then delve into the various styles of the music from the 1950s to the late 20th century. In order to understand rock and roll music the course will analyze other styles of popular music in the United States.

USP 2015 Code U5H

MUSC5320 - Advanced Seminar

Credits: 2-6

Max Credit (Max. 6)

Such topics as The Music of J. S. Bach, The Chamber Music of Mozart, and Contemporary Music will be pursued and will terminate in oral reports and a research paper.

Prerequisite: MUSC 5310.

- **Upper-Division Theory** (3-6 hours):

MUSC5035 - Advanced Theory

Credits: 3

To further understanding of chromatic harmonies, analysis of advanced formal aspects, Pitch-class set Analysis, and 12-tone Analysis. To ultimately have a synergistic view of each work, combing historical and theoretical elements in viewing the work as a whole.

Dual Listed MUSC 4035

Prerequisite: MUSC 2030 and MUSC 2035, music majors only; (MUSC 5035): graduate standing.

MUSC5340 - Advanced Composition

Credits: 1-4

Max Credit (Max. 6)

A project course to be conducted by individual appointment with the instructor. The result should be the production of a major work suitable for performance by one of the campus organizations. Evaluation is made by a faculty committee on completion and performance of the composition.

Prerequisite: 4 hours of MUSC 4040.

MUSC5350 - Advanced Analysis

Credits: 3

Consideration of the analytical techniques of Harder, Piston, and Schillinger for traditional music, of Hanson and Hindemith for modern tonal music, and of Schoenberg and Reti for serial music.

Prerequisite: graduate standing in music.

Major Area Courses (16 Hours Minimum)

- MUSC 5480 - MUSC 5670 Private Lessons in major instrument or voice Credits: 8 minimum
- MUSC 5700 - MUSC 5890 Ensembles Credits: 2

MUSC5680 - Graduate Recital

Credits: 2

A recital, vocal or instrumental and consisting of selections of advanced difficulty in matters of technique and interpretation, is presented under the direction of a staff member. Quality and content of recital must be approved by a faculty committee one month before the recital date, and the faculty committee will determine the final grade.

Prerequisite: graduate standing in music and consent of instructor.

MUSC5390 - Performance Practice and Interpretation

Credits: 2

A study of the inherited traditions of correct interpretation and performance as related to the various style periods in music.

Prerequisite: graduate standing in music.

MUSC5320 - Advanced Seminar

Credits: 2-6

Max Credit (Max. 6)

Such topics as The Music of J. S. Bach, The Chamber Music of Mozart, and Contemporary Music will be pursued and will terminate in oral reports and a research paper.

Prerequisite: MUSC 5310.

- MUSC 4*** - Pedagogy (instrument specific) Credits: 2

Requirement In Lieu of Thesis

Plan B paper, or 1-hour lecture-recital

Foreign Language Requirement

(voice majors only). Singers must demonstrate acceptable proficiency in singing in Italian, German, French, and English.

Electives (0 to 3 hours)

Require successful completion of the written comprehensive exams, which cover theory, history, and the major area.

Certificate

Audio Technology Certificate: 12 Credits

The Audio Technology Certificate provides a basic understanding of audio principles and practical hands-on experience that allows one to enter the commercial music work force with a marketable skill set. Students will learn how to record and manipulate recorded sounds as well as provide live sound reinforcement for live concerts or events. A certificate may be pursued on its own or in conjunction with any university degree program.

Required Courses

MUSC4360 - Fundamentals of Audio for Music Production

Credits: 3

Topics include fundamentals of digital audio, live sound reinforcement, and audio recording. Students will acquire a foundation and learn how to successfully communicate with technicians.

MUSC4365 - Recording Art and Technology

Credits: 3

Topics include history of music production, multi-track recording, digital audio workstations, digital editing, session management and production, mixing, mastering, and distribution.

MUSC4370 - Live Sound Reinforcement

Credits: 1

Max Credit 3

Topics include history of live sound reinforcement, analog audio, digital consoles, system checks, troubleshooting, and client relations. Students will build upon MUSC 4360 with focus on live sound reinforcement.

MUSC4990 - Topics in:

Credits: 1-12

Max Credit (Max. 12)

Encompasses various topics in music. Specific subjects vary from year to year as course is often taught by distinguished visiting artists and lecturers or music faculty. Presents topics of special interest to music majors, graduate students and music educators. Please check class schedule for course titles each semester.

Prerequisite: consent of instructor.

Audio Technology Practicum/Internship

Endorsement/Certificate

Art Entrepreneurship Certificate: 12 Credits

This certificate provides a basic understanding of marketing principles specific to the arts with practical hands-on experience that allows one to enter the workforce with a marketable skill set in the areas of art promotion and management.

Required Core Courses (All Emphases)

MUSC4001 - Music Entrepreneurship Seminar

Credits: 2

Further crystalizes successful business enterprise development introduced in ENTR 2700. Student will hone entrepreneurial skills in idea creation, business incubation, development, research, and commercialization.

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

- Choose one of the following:

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

OR

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

- **The internships below are variable, 1-2 credits, depending on department. Please see individual advisors for exact hours.**

Music Emphasis

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4005 - Internship in Music Business

Credits: 1

Offers an evaluated and professional work experience in public or private organizations on assignments relating to student's career goals, allowing students to explore the relationship between theory and practice in their major.

Visual Arts Emphasis

ART4600 - Professional Practices and Strategies

Credits: 3

This course offers information to junior/senior level art majors in regards to: finding jobs in art, finding/applying for exhibition opportunities, applying/finding grant opportunities, furthering education including finding/applying for a Masters in art, and overall life possibilities after the completion of an undergraduate art degree. Writing is expected in the form of cover letters, resumes, artist statements, and project proposals.

USP 2015 Code U5C3

Prerequisite: ART 2000, junior or senior standing.

ART4400 - Internship

Credits: 1-3

Max Credit (Max. 9)

Allows students to bridge the gap between theoretical problems solved in the classroom and the real work world. Students are placed in a setting where they perform duties similar to a working environment. Specific arrangements are made through the major area adviser. Students are evaluated at mid-term and finals. Minimum of three contact hours of internship per week for a semester equals an hour course credit.

Prerequisite: ART 2000 and 12 hours in the major area.

Theater and Dance: Dance Emphasis

THEA4700 - Auditioning and Careers in Dance

Credits: 1

Designed for dance majors as a culminating course in preparation for final semester auditions and applications for companies and graduate schools. Through this course, students will set career goals, create an audition portfolio, and gain exposure to the many challenges and opportunities in dance.

Prerequisite: senior standing, THEA 1021, and one semester of THEA 4010 or THEA 4030.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

Theater and Dance: Design/Tech Management Emphasis

THEA3850 - Design and Technology Seminar

Credits: 2

Introduces designer/technician to process of preparing successful interview material, including a professionally developed portfolio. Exposes designer/technician to business aspects of the theatre world, including resumes, letters of inquiry and application, contracts, unions and professional organizations, internships, apprenticeships, URTAs and professional design/technical training programs. Culminates in junior End-of-the-Year Evaluations.

Prerequisite: junior standing in the BFA Program with Design/Technical emphasis.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

Theater and Dance: Performance Emphasis

THEA4720 - Auditioning and Professional Issues

Credits: 3

Introduces actors to process of finding, preparing and executing successful audition material, including monologues, songs and dance combinations. Exposes actors to business aspects of the theatre world, including resumes, photos, contracts, unions, internships, apprenticeships, Equity Membership Candidacy programs, URTA's and professional actor training graduate programs. Culminates preparation for final semester auditions for the company/school of choice.

Prerequisite: THEA 1100, THEA 3710 and THEA 3740.

THEA4975 - Theatre/Dance Internship

Credits: 1-12

Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

Department of Philosophy and Religious Studies

Philosophy

122 Ross Hall, (307) 766-3204

Web site: <https://www.uwyo.edu/philrelig/about-us/philosophy/index.html>

E-mail: philosophy@uwyo.edu

Department Head: Susanna L. Goodin

Professors:

HARVEY HIX, B.A. Belmont College 1982; M.A. University of Texas, Austin 1985; Ph.D. 1987; Professor of Philosophy and Creative Writing 2013.

JEFFREY A. LOCKWOOD, B.S. New Mexico Institute of Mining and Technology 1982; Ph.D. Louisiana State University 1985; Professor of Philosophy and Creative Writing 2006.

Associate Professors:

SUSANNA L. GOODIN, B.A. Texas Technical University 1981; M.A. Rice University 1985; Ph.D. 1990; Associate Professor of Philosophy 1998, 1992.

FRANZ-PETER GRIESMAIER, University of Vienna 1986; M.A. University of Colorado 1988; Ph.D. University of Arizona 1997; Associate Professor of Philosophy 2006, 2000.

EDWARD D. SHERLINE, B.A. Princeton University 1982; M.A. University of Chicago 1983; Ph.D. University of Illinois-Chicago 1990; Associate Professor of Philosophy 1996, 1989.

Assistant Professor:

BRADLEY RETTLER, B.S. Crown College 2004; M.A. Biola University 2008; Ph.D. University of Notre Dame 2014; Assistant Professor of Philosophy 2018.

Senior Academic Professional Lecturer:

ROBERT S. COLTER, B.A. The University of Puget Sound 1992; M.A. University of Colorado 1995; Ph.D. Northwestern University 2001; Academic Professional Lecturer 2013, 2007.

Professors Emeriti:

James Forrester, Richard L. Howey, James A. Martin

About the Program

Philosophy starts with those hard questions we all ask at some time or another. Some important questions of meaning and justification can't be answered by making observations or doing experiments. Philosophy is the effort to deal with these problems through sustained, hard, and critical thinking. Philosophy is good preparation for careers that call for you to use your mind, without prejudice but with rigor.

The Philosophy Department offers an undergraduate major, three undergraduate minors, and a graduate MA.

For details on each of these programs, see the department's web site.

Graduate Study

The Department of Philosophy offers the master of arts degree under the Plan A or Plan B.

Program Specific Admission Requirements

A writing sample of no more than 3,000 words on any subject in philosophy.

A statement describing specific philosophical interests.

Program Specific Graduate Assistantships

The department offers two to three graduate assistantships yearly on a competitive basis. These assistantships carry a tuition and fee waiver, plus a stipend. For more information, please contact the department.

Religious Studies

122 Ross Hall, (307) 766-3204

Web site: <https://www.uwyo.edu/philrelig/about-us/relstudy/>

Email: relstudies@uwyo.edu

Department Head: Susanna L. Goodin

Program Director: Tyler Fall

Professor

PAUL V. M. FLESHER, B.A. University of Rochester 1979; M.Phil. Oxford University 1982; Ph.D. Brown University 1988; Professor of Religious Studies 2012, 1993.

Assistant Professors

CATHERINE HARTMANN, B.A. University of Virginia in 2011, M.A. University of Chicago 2013, Ph.D. Harvard University 2020; Assistant Professor of Religious Studies 2020

TAMMY HEISE, B.A. Hendrix College 1998; M.A. Vanderbilt University 2006; Ph.D. Florida State University 2016; Visiting Assistant Professor of Religious Studies 2015, Assistant Professor of Religious Studies 2020.

Senior Academic Professional Lecturer

TYLER S. FALL, B.A. Mary Washington College 1999; M.A. University of Oregon 2004; M.F.A. University of Wyoming 2009; Associate Academic Professional Lecturer of Religious Studies 2017, 2012.

MARY L. KELLER, B.A. Williams College 1987; M.A. Syracuse University 1992; Ph.D. 1999; Associate Academic Professional of Religious Studies 2017, 2012.

SETH WARD, B.A. Yale University 1974; M.A. 1978; M.Phil. 1979; Ph.D. 1984; Senior Academic Professional of Religious Studies 2017, 2003.

About the Program

Throughout history, religion has played an important role in shaping cultures and societies. Religious beliefs have inspired armies in their wars and leaders in their decisions. Religions have provided the foundation for ethical behavior and in many societies have been the primary source of education. In today's world, religions remain important, influencing our responses to 9/11, the Arab Spring, the Philosophy and Religious Studies, Middle East crisis, and other events in regions around the world. Even in our own secular United States, religions and their beliefs play a major role in our debates over public policy.

The Religious Studies department offers a range of courses in the academic study of religions. These courses seek to acquaint students with religious beliefs and behavior, helping them to understand the ability of religions to define the world in which their adherents live and the power religions have to influence the behavior of their followers. Religious Studies courses cover a broad range of religions, both modern and historical. Some courses focus on understanding a single religion in a limited time period, while others compare aspects of different religions. Yet further courses focus on religious expression, studying how religious beliefs are depicted in literature, film, art and music. Many of these courses are offered by the Religious Studies department, while others can be found in various departments, including anthropology, art, English, history and sociology.

Graduate Study

At present, no program for a graduate degree in religious studies is offered; however, some courses may be counted at the graduate level.

Major

Philosophy, B.A.

Philosophy provides the critical thinking, logical reasoning, and innovative problem-solving skills necessary to be competitive in law, business, academia, tech, arts, and government. It also explores what it is to live a meaningful life outside a career.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Additional Requirements

- A major in Philosophy requires a minimum of 33 hours (11 courses) of philosophy.
- At least 6 hours (2 courses) must be at the 4000-level.
- At least an additional 18 hours (6 courses) must be at or above the 3000-level.
- The remaining 9 hours (3 courses) may be at any level.
- The department recommends that students begin with a 1000-level Intro course or a FYS followed by one or two other courses at the 1000 or 2000-level but it is not required that a student follow this recommendation.
- Only those courses in which a grad of C or better has been earned may count toward the 33-hour requirement.

1000 -2000-level courses

Nine hours (3 courses) may be at any level.

PHIL1000 - Introduction to Philosophy

Credits: 3

Introduces critical thinking through a study of elementary logic, scientific method and philosophical problems of ethics, religion, epistemology and metaphysics.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL1101 - First-Year Seminar

Credits: 3

USP 2015 Code U5FY

PHIL2100 - The Greek Mind

Credits: 3

Part one of the history of philosophy sequence. The first great age of philosophy was in ancient Greece. Students read from ancient Greek poets, historians and medical writers, as well as philosophers. The course attempts to understand the Greek mind: what Greeks thought of persons, society and the universe.

USP 2003-2014 Code U3CH

PHIL2300 - Ethics in Practice

Credits: 1-3

Alerts preprofessional students and other interested individuals to various ethical issues they will encounter and relevant professional work on those issues. Emphasis of the course concentrates one time on biomedical ethics, another on technology and engineering ethics, another on ethics in the professions.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL2310 - Philosophy of Religion

Credits: 3

Systematically examines philosophical questions, arguments and theories arising from study of religion. Topics may include: reason and religion; the existence and nature of God.

USP 2003-2014 Code U3CH

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH
Former Course Number [1100]

3000-level courses

At least 18 hours (6 courses) must be at or above the 3000-level.

PHIL3000 - Special Topics

Credits: 3

Max Credit (Max. 9)

Provides undergraduates with the opportunity for in-depth discussion of seminal works in the history of philosophy or a problem in contemporary philosophy not offered in regular courses or independent study. Open to interested undergraduates from all majors.

Prerequisite: 3 hours of philosophy.

PHIL3100 - History of Modern Philosophy: The Rationalists

Credits: 3

The second great age of philosophy absorbed the influence of the new science during the 17th and 18th centuries. People to be studied include: Descartes, Spinoza and Leibniz.

Prerequisite: 3 hours of philosophy.

PHIL3110 - History of Modern Philosophy: The Empiricists

Credits: 3

People to be studied include: Locke, Berkeley, Hume and Kant. These philosophers are included in the second great age of philosophy.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3120 - Ancient Greek Philosophy

Credits: 3

Surveying some of ancient Greek philosophy. Begins with the works of the earliest extant philosophical thinkers, the pre-Socratics. Remainder of focus on Plato and Aristotle.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3140 - Philosophy of Science

Credits: 3

Systematically examines philosophical problems about the nature of science, its methods of explanation, and the status of its laws.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3160 - "What Killed Socrates?"

Credits: 3

This course will reexamine Socrates' trial in 399 BCE, widely regarded as a miscarriage of justice, in its total historic context, seeking to understand the reasons for Socrates' conviction. In the process, it will impart a broad understanding of the cultural, philosophical, political, and legal life of classical Athens.

Cross Listed CLAS 3160/HIST 3160.

Prerequisite: WB or COM2.

PHIL3220 - Existentialism and Phenomenology

Credits: 3

Examines fundamental perspectives of existentialist thought, beginning with its roots in Kierkegaard and Nietzsche. Looks at a large variety of existentialist perspectives presented by Sartre, Heidegger, Buber, Jaspers and Camus. Considers the relation of Husserl's phenomenological method to existentialism.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3320 - Eastern Thought

Credits: 3

Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3340 - Philosophy in Literature

Credits: 3

Max Credit (Max. 6)

Examines central themes in literary works with philosophical significance; studies related general issues. Issues include questions of interpretation, criticism, and translation, as well as the possibility of direct philosophical influence on authors.

Cross Listed ENGL

USP 2015 Code U5H

Former Course Number [2340]

Prerequisite: one course in philosophy or one course in literature or consent of instructor.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3420 - Symbolic Logic

Credits: 3

Studies both propositional and quantificational logic, concentrating on methods of proof. Takes up such topics as identity, singular terms, intuitive set theory, and translating English sentences into symbolic notation.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3440 - Philosophy of Mind

Credits: 3

Considers topics in philosophy of mind, including the mind-body problem, emotions, attitudes, perception and psychological explanation.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3500 - History of Science

Credits: 3

Historic and philosophic survey of the development of science from the ancient Greeks to the 20th century.

Prerequisite: 3 hours of philosophy or 3 hours of science or consent of instructor.

PHIL3510 - Introduction to Epistemology

Credits: 3

Systematic introduction to epistemology, the philosophical study of knowledge and justified belief. Aims to answer questions such as: What are the necessary and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? How we are to understand the concept of justification?

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3560 - Introduction to Metaphysics

Credits: 3

A systematic introduction to metaphysics, the branch of philosophy concerned with providing a comprehensive account of the most general features of reality as a whole. Of central importance is the study of ontology, which seeks to address the question of what general sorts of things exist: particulars, universals, propositions, numbers, minds.

Prerequisite: 3 hours of philosophy, or consent of instructor.

PHIL3933 - African Philosophy

Credits: 3

Examines the work of philosophers of Africa, of African descent and others who deal with African diaspora.

Cross Listed AAST 3933/INST 3933.

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 6 hours of philosophy.

4000-level-courses

At least 6 hours (2 courses) must be at the 4000-level.

PHIL4000 - Philosophical Issues

Credits: 1-3

Dual Listed PHIL 5000.

Prerequisite: consent of instructor.

PHIL4020 - Plato

Credits: 3

Detailed examination of selected dialogues of Plato.

Dual Listed PHIL 5020.

Prerequisite: PHIL 3120.

PHIL4030 - Aristotle

Credits: 3

Detailed examination of selected works of Aristotle.

Dual Listed PHIL 5030.

Prerequisite: PHIL 3120.

PHIL4040 - Kant

Credits: 3

An examination of one or more aspects of the work of Immanuel Kant, conducted either from the perspective of the history of philosophy.

Prerequisite: 6 hours of philosophy.

PHIL4110 - Figures in Contemporary Philosophy

Credits: 3-6

Max Credit (Max. 6)

An advanced study of the work of one, or several related, contemporary philosophers.

Prerequisite: 12 hours of philosophy including PHIL 3100 or PHIL 3110.

PHIL4120 - Philosophy and the 20th Century

Credits: 3

Part three of the history of philosophy sequence. Covers the third great age of philosophy. Studies the main ways in which philosophy has been done since 1900. Topics normally include logic and philosophy, Wittgenstein, logical positivism and current trends.

Dual Listed PHIL 5120.

Former Course Number [4100]

Prerequisite: 6 hours of philosophy.

PHIL4130 - Figures in Modern and 19th Century Philosophy

Credits: 3

A detailed examination of one or more of the figures in modern or 19th century philosophy.

Dual Listed PHIL 5130.

Prerequisite: 6 hours of philosophy.

PHIL4140 - Topics in Philosophy of Science

Credits: 3

Max Credit (Max. 6)

Encompasses selected topics in philosophy of science.

Dual Listed PHIL 5140.

Prerequisite: 6 hours of philosophy.

PHIL4190 - Philosophy of Language

Credits: 3-6

Max Credit (Max. 6)

An advanced study of the work of one, or several related, contemporary philosophers.

Dual Listed PHIL 5190.

Prerequisite: 6 hours of philosophy.

PHIL4300 - Topics in Ethics

Credits: 3-6

Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 5300.

Prerequisite: 6 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3

Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.

Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

PHIL4420 - Advanced Logic

Credits: 3

Studies advanced topics in mathematical logic. Takes up such topics as: uninterpreted calculi and the distinctive contributions of syntax and semantics; metatheory, including completeness and consistency proofs; modal logic and semantics; logic as a philosophical tool.

Cross Listed COSC 4420/MATH 4420.

Dual Listed PHIL 5420.

Prerequisite: PHIL 3420 or equivalent.

PHIL4440 - Topics in Philosophy of the Mind

Credits: 3-6

Max Credit (Max. 6)

An advanced study of problems in the philosophy of mind such as the concept of human action; intention, choice, reasons and causes in the explanation of human action, mental states and brain states, and artificial intelligence.

Dual Listed PHIL 5440.

Prerequisite: 6 hours of philosophy.

PHIL4510 - Theory of Knowledge

Credits: 3

Studies such problems as knowledge and belief, skepticism, perception and knowledge, memory, truth.

Dual Listed PHIL 5510.

Prerequisite: 6 hours of philosophy.

PHIL4560 - Metaphysics

Credits: 3

Examines approaches to metaphysics. Discusses problems such as causality, individuation.

Dual Listed PHIL 5560.

Prerequisite: 6 hours of philosophy.

PHIL4975 - Independent Study

Credits: 1

Max Credit 6

Primarily for juniors and seniors who can benefit from independent study of topics in philosophy not covered in course offerings. Guidance provided by faculty member in the appropriate field.

Restricted undergraduate standing

Prerequisite: 9 hours of philosophy and consent of instructor

Religious Studies, B.A.

Religious Studies builds skills for your future in a globalized world. You will learn to ask life's big questions, analyze how communities across time and place have addressed these questions, and communicate persuasively in your own speech and writing.

General Requirements

A major in Religious Studies requires 33 hours (11 courses) plus a second major or minor in another discipline.

For students completing their degree under the 2015 University Studies Program:

Two Required Courses: 6 Hours

RELI1000 - Introduction to Religion

Credits: 3

Introduces world religions and shared characteristics. Draws on various academic approaches to religion study, emphasizing similarities and differences among wide variety of religions.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI4000 - Theories of Religion

Credits: 3

Investigates different theories proposed to explain religion and methods used to investigate them. Pays primary attention to influential thinkers and theorists of the past century.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: RELI 1000, and 12 additional hours in Religious Studies, at least 6 of which must be at the 3000-level or above, junior standing.

Concurrent Concentration I: 9 Hours

Students should acquire a focused concentration by taking three courses (1) on a single religion, or (2) on the religions of a particular region or culture. Courses may be from a limited time period or spread across history. Students may choose from established concentrations or create their own concentration in consultation with their adviser. [Six hours must be above 3000-level.]

Concurrent Concentration II: 9 Hours

Students should take three courses in a religion, region, or culture differing significantly from that of the first concentration. [Six hours must be above 3000-level.]

Electives

Three courses in Religious Studies (see note 2 below) chosen in accordance with the student's interests. [Six hours must be above 3000-level.]

Language

Students should take three semesters of a single foreign language or demonstrate equivalent proficiency. See note 3 below.

Honors

If a student wishes to pursue an Honors designation in Religious Studies, two additional requirements must be fulfilled.

- A. A three-hour Thesis Seminar or Internship, during which a research paper is written, or other suitable research project is carried out.
- B. Demonstration of competency in a foreign language equivalent to a fourth-semester college-level course.

Notes:

1. If students majoring in Religious Studies can use its courses to satisfy requirements in a second major or minor, this is permitted.
2. Courses for the major should be drawn from those with a RELI prefix, or from a list of approved courses taught by other departments or programs. See the list of approved courses on the Religious Studies website. In each of the concentrations, only one course may be from outside RELI offerings. Two such courses may be used as electives. Occasionally, courses on religion are taught by outside departments as one-time opportunities. Students may propose these for inclusion in the major to the Religious Studies Program Director.
3. The language requirement may be satisfied with American Sign Language (ASL) or, with the approval of the department, coursework in another form of non- English communication (e.g. computer science, statistics, music composition).

4. All courses must be passed with a grade of C or better.

Minor

Environmental Values Minor

The minor in Environmental Values explores the vital link among the natural sciences, humanities, and the social sciences in grappling with environmental challenges.

Course Requirements

The minor in Environmental Values may be added to any bachelor's program at UW.

The minor requires a total of 18 credit hours, including at least one course within each of four areas of concentration. At least 12 of these credits must be outside the primary major, and nine of these credits must be at or above the 3000-level. A three-hour, core course (either Phil 2330 Environmental Ethics or Phil 2345 Natural Resource Ethics) is required of all students.

Core Course

A three-hour, core course is required of all students.

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

Areas of Concentration:

(note: the courses listed below are provided as examples of the type of courses that meet the various areas of concentration. Other courses may be approved on a course by course basis in consultation with the Philosophy Department Undergraduate Advisor.)

Aesthetics

Expressing ourselves through the performing, visual and literary arts:

GEOG4500 - The American Landscape

Credits: 3

This course trains students to interpret patterns and processes of contemporary landscapes of the Americas (North, Central, and South America) by viewing those landscapes historically. We investigate the relationship between landscape, politics, and economy, or, more generally, the relationship between landscape as a geographical form and cultural politics in the hemisphere. Students are introduced to research techniques and methodologies in historical geography.

Cross Listed Cross listed with GEOG 5500, INST 4500, INST 5500

Former Course Number [G&R 4500]

Prerequisite: 6 credits of international studies or social science coursework

THEA2400 - Vertical Dance I

Credits: 1

An introduction to vertical dance including safety issues, beginning rigging and performance.

Prerequisite: consent of instructors.

THEA3400 - Vertical Dance II

Credits: 1

A continuing course in vertical dance emphasizing the math and physics of the rigging; safety and design, choreography and research in the field.

Prerequisite: completion of THEA 2400 and consent of instructors.

Culture

Viewing human meaning and purpose in historical and contemporary terms:

NAIS3000 - Plains Culture and History

Credits: 3

An ethnohistorical study of those Native peoples inhabiting the Plains region of the U. S. from prehistory to the present.

Cross Listed HIST 3000.

USP 2003-2014 Code U3D

A&S College Core 2015 ASD

Prerequisite: 6 hours of HIST or NAIS.

ANTH4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ENR 4310.

Dual Listed ANTH 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENGL3400 - Topics in: Eighteenth-Century Literature

Credits: 3

Max Credit (Max. 12)

Topics in eighteenth-century American and/or British literatures. Readings situated amid the historical and social developments of the era, including the expansion of mercantilism and slavery, the spread of secularism, the rise of print capitalism, and the emergence of new ideas of self and authorship. Subject matter varies by section.

Prerequisite: COM1, ENGL 2025, and any one of the following: ENGL 2425, ENGL 2430, ENGL 2435, ENGL 2340, ENGL 2350, or ENGL 2360.

ENGL4480 - Regional Literature of the US: The West

Credits: 3

Encompasses major themes and writers in western American literature.

Prerequisite: 6 hours of 2000-level literature courses.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

HIST4475 - American Environmental History

Credits: 3

Explores history of American attitudes and actions toward the land and natural resources.

Dual Listed HIST 5475.

Former Course Number [4670]

Prerequisite: 9 hours of HIST.

Ethics

Considering right and wrong via critical and systematic thinking and doing:

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.
USP 2003-2014 Code U3CH, U3D
USP 2015 Code U5H

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3

Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.

Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

Policy

Exploring laws, regulations, and public discourse in American society:

AGEC4710 - Natural Resource Law and Policy

Credits: 3

Legal and economic examination of laws intended to resolve environmental conflicts. Surveys economic rationales both for private property and government intervention in environmental disputes; content of selected environmental laws in the U. S. ; and basic principles of environmental mediation.

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: AGEC 1020, ECON 1020 or equivalent and 3 hours of business law or agricultural law.

NAIS4340 - Natural Resource Management on Western Reservations

Credits: 3

Examines natural resource management techniques on western reservations. Focus is on the management and planning of water, grazing, extractive industries, and forestry. Fieldwork on the Wind River Indian Reservation is included.

Cross Listed GEOG 4340.

Prerequisite: 6 hours of 2000-level NAIS courses.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

Ethics Minor

A minor in Ethics enhances and compliments any major, such as education, health sciences, law, business, engineering, computer science, political science, or communication.

Course Requirements

A minor in Ethics requires a minimum of 18 hours. One course from each of the three areas plus a capstone course.

A Student Takes One Course in Each of These Areas:

1. Ethical Theory

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL3350 - History of Moral Philosophy

Credits: 3

A historical and philosophical overview of ethical theory ranging from ancient Greek ethics to the present.

USP 2015 Code U5H

Prerequisite: 3 hours of philosophy.

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

2. Applications

(determined on a course by course basis in consultation with the Philosophy Department Undergraduate Advisor)

3. Scientific, Historical and Social Analysis

(determined on a course by course basis in consultation with the Philosophy Department Undergraduate Advisor)

Capstone Course

The capstone course is an independent study normally taken during a student's senior year. The course integrates the student's different areas of study in the ethics minor into a project or thesis. Any professor in any college can sponsor

this independent study. Capstone topics must be approved by the ethics minor advisor. (determined in consultation with the Philosophy Department Undergraduate Advisor)

Electives

The other two courses are approved electives, (2 courses from Areas 1, 2 or 3 -- each from a different area).

Philosophy Minor

Philosophy provides the critical thinking, logical reasoning, and innovative problem-solving skills necessary to be competitive in law, business, academia, tech, arts, and government. It also explores what it is to live a meaningful life outside a career.

Course Requirements

A minor in Philosophy requires a minimum of 18 hours (6 courses) of philosophy.

- Of the 18 hours, 12 hours must be at 3000-level or above.
- Of the 18 hours, the remaining 6 hours (2 courses) may be at any level.

Only courses in which a grade of C or better has been earned count toward the 18-hour requirement.

Religious Studies Minor

The Minor in Religious Studies requires eighteen hours of relevant courses, all with a grade of "C" or higher. These should consist of courses as set out below:

Relevant Courses: 18 Hours

RELI1000 - Introduction to Religion

Credits: 3

Introduces world religions and shared characteristics. Draws on various academic approaches to religion study, emphasizing similarities and differences among wide variety of religions.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI4000 - Theories of Religion

Credits: 3

Investigates different theories proposed to explain religion and methods used to investigate them. Pays primary attention to influential thinkers and theorists of the past century.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: RELI 1000, and 12 additional hours in Religious Studies, at least 6 of which must be at the 3000-level or above, junior standing.

- Twelve hours of courses focusing on issues in the study of religions, nine of which should be at the 3000 level or higher. Occasionally, courses on religion are taught by outside departments as one-time opportunities. Students may propose these for inclusion in the major to the Religious Studies Program Director

Graduate

Philosophy, M.A.

Program Specific Degree Requirements

Plan A (Thesis)

31 hours of graduate credit

27 hours of graduate coursework

4 hours of thesis research

Proof of proficiency in formal logic (through first-order predicate logic with identity) by either passing the department's course (3420) or some other course judged to be its equivalent with a grade B or better or by completing a test with a grade B or better at the end of the second semester.

First year paper at the beginning of the third semester.

Defense of a thesis prospectus by the end of the third semester.

In any cases of deficiency, the department may require remedial work before admission to M.A. candidacy.

Department of Physics and Astronomy

204 Physical Sciences Building,

(307) 766-6150

FAX: (307) 766-2652

Web site: www.uwyo.edu/physics

Department Head: Jinke Tang

Professors:

MICHAEL S. BROTHERTON, B.S. Rice University 1990; M.A. University of Texas at Austin 1992; Ph.D. 1996; Professor of Physics and Astronomy 2014, 2002.

YURI DAHNOVSKY, Ph.D. Institute of Chemical Physics, Moscow 1983; Professor of Physics 2007, 2000.

DANIEL A. DALE, B.S. University of Minnesota 1993; M.S. Cornell University 1996; Ph.D. 1998; Professor of Physics and Astronomy 2009, 2001.

HENRY A. KOBULNICKY, B.S. University of Iowa 1991; M.S. University of Minnesota 1993; Ph.D. 1997; Professor of Physics and Astronomy 2014, 2002.

ADAM D. MYERS, M.S. Durham University, United Kingdom 2000; Ph.D. 2004; Associate Professor of Physics and Astronomy 2017, 2011; Professor of Physics and Astronomy Fall 2022

H. EDWARD SEIDEL, B.S. College of William and Mary 1981; M.S. University of Pennsylvania 1983; Ph.D. Yale University 1988; Professor of Physics and Astronomy 2020.

JINKE TANG, B.S. Jilin University 1982; M.S. Iowa State University 1990; Ph.D. 1989; Professor of Physics 2007.

Associate Professors:

TEYU CHIEN, B.S. National Taiwan Normal University 2001; Ph.D. University of Tennessee-Knoxville 2009; Associate Professor of Physics 2019, 2013.

MICHAEL J. PIERCE, B.S. University of Oklahoma 1980; M.A. University of Hawaii 1983; Ph.D. 1988; Associate Professor of Physics and Astronomy 2005, 2001.

WENYONG WANG, B.S. Nankai University 1993; M.S. Yale University 1999; Ph.D. 2004; Associate Professor of Physics 2014, 2008.

Assistant Professors:

JIFA TIAN, B.S. Beijing Normal University 2003; Ph.D. University of Chinese Academy of Sciences/Institute of Physics, CAS 2009; Assistant Professor of Physics 2018.

Academic Professional Lecturers:

RÜDIGER MICHALAK, Dipl. Phys FZ Jülich 1989; Ph.D. 1993; Academic Professional Lecturer in Physics and Astronomy 2007, 2004.

Assistant Lecturer:

AYSENUR BICER, B.S. Ege University 2006; M.S. 2009; Ph.D. Texas A&M University 2018; Assistant Lecturer in Physics 2019.

JESSE FEDDERSEN, B.S. Indiana University 2013; M.S. Yale University 2015; Ph.D. Yale University 2019; Assistant Lecturer in Physics and Astronomy 2020.

Adjunct Professors:

Gabrielle Allen, Pu Du, Paul Marquard, William Rice, Zhaohui Shang, Tim Slater, Hannah Jang-Condell, Edmund Synakowski.

Professors Emeriti:

Ronald W. Canterna, Paul E. Johnson, A. Raymond Kunselman, Terry P. Roark, James M. Rosen, Jimmie Verley, David R. Thayer.

Physics originated in antiquity as the study of natural philosophy. As such, it attempts to describe the universe within the context of both physical laws and the fundamental particles of nature. The broad scope of physics runs from the microscopic nuclear structure and that of the elementary particles themselves to the macroscopic, the galaxy and evolution of the universe as a whole. Today the subject is generally divided into broad areas such as condensed matter, nuclear, elementary particles, astrophysics, etc. The department maintains competence in most major branches of physics and offers instruction in these areas at both the undergraduate and graduate levels. In addition, it has a strong interest and involvement in science education.

Learning Outcomes

The B.S. and B.A. in Physics, the B.S. in Astronomy, and the B.A. in Physics and Physics Education all have the broad objectives enumerated below. These objectives are designed to promote the success of our majors in their chosen career path, whether that takes them into academia, secondary teaching, industry or further education:

1. Provide students with problem-solving and data-manipulation skills appropriate to the growing range of scientific and technological careers in academia or industry.
2. Develop students' oral, written, interpersonal and communication skills.
3. Provide students with skills in experimental design, data collection, and data analysis through research experiences in a laboratory/computational/telescope setting.
4. Educate students in the application of mathematical tools that will be useful for them to achieve success in a postcollege career.
5. Provide a conceptual and analytical understanding of the core areas of physics and their specialty area.
6. Provide students with an understanding of scientific reasoning, i.e., the roles of theory, hypothesis, and experiment in the scientific method.

The B.S. in Physics and the B.S. in Astronomy are primarily designed for students who wish to pursue post-graduate education or to have a more in-depth physics background. The Physics B.A. is primarily designed for students interested in pursuing a double major, or a professional career. The B.A. in Physics and Physics Education is structured for those interested in pursuing a secondary science teaching career.

Undergraduate Curriculum

The four-year physics programs are the Bachelor of Arts in physics and the Bachelor of Science in physics. The Bachelor of Science programs are intended for students who will pursue a career or a graduate degree in the field, whereas the Bachelor of Arts program is primarily geared toward those who are interested in pursuing physics as a second major. The department also offers a Bachelor of Science degree in Astronomy and Astrophysics.

Graduate Study

The Department of Physics and Astronomy offers the degrees of master of science in physics, master of science in teaching, and doctor of philosophy. Advanced degrees in physics may be based on experimental or theoretical research in physics or astrophysics.

Please refer to the departmental homepage at <http://www.uwyo.edu/physics/> for the programmatic updates, or contact the department directly.

Program Specific Admission Requirements

We will begin to review applications in late January. Both the GRE general and physics subject exams are optional, and we will review all applications on their total merits. Students of all backgrounds, ethnicities, genders and countries of origin are encouraged to apply at <http://www.uwyo.edu/admissions/apply-online.html>

Applications should include:

- Resume or CV
- Undergraduate transcript
- A Personal Statement that says why you want to pursue a PhD, why Wyoming is a good fit for you, and what experiences you've previously had completing long-term projects
- Three letters of recommendation (this will be done through the application website)
- GRE scores Both the GRE general and physics subject exams are optional.
- TOEFL for non-native English speakers
- Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Program Specific Graduate Assistantships

The Physics and Astronomy Department commits to providing first- and second-year students with teaching assistantships for the nine-month academic year. More advanced students are generally supported on federal grants or fellowships. Both teaching and research assistantships carry a full tuition waiver and insurance. Summer assistantships are often available to students making satisfactory progress. Refer to <http://www.uwyo.edu/physics/> for current amounts.

Major

Astronomy and Astrophysics, B.S.

The Bachelor of Science in Astronomy & Astrophysics program prepares students for graduate school, or a career in astronomy/astrophysics or a related field.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Astronomy and Astrophysics** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Requirements

Students in the Bachelor of Science in Astronomy major program are required to complete the following courses:

ASTR1050 - Survey of Astronomy

Credits: 4

Consists of 3 lecture periods and a two-hour laboratory in observational and laboratory astronomy. Observing sessions are scheduled after dark and held when weather permits. Designed primarily for non-science majors.

USP 2003-2014 Code [SE< >PN]

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR2320 - General Astronomy II

Credits: 4

Covers the properties of stars, stellar atmospheres and stellar evolution, interstellar matter, galaxies and cosmology including models of the universe, the Big Bang, and dark energy. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR4610 - Introduction to Astrophysics

Credits: 3

Includes astrophysical sources of radiation, radiation transport, nonequilibrium processes, stellar atmospheres, stellar interiors and the interstellar medium.

Prerequisite: ASTR 2310, PHYS 2310 and concurrent registration in PHYS 4210 and PHYS 4410.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

PHYS3640 - Modern Electronics and Experimental Techniques

Credits: 4

Introduced to analog and digital circuits/devices and computer interfacing with laboratory equipment and experiments. Includes computer programming, the analysis of experimental data, and report writing. Apply the skills developed in this class to interface with and control representative instrumentation used in experimental physics laboratories.

Prerequisite: PHYS 2320.

PHYS3650 - Advanced Lab in Modern Physics and Electronics

Credits: 4

Presents fundamentals of modern optics, modern and quantum physics, E&M/electronics, and thermodynamics in a project oriented interactive undergraduate laboratory with a focus on professional grade lab report writing that qualifies as WB USP. Students learn professional data handling, error theory, and data analysis.

USP 2015 Code U5C3

Prerequisite: WA and PHYS 2310 or PHYS 2320.

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 4210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4420 - Electricity and Magnetism II

Credits: 3

Follows PHYS 4410 and continues intermediate discussion of electricity and magnetism. Covers magnetostatics, magnetoquasistatics, alternating currents, electromagnetic waves, transmission lines and antennae.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 4410.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Additional Description

- See the "Prerequisite and MPE Cut Score Reference Chart" on the Math Placement website for the most up-to-date math placement equivalencies: <http://www.uwyo.edu/mathstats/math-placement/>.
- For declared physics/astronomy majors, the prerequisite of Math 2200 is waived and concurrent enrollment is approved.
- For declared physics/astronomy majors, the prerequisite of Math 2205 is waived and concurrent enrollment is approved.

- Students are strongly encouraged to enroll in Human Culture requirement courses that correspond to the College of Arts & Sciences Core required US Diversity (ASD) and Global Awareness (G) electives or else they will have to take separate ASD and ASG courses. A list of ASD & ASG courses that transfer is available.

If intending to apply to graduate school, plan to take the physics GRE by fall semester of the senior year

Additional Requirements

Course sequencing may need to be altered if ACT, SAT or Math Placement scores require a student to take pre-college courses before taking required math or English courses. • Not all courses are offered every semester and some electives may have prerequisites. Students should review course descriptions in the University Catalog and consult with their academic advisor to plan accordingly.

Students must have a minimum cumulative GPA of 2.0 to graduate. • Students must complete 42 hours of upper division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. • Courses must be taken for a letter grade unless offered only for S/U. • University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major

The Bachelor of Science degree in astronomy and astrophysics is administered by the Department of Physics and Astronomy faculty. Please see the Physics and Astronomy listing in this *Catalog* for more information.

Physics, B.A.

The Bachelor of Arts (BA) in Physics degree program provides a pathway for more students to major in physics, as a second major to physical chemistry, mathematics, and engineering, for example.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BA in Physics** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Require Courses

Students in the Bachelor of Arts in physics major program are required to complete the following courses:

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

PHYS3650 - Advanced Lab in Modern Physics and Electronics

Credits: 4

Presents fundamentals of modern optics, modern and quantum physics, E&M/electronics, and thermodynamics in a project oriented interactive undergraduate laboratory with a focus on professional grade lab report writing that qualifies as WB USP. Students learn professional data handling, error theory, and data analysis.

USP 2015 Code U5C3

Prerequisite: WA and PHYS 2310 or PHYS 2320.

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 4210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Electives

- Students are required to take at least 3 hours of electives from any PHYS 4000 or 5000 level course.

Additional Requirements

Course sequencing may need to be altered if ACT, SAT or Math Placement scores require a student to take pre-college courses before taking required math or English courses. Not all courses are offered every semester and some electives may have prerequisites. Students should review course descriptions and consult with their academic advisor to plan accordingly.

A major requires 42 hours of upper division (3000 level or above) coursework, 30 of which must be from the University of Wyoming.

Students must have a minimum cumulative GPA of 2.0 to graduate. Courses must be taken for a letter grade unless offered only for S/U.

University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

For declared physics majors, the prerequisite of MATH 2200 is waived and concurrent enrollment is approved.

For declared physics majors, the prerequisite of MATH 2205 is waived and concurrent enrollment is approved.

If intending to apply to graduate school, students should take the physics GRE by fall semester of the senior year.

Students with specific additional interests (e.g. pre-med or another pre-professional program) may wish to move their V/H/C2 courses to alternate semesters so as to take the necessary required courses (e.g. LIFE 1010, MOLB 3000 etc.)

Physics, B.S.

The Bachelor of Science in Physics program is intended for students who will pursue a career or a graduate degree in physics or related fields.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

The **BS in Physics** requires the **A&S Core**:

- **D** - Diversity (3 credits)
- **G** - Global (3 credits)
- At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).
- No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation.

See below for more information:

- <http://www.uwyo.edu/as/current-students/index.html>

Requirement for Major in Physics

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I Credits 4

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive

credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II Credits: 4

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS3000 - Methods of Physics

Credits: 4

Provides introduction to mathematical methods and modern scientific computational tools used in physics/ astronomy. Topics include introduction to Python or linux operating system and use LabView software to run laboratory apparatus. Course examples will draw upon material in PHYS 1210/PHYS 1220 to help build fluency in the first year physics material.

Prerequisite: PHYS 1220.

PHYS3640 - Modern Electronics and Experimental Techniques

Credits: 4

Introduced to analog and digital circuits/devices and computer interfacing with laboratory equipment and experiments. Includes computer programming, the analysis of experimental data, and report writing. Apply the skills developed in this class to interface with and control representative instrumentation used in experimental physics laboratories.

Prerequisite: PHYS 2320.

PHYS3650 - Advanced Lab in Modern Physics and Electronics

Credits: 4

Presents fundamentals of modern optics, modern and quantum physics, E&M/electronics, and thermodynamics in a project oriented interactive undergraduate laboratory with a focus on professional grade lab report writing that qualifies as WB USP. Students learn professional data handling, error theory, and data analysis.

USP 2015 Code U5C3

Prerequisite: WA and PHYS 2310 or PHYS 2320.

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: P HYS 4 210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

PHYS4420 - Electricity and Magnetism II

Credits: 3

Follows PHYS 4410 and continues intermediate discussion of electricity and magnetism. Covers magnetostatics, magnetoquasistatics, alternating currents, electromagnetic waves, transmission lines and antennae.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 4410.

PHYS4830 - Mathematical and Computational Physics I

Credits: 3

First semester of a two-semester sequence. Provides a comprehensive overview of mathematical physics and numerous analytical mathematical techniques applied to physics problems. Topics include: numerical computations and visualizations, differential and integral vector analysis, linear algebra, infinite series, complex variables, partial differential equations, ordinary differential equations, integral transforms and equations, and calculus of variations.

Prerequisite: PHYS 2310 or PHYS 2320 and MATH 2210, MATH 2250, MATH 2310.

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Electives

Students are required to take at least 3 hours of electives from any PHYS 4000 or 5000 level course.

Additional Requirements

Course sequencing may need to be altered if ACT, SAT or Math Placement scores require a student to take pre-college courses before taking required math or English courses. Not all courses are offered every semester and some electives may have prerequisites. Students should review course descriptions and consult with their academic advisor to plan accordingly.

A major requires 42 hours of upper division (3000 level or above) coursework, 30 of which must be from the University of Wyoming.

Students must have a minimum cumulative GPA of 2.0 to graduate. Courses must be taken for a letter grade unless offered only for S/U.

University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

For declared physics majors, the prerequisite of MATH 2200 is waived and concurrent enrollment is approved.

For declared physics majors, the prerequisite of MATH 2205 is waived and concurrent enrollment is approved.

If intending to apply to graduate school, students should take the physics GRE by fall semester of the senior year.

Students with specific additional interests (e.g. pre-med or another pre-professional program) may wish to move their V/H/C2 courses to alternate semesters so as to take the necessary required courses (e.g. LIFE 1010, MOLB 3000 etc.)

Minor

Astronomy Minor

Complete

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ASTR2320 - General Astronomy II

Credits: 4

Covers the properties of stars, stellar atmospheres and stellar evolution, interstellar matter, galaxies and cosmology including models of the universe, the Big Bang, and dark energy. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

Additional Requirements

Students minoring in Astronomy gain exposure to the principles of astronomy, physics, and mathematics. They learn to think critically and evaluate, interpret, and solve problems related to astronomical, as well as other technical and general scientific topics

Physics Minor

A minor in physics appeals to students who have an interest in physics but intend to pursue a degree in some other field.

Complete

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

OR

PHYS1310 - College Physics I

Credits: 4

First course of two semester sequence. Provides thorough introduction to physics with calculus. Primarily for majors in physics, astronomy, and other areas in science, mathematics and technology requiring the highest levels of sophistication. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1310 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1210.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

OR

PHYS1320 - College Physics II

Credits: 4

Follows PHYS 1310 and continues introduction to physics with calculus. Includes electricity, magnetism and thermodynamics. Laboratory sessions illustrate principles studied and meaning of physical measurement. Students receiving credit for PHYS 1320 cannot receive credit for PHYS 1050, PHYS 1120 or PHYS 1220.

USP 2003-2014 Code U3SP

Prerequisite: MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

At Least Two of the Following:

PHYS4210 - Classical Mechanics I

Credits: 3

First semester of a two-course sequence. Presents classical mechanics at intermediate level. Begins with elementary Newtonian mechanics and builds step by step into analytic mechanics. Includes simple harmonic motion of particles in one, two or three dimensions, gravitation; introduction to rigid-body motion; and introduction to Lagrangian and Hamiltonian Mechanics.

When Offered (Normally offered spring semester)

Prerequisite: PHYS 2310 or equivalent, MATH 2210 or equivalent.

PHYS4310 - Quantum Mechanics

Credits: 3

Studies fundamental concepts of quantum theory.

When Offered (Normally offered fall semester)

Prerequisite: P HYS 4 210.

PHYS4410 - Electricity and Magnetism I

Credits: 3

First semester of a two-course sequence. Presents electricity and magnetism on intermediate level, emphasizing fields. Begins with review of vector algebra and calculus and proceeds to discussion of electrostatics, potential theory and steady currents.

When Offered (Normally offered fall semester)

Prerequisite: PHYS 2310 or equivalent and MATH 2210.

PHYS4510 - Thermodynamics and Statistical Mechanics

Credits: 3

Presents fundamental principles of thermodynamics, emphasizing mathematical development.

Prerequisite: PHYS 4310 or equivalent and MATH 2210.

Additional Requirements

The physics minor provides students with the fundamental concepts of physics beyond the introductory level. Through rigorous hands-on experience, students deepen their understanding of foundational concepts and develop their quantitative skills.

Graduate

Physics, M.S.

Thesis planning, development, and production guided by the committee chair and graduate committee.

The University of Wyoming Master of Science in Physics program prepares students for a wide range of exciting physics-related careers

Requirements

Plan A (Thesis)

- 26 hours of graduate coursework, 20 of which must be in PHYS/ASTR at the 5000-level
- 4 hours of PHYS 5960

Plan B (Non-Thesis)

- 30 hours of graduate coursework, 24 of which must be in PHYS/ASTR at the 5000-level

Physics, M.S.T.

The Master of Science in Teaching is designed for graduate students preparing to teach in secondary schools or in community colleges. It includes a small, carefully designed component in psychology and education as well as a supervised teaching experience. This program will require a thesis project based on experience in the classroom.

Thesis planning, development, and production guided by the committee chair and graduate committee.

Requirements

Plan A (Thesis)

- 18 hours from PHYS/ASTR at the 5000-level
- 12 hours from PSYC or the College of Education at the 4000- or 5000-level

Additional Requirements

The Master of Science in Physics with emphasis in Teaching is designed for graduate students preparing to teach in private secondary schools or in community colleges. It includes a small, carefully designed component in psychology and education, and includes experience as a teaching assistant. Students interested in this program should contact the current advisor, Prof. Tim Slater.

Physics, Ph.D.

During the first two years, students normally take physics and astronomy courses while working with faculty members on one or more research projects. Course work consists of several required courses plus a number of elective courses. Students participate in weekly research seminars and journal clubs to learn about a broad range of current research. By the third year, Ph.D. students begin research work in the area of their dissertation.

Ph.D. candidates demonstrate their competency in basic undergraduate physics and in required graduate courses through a written examination. After passing the written exam, students will take an oral preliminary exam based on a

research project they have completed during the first two years. At the completion of the Ph.D. dissertation, a candidate makes a public presentation of his or her work and the committee conducts a final examination to award the degree.

Requirements

- 42 hours of graduate coursework
- 30 hours of PHYS 5980 or PHYS 5860. Dissertation planning, development, and production guided by the committee chair and graduate committee.

Tracks:

- Physics, Physics Track, Ph.D.
- Physics, Astronomy Track, Ph.D.

Additional Requirements

The Physics PhD program educates students to become scholars and researchers in physics. Our graduates are trained to teach and to carry out original research that is theoretical, experimental, computational, or a blend of these approaches.

School of Politics, Public Affairs, and International Studies

**207-208 Arts and Sciences Building,
(307) 766-6484**

Web site: www.uwyo.edu/sppais

School Head: Stephanie Anderson

SPPAIS Faculty:

Professors:

STEPHANIE B. ANDERSON, B.S.F.S. Georgetown University 1989; M.Sc. The London School of Economics and Political Science 1990; Ph.D. University of Cambridge 1996; Professor of Political Science 2017, 2005.

R. MCGREGGOR CAWLEY, B.A. Kearney State College 1971; M.A. Colorado State University 1974; Ph.D. 1981; Professor of Political Science 1997, 1987.

TEENA J. GABRIELSON, B.A. Macalester College 1992; M.A. University of California - Davis 1997; Ph.D. 2002; Professor of Political Science 2019, 2006.

ANDREW D. GARNER, B.S. Kennesaw State University 2002; Ph.D. University of Mississippi 2007; Professor of Political Science 2014, 2008.

JEAN A. GARRISON, B.A. University of Wyoming 1990; M.A. University of South Carolina 1992; Ph.D. 1996; Professor of Political Science, International Studies 2010, 2001.

JAMES D. KING, B.A. Michigan State University 1974; M.A. Western Michigan University 1977; Ph.D. University of Missouri-Columbia 1983; Professor of Political Science 1999, 1992.

BRENT L. PICKETT, B.A. Wichita State University 1989; M.A. University of Colorado at Boulder 1991; Ph.D. 1995; Professor of Political Science - Casper 2010, 2005.

ROBERT A. SCHUHMAN, B.S. Appalachian State University 1987; M.P.A. 1989; Ph.D. Virginia Polytechnic Institute and State University 1995; Professor of Political Science 2013, 1995.

Associate Professors:

NEVIN AIKEN, B.A. University of Western Ontario 2003; M.A. 2004; Ph.D. University of British Columbia 2010; Associate Professor of Political Science and International Studies 2016, 2010.

YI-LING CHEN, B.S. National Taiwan University 1989; M.S. 1992; Ph.D. Rutgers University 2000; Associate Professor of International Studies and Geography 2015, 2010.

NICHOLAS CRANE, B.A. The Ohio State University 2006; M.A. 2008; Ph.D. 2014; Assistant Professor of Geography and International Studies 2016.

ZOE PEARSON, B.A. University of California Los Angeles 2005; M.A. Ohio State University 2010; Ph.D. 2016; Assistant Professor of Geography and International Studies 2016.

JUSTIN T. PICCORELLI, B.A. Loyola Marymount University 2004; M.P.A. Cleveland State University 2009; Ph.D. 2014; Assistant Professor of Public Administration 2015.

THOMAS R. SEITZ, B.S. University of the State of New York 1988; M.A. University of Kent at Canterbury 1989; Ph.D. University of Cambridge 1997; Associate Professor of International Studies 2015, 2009.

Assistant Professors:

JASON B. MCCONNELL, B.S. University of Wyoming 1998, MA 2003, J.D. 2005; Ph.D. Washington State University 2017; Assistant Professor of Political Science 2018.

GABEL C. TAGGART, B.S. Brigham Young University 2010; M.P.P. 2013; Ph.D. Arizona State University 2017; Assistant Professor of Public Administration 2018.

Senior Academic Lecturer:

ANNE ALEXANDER, B.B.A. New Mexico State University, 1991; M.S. 1993; Ph.D. University of Wyoming, 2001; Senior Academic Lecturer, 2019, 2013; Interim Provost and Vice President for Academic Affairs 2020.

Associate Lecturer:

RUTH BJÖRKENWALL, B.A. University of California at Berkeley, 1989; M.A. 2004; Associate Lecturer 2018, 2013.

Professors Emeriti:

Winberg Chai, Larry Hubbell, Garth Massey, Margaret M. Murdock, Stephen C. Ropp, Oliver Walter

Associate Professor Emeritus:

Alan E. Schenker

Adjunct Faculty:

(see department section following name for academic credentials)

Tanja Börzel, political science, Freie Universitaet Berlin
Roger Coupal, agriculture and applied economics
Michael Harkin, anthropology
Mark Peterson, management and marketing
Thomas Risse, political science, Freie Universitaet Berlin
Amy Roberts, elementary and early childhood education
Chris Rothfuss, international studies
Mona Schatz, social work
Ed Sherline, philosophy
J.J. Shinker, geography
Lilia Soto, American studies and latina/o studies
Jim Thurman, international studies, political science - Central Wyoming College

International Studies

Undergraduate Learning Outcomes

Goal 1. Students graduating with a BA in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective.

Goal 2. Students graduating with a BA in international studies will have the capability to critically read, write about, discuss, and engage in scholarly inquiry related to international processes and issues.

Goal 3. Students graduating with a BA in international studies will have a minimal level of fluency in a second language and are expected to experience a foreign locale in which to use the second language skills.

Goal 4. Students will be made aware of career and post-graduate opportunities suitable for an international studies major.

Graduate Learning Outcomes

All students who graduate with a Master's degree in international studies will be able to:

- Engage in independent empirical inquiry that makes an original contribution to the field of study;
- Think critically and reason logically about a problem and the ways it can be answered;
- Employ the best recognized methods appropriate to their research;

- Effectively develop alternative explanations, use theories and concepts to guide the research project, and conduct the work in such a way that disproof is possible; and
- Present their work intelligently, with both written and oral capability at a level of professional expectations.

They will have a broad understanding of:

- International affairs;
- The diversity of national cultures and social structures;
- Political and economic systems;
- Major global trends and problems

International Studies Major

Students graduating with a degree in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective. uwyo.edu/sppais.

Core Courses

Students take 9 hours of core coursework. INST 2350 (Introduction to Global Studies) and INST 2310 (Introduction to International Relations) provide the theoretical framework for the global and regional tracks. INST 4950 (Capstone) provides the culminating experience for

students completing the B.A. degree in international studies and fulfills the COM3 writing requirement for the University Studies Program.

Area of Focus

Students will complete a minimum of 18 hours of coursework in two specific areas of focus, choosing a global and regional track. Students must complete a minimum of 9 hours in each track.

Global Tracks - Governance and Conflict Resolution; Economic Systems; Culture and Social Issues; Sustainable Development and the Environment

Regional Tracks - Africa and the Middle East; Asia, Europe and the Former Soviet Union; Latin America

Global and regional tracks have suggested Gateway courses. Most Gateway courses fulfill University Studies requirements. All INST students are required to take the Regional Gateway course in their chosen region, either: INST 2230 (Introduction to Asian Studies),

INST 2240 (Introduction to African Studies), INST 2250 (Introduction to Latin American Studies), or INST 2280 (Introduction to European Studies)/POLS 2200 (Politics of Europe and the EU). These courses fulfill the COM2 requirement for University Studies Program and counts towards the 9 hours required for the Regional Track.

Foreign Language

Students must complete a four semester sequence in a single foreign language or show an equivalent level of proficiency. Language courses must be conversational language courses. American Sign Language is not considered a foreign language.

Electives

Students must take 9 hours of elective courses from the international studies curriculum, 6 of which must be upper division. The following Gateway courses can count for the elective requirement: ANTH 1200, ECON 1000, INST 1060 or GEOG 1000, INST/ POLS 1200,

INST 1330.

All required courses for the major must be passed with a grade of C or better. There are numerous special topics courses offered during the academic year and these courses can fulfill the international studies requirements with approval from your adviser. Students are

encouraged to satisfy the USP Q (quantitative reasoning) requirement by taking STAT 2070, Introductory Statistics for Social Sciences.

International Study Abroad and Internship Opportunities

All International Studies majors are strongly encouraged to consider taking part in a semester long study abroad program or a shorter-term faculty-led international fieldwork or study abroad courses taught by UW faculty (typically offered during the Summer and Winter

breaks) as a way to earn course credit towards their International Studies degree. In addition, International Studies majors are also encouraged to consider participating in paid or unpaid international internship opportunities as a way of earning additional academic credit

towards their International Studies degree. For more information on international study abroad exchanges, faculty-led fieldwork courses and internship opportunities, please visit the UW Abroad Office at: uwyo.edu/geo/eda/index.

Global Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

Sustainable Development and the Environment

Suggested Gateway Courses: ENR 1100, ECON 1010, ECON 1020, GEOG 1000, GEOL 1600, SOC 1000

AGEC 4460 - Agriculture and Economic Development

AGEC 4660 - Community Economic Development

ANTH 4310 - Environmental Anthropology

ECON 4700 - Economic Development

ENR 2000 - Environment and Society

GEOG 3030 - Geography and Development

GEOG 3550 - Natural Hazards and Society

GEOG 4420 - Tourism and Recreation

GEOL 3500 - Global Change: A Geological Perspective

GEOL 3600 - Earth and Mineral Resources

GEOL 3650 - Energy: A Geological Perspective

INST/AGEC 3860 - Econ of World Food/Ag

INST 4060 - NGOs, Development, and Culture

INST/SOC 4110 - Sociology of Development

INST/POLS 4255 - Politics of Developing Nations

INST 4475 - Sustainable Development & Environment

INST 4580 - Gender, Global Change and Development

MKT 4590 - Sustainable Business Practices

POLS 4350 - Sustainable Development and Global Policy

Economic Systems

Suggested Gateway Courses: ECON 1000, ECON 1010, ECON 1020. NOTE: Some courses from this curriculum require ECON 3020.

AGEC 4460 - Agriculture and Economic Development

AGEC 4660 - Community Economic Development

AGEC 4880 - International Agricultural Trade, Markets and Policy

BUSN 4540 - Global Business Issues

ECON 4700 - Economic Development

ECON 4720 - International Trade

ECON 4740 - International Finance

FIN 4460 - Multinational Finance

INST/BUSN 2000 - Intro to International Business

INST/GEOG 3050 - Economic Geography

INST/AGEC 3860 - Economics of World Food and Development

INST/SOC 4370 - Global Political Economy

INST/MKT 4540 - International Marketing

INST/ECON 4710 - Comparative Systems

MKT 4590 - Sustainable Business Practices

Culture and Social Issues

Suggested Gateway Courses: ANTH 1200, SOC 1000

ANTH 4300 - Anthropology of Religion

ANTH 4350 - Medical Anthropology

ANTH 4380 - Visual Anthropology

ART 4650 - International Study in Art

COJO 3190 - Cross-Cultural Communication

GEOG 4570 - Cultural Geography

HIST 4405 - American Encounters to 1850

HIST 4406 - American Encounters from 1850

INST/SOC 3000 - Social Change

INST/ANTH 3420 - Anthropology of Global Issues

INST/HLSC 4100 - Global Public Health

INST/WMST 4155 - Women, War and Health

INST/WMST 4175 - Gender, Women and Health

INST/WMST 4240 - Global Sex Work and Trafficking

INST/ANTH 4350 - Culture Change

INST 4590 - Women of India

INST 4650 - Women, Gender and Migration

INST/SOWK 4881 - Intl Social Welfare/Social Dev.

ANTH/MUSC 3015 - Introduction to Music of the World's People

MUSC 4050 - Advanced Studies in World Music

RELI 2225 - History of Christianity

RELI 2255 - Introduction to Judaism

WMST 3500 - Gender and Society

ZOO 4110 - HIV/AIDS

Governance and Conflict Resolution

Suggested Gateway Courses: GEOG 1000, POLS 1200, SOC 1000

ANTH 4320 - Political Anthropology

CRMJ 4280 - Comparative Criminal Justice

GEOG 4590 - Geography of Conflicts

INST 3200 - Comparative Political Cultures

INST/WMST 4155 - Women, War, and Health

INST/SOC 4300 - The World System

INST/POLS 4330 - American Foreign Relations

INST/POLS 4340 - International Organizations

INST 4360 - International Peace & Conflict

INST 4375 - Transitional Justice

INST/HIST 4380 - History of Human Rights

INST 4455 - Drug War Geopolitics in the Americas

INST/GEOG 4560 - Global Cities

INST/HIST 4582 - 20th Century Foreign Relations

PHIL 3250 - Global Justice

POLS 3300 - Model United Nations

POLS/GEOG 4013 - Political Geography

POLS 4710 - Emerging Democracies

POLS 4870 - Seminar: International Relations

POLS 4875 - Seminar: Comparative Foreign Policy Analysis

POLS 4890 - Seminar: Comparative Government and Politics

Regional Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

Africa and the Middle East

Gateway Course for this Concentration: INST 2240, Introduction to African Studies

AAST/INST 2240 - Introduction to African Studies

AAST/ANTH/ART 2730 - African Creativity and Ritual

AAST/HIST 3120 - Africa Since 1800

AAST 3130 - Global Impact of African Cultures

AAST 3670 - African Diaspora

ENGL 2190 - African Literature

HIST/RELI 2320 - History of Islam

HIST 3220 - History of the Modern Middle East

HIST/WMST 4335 - Women and Islam

INST 3400 - Politics and Society of Turkey

INST/AAST 4050 - Dev., Africa, and Culture

POLS 3270 - Government and Politics of the Middle East

RELI 2040 - Religions of the Middle East

RELI 2450 - Traditional African Religion

Asia

Note: The Asian Studies minor is different from this concentration.

Gateway Course for this Concentration: INST 2230, Introduction to Asian Studies

HIST 2040 - Imperial China

HIST 2041 - Modern China

HIST 2460 - Traditional Japan

HIST 2461 - Modern Japan

HIST 3400 - Mongol Empire

HIST 4510 - Modern Far East: China, Japan and India

INST 2230 - Introduction to Asian Studies

INST/SOC 3100 - Chinese Society

INST 4200 - China and Globalization

INST 4250 - Economic Development in Asia

INST/SOC 4680 - Shanghai: Past and Present

POLS 4230 - Governments and Politics of Asia

POLS 4240 - Culture, Society, Political Economy in East Asia

RELI 2050 - Religious Landscapes of Asia

RELI 2315 - History of Hinduism

RELI 3340 - Mysticism, Yoga, and Enlightenment in the East

RELI 3344 - Gods, Avatars, Heroes, and Mystics

WMST 4590 - Women of India

Europe and the Former Soviet Union

Note: The European Studies minor is different from this concentration.

Gateway Course for this Concentration: INST 2280, Introduction to European Studies, or INST 2200, Politics of Europe and the European Union

FREN 3110 - Contemporary French Civilization

GERM 3006 - 20th Century German Culture

HIST/RELI 2080 - Holocaust

HIST 2240 - History of Russia from 1855

HIST 3110 - Modern Germany

HIST 4170 - Europe in the 19th Century

HIST 4180 - Europe in the 20th Century

HIST 4270 - France: Old Regime and Revolution

HIST 4280 - France Since 1814

HIST 4290 - History of the Soviet Union

HIST 4310 - World War II in Europe

HIST 4315 - Central Europe and the Holocaust

HIST 4320 - Memory and National Identity

HIST 4330 - European Gender and Women's History

POLS 2200 - Politics of Europe and the European Union

POLS 3220 - Government and Politics of Russia and the FSU

POLS 4220 - European Union

RELI 4150 - Christianity, Jews, and Muslims in Iberia

WMST 4330 - European Gender and Women's History

Latin America

Gateway Course for this Concentration: INST 2250, Introduction to Latin American Studies

AAST 2410 - Survey of AfroCaribbean Cultures

GEOG 4500 - Landscapes of the Americas

HIST 2380 - Latin America Civilization

HIST 4492 - Indian Cultures of Latin America

HIST 4495 - Colonial Mexico

HIST 4496 - History of Mexico

INST 2250 - Introduction to Latin American Studies

INST/POLS 4290 - Inter-American Relations

INST 4445 - Drug War Geopolitics in the Americas

INST 4475 - Politics of Ntl. Resources in Latin America

INST/LTST 4485 - U.S. Latino Diaspora

INST 4490 - Ethical Trade in Latin America

INST 4495 - Indigenous Social Movements of Latin America

INST/LTST 4650 - Women, Gender and Migration

POLS 2290 - Government and Politics of Latin America

POLS 4890 - Populism and Liberal Democracy

General Requirements for the International Studies Major

A student must complete 36 hours of course work and 16 hours of foreign language.

Concurrent Major

A concurrent major is a second major pursued alongside the primary major. The majors can be in one or more colleges. One degree is awarded from the college of the primary major. University Studies requirements need only be satisfied once.

Dual Degree

A dual degree is a second degree pursued either in the same college as the first degree or in another college. University Studies requirements need only be satisfied once. Students must meet all the college and major requirements for both majors. Students must complete at least 30 credit hours (minimum 12 upper-division hours) beyond the credit hours required for the degree

with the smallest number of credit hours required. An academic advisor for each degree is required.

Second Bachelor's Degree

Students pursuing a second bachelor's degree must earn a minimum of 30 additional credit hours from UW, 12 of which must be upper-division. A student must also fulfill all of the college and major requirements, however, University Studies requirements only need to be met once if the first degree is from UW.

Undergraduate Minors

Students can minor in 3 areas by fulfilling one of the following sets of requirements:

International Studies Minor

A minor in international studies requires 12 hours of a single foreign language and 15 hours of international studies curriculum, with a minimum of 9 hours at the 3000-level or above.

Asian Studies Minor

The Asian Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of an Asian region or a single country. The program emphasizes a social science approach to the study of Asian history, politics, society, and culture with options to

include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Asia is defined first and foremost as a geographic entity to include Western, Northern, Central, South and East Asian areas. Thus, for example,

countries such as modern Turkey and areas such as the 'Middle East' can rightly be included in 'Asia' alongside areas more traditionally understood as part of Asia such as China and India.

Asian Studies Minor Course Requirements (18 credits)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 Credit Hours)

All Asian Studies Minor students must complete one of two required Gateway courses, either INST 2230 - Introduction to Asian Studies (G/COM2) or POLS 3270 - Government and Politics of the Middle East, depending on their primary area of interest within Asia.

Asian Studies Area Courses (15 Credit Hours)

Asian Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved Asian Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition to the

approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Asian Studies Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to

review the International Studies Newsletter each semester to see what Asian Studies Area courses are currently being offered.

Approved Asian Studies Area Courses

ART 2720 - Introduction to the Art and Culture of Islam

ART 4650 - International Study in Art (Turkey/India)

CHIN 1101 - Taste of China

CHIN 2041 - Contemporary and Traditional Chinese Culture

CHIN 3160 - See Movies, Touch China

ENR 3300 - Environmental Policy, Conservation and Development in India

HIST 2040 - Imperial China HIST 2041 - Modern China

HIST/RELI 2320 - History of Islam

HIST 2460 - Traditional Japan

HIST 2461 - Modern Japan

HIST 2470 - Civilization of India

HIST 3210 - The Islamic World in the Premodern Era

HIST 3220 - History of the Modern Middle East

HIST 3400 - Mongol Empire

HIST/WMST 4335 - Women and Islam

HIST 4520 - Modern Far East: China, Japan and India

INST 2230 - Introduction to Asian Studies

INST/SOC 3100 - Chinese Society

INST 3400 - Politics and Society of Turkey

INST 4200 - China and Globalization

INST 4250 - East Asia Society and Economy

INST 4560 - Global Cities

INST/WMST 4590 - Women of India

INST 4680 - Shanghai: Past and Present

LANG 2150 - History and Culture of Manga

LANG 3105 - Survey of Japanese Literature

LANG 3140 - History and Culture of Anime

LANG 4800 - Japanese Film

POLS 3270 - Government and Politics of the Middle East

POLS 4230 - Governments and Politics of Asia

RELI 2040 - Religions of the Middle East

RELI 2050 - Religious Landscapes of Asia

RELI 2315 - History of NonWestern Religions

RELI/PHIL 3320 - Eastern Thought

RELI 3340 - Mysticism, Yoga, and Enlightenment

RELI 3344 - Gods, Avatars, Heroes, and Mystics

SOC 3050 - Japanese Society

Optional Asian Study Abroad Component

Asian Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Asia to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards fulfillment of

the Asian Studies Area Course requirement on the approval of the student's designated minor advisor. Optional Asian Foreign Language Component Asian Studies Minor students are also strongly encouraged to learn an Asian foreign language as part of their progression

towards completion of the Minor. Accordingly, up to eight (8) lower-division (1000-2000) credit hours of an Asian foreign language may be counted towards fulfillment of the Asian Studies Area Course requirement. 'Asian' languages at UW include Japanese, Chinese and

Arabic. However, Asian Studies Minor, students need not necessarily be limited to the three languages currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be fulfilled by other Asian language

instruction at UW, other relevant in-country summer intensive programs, or languagefocused study abroad programs.

European Studies Minor

The European Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of a European region or a single country. The program emphasizes a social science approach to the study of modern European history, politics, society, and

culture with options to include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Europe is defined first and foremost as a geographic entity running from the Atlantic to the Urals and from Scandinavia to the

Mediterranean and the Caucasus Mountains. Courses that transcend these boundaries should include the study of Europe in a prominent way to count toward the minor.

European Studies Minor Course Requirements (18 credits)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 credit hours)

All European Studies Minor students must complete one of two required Gateway courses, either INST 2280 - Introduction to European Studies (COM2) or POLS 2200 - Politics of Europe and the European Union (COM2).

European Studies Area Courses (15 credit hours)

European Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved European Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition

to the approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to review the

International Studies Newsletter each semester to see what European Studies Area courses are currently being offered.

Approved European Studies Area Courses

A&S 2200 British Life and Culture

FREN 2130 - Contemporary French Culture

FREN 3110 - Contemporary French Civilization

FREN 4085 - Studies in French Culture

GERM 3006 - 20th Century German Life and Civilization

GERM 3150 - German History and Culture

GERM 4265 - Divided Nation: Politics and Culture in Germany 1945 - 1990

GERM 4285 - 20th/21st Century German Film

HIST 2080 - Holocaust

HIST 2240 - History of Russia from 1855

HIST 3110 - Modern Germany

HIST 4170 - Europe: 19th Century

HIST 4180 - Europe: 20th Century

HIST 4190 - Europe: 1930 - Present

HIST 4195 - European Economic History

HIST 4270 - France: Old Regime/Revolution

HIST 4280 - France Since 1814

HIST 4290 - History of the Soviet Union

HIST 4310 - World War II in Europe

HIST 4315 - History, Politics and Memory of the Holocaust in Europe

HIST 4320 - Memory and National Identity in 20th C Europe

HIST/WMST 4330 - European Gender and Women's History

HIST 4420 - Britain's Global Empires

INST 2280 - Introduction to European Studies

INST/POLS/SOC 4330 - The World System

INST 4380 - International History of Human Rights

INST 4881 - International Social Welfare and Social Development

POLS 2200 - Politics of Europe and the European Union

POLS 3220 - Government and Politics of Russia and the FSU

POLS 4215 - European Union

RELI 4150 - Christianity, Jews and Muslims in Iberia

SPAN 3220 - Spanish Culture and Civilization

Optional European Study Abroad Component

European Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Europe to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards

fulfillment of the European Studies Area Course requirement on the approval of the student's designated minor advisor.

Optional European Foreign Language Component

European Studies Minor students are also strongly encouraged to learn an European foreign language (other than English) as part of their progression towards completion of the Minor. Accordingly, up to eight (8) lower division (1000-2000) credit hours of an European

foreign language may be counted towards fulfillment of the European Studies Area Course requirement. 'European' languages at UW include French, German, and Spanish. However, European Studies Minor students need not necessarily be limited to the three languages

currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be fulfilled by other European language instruction at UW, other relevant in-country summer intensive programs, or language-focused study abroad

programs. All required courses for the major must be passed with a grade of C or better. A course cannot simultaneously fulfill more than one major requirement.

Graduate Study

Students take the Plan A (thesis). Students must have a minimum of 26 hours of graded non-thesis coursework and 4 hours of thesis.

Program Specific Admission Requirements

Admission is open to all students holding a bachelor's degree in any major. Foreign students, who are non-native English speakers, must pass the Oral Proficiency Interview (OPI).

Program Specific Degree Requirements

Students must meet three requirements: 1) Each student must take INST 5400. 2) Each student must take INST 5200. 3) Each student must demonstrate proficiency in a foreign language, accomplished in the course of the program or from previous experience or

coursework. Foreign language hours do not count toward the M.A. degree. The program also offers a joint International Studies/Environment and Natural Resources degree. See www.uwyo.edu/sppais for specific degree requirements.

Plan A (thesis)

Students are encouraged to construct, with the adviser's approval, a program that focuses their own intellectual interests and career plans. To promote that end, students should be prepared to file a plan of study with the graduate adviser during the second semester of

coursework. No later than the second semester in residence, each student shall select a graduate committee to oversee his or her academic work. The committee will be chaired by the student's major professor and must have at least one member from outside of The

School of Politics, Public Affairs, and International Studies. Students also will prepare a thesis proposal and give a presentation of their preliminary project before the International Studies faculty and complete a thesis prospectus defense with their graduate committee by

the end of their second semester. Students must pass an oral examination at the completion of their program. Normally, examination will center on the thesis, but may also encompass coursework of the candidate.

Required Coursework

Advanced Theory Course

INST 5200 Graduate Proseminar in International Studies

Research Methods Course

INST 5400 International Social Science Research Methods

Graduate Minor in International Studies

A graduate minor in international studies provides students in graduate programs other than international studies with the opportunity to acquire a basic graduate-level familiarity with international relations, global processes and cultural diversity around the world. Students

acquire a foundation in intergovernmental relations and research methodology. Beyond this, students work closely with a graduate director to fashion a program of study appropriate for their interests and post-graduate plans. The minor complements several other graduate

degree programs.

Prerequisites for Admission

Declaration of an international studies minor is contingent on admission to a master's or doctoral degree program. Application is in the form of a letter of interest to the director of the program, including the background, anticipated course of study, and reason for seeking

the minor. An interview with the director is also required. All prerequisites for entering the graduate program in international studies as a major apply to the minor with the exception of proficiency in a second language. Students must be prepared for coursework in

international studies at the graduate level and be willing to take prerequisite courses if necessary.

Course and Committee Requirements

Graduate students minoring in international studies must satisfy the requirements of their graduate major and take twelve credits of guided graduate coursework in international studies. With the approval of the department of the graduate major, these twelve hours may also

count toward the major. Students are required to take at least one advanced theory course (INST 5200) and one advanced research methods course. All courses will be determined in consultation with the program director.

Political Science

Political Science is the study of how societies govern themselves and interact with one another. Courses of instruction in the Political Science major are offered in the following subfields: American politics, comparative government, international relations, political philosophy, public law, and public administration. Areas of focus include analysis of government structures and processes, citizens' influence on government, policy content, philosophical concepts and traditions, political systems of other states, and resolution of conflicts between nations. By developing critical thinking

and analytical skills, the major prepares students for effective participation in the political process, successful careers in the public and private sectors, and further study in law, political science, and public administration.

In 1925, the state legislature passed a law requiring the study of the U.S. and Wyoming constitutions by all University of Wyoming students. Political Science 1000 satisfies this requirement, but the requirement can also be satisfied by special examination given periodically by the School of Politics, Public Affairs, and International Studies.

Learning Outcomes

We continuously and actively assess the Political Science undergraduate curriculum to ensure that the following learning outcomes are being met for each of our graduates:

1. Acquisition of a knowledge and understanding of the values, beliefs, and institutions that constitute governing processes;
2. Acquisition of an understanding of the distinctions among the major subfields of the discipline including: American politics and law; international relations; comparative politics; and political theory;
3. Development of a knowledge and understanding of citizens' roles within governing processes;
4. Acquisition of a knowledge of the theories and analytic skills necessary to evaluate conflicting arguments, assemble and present appropriate evidence, and make reasoned conclusions from the evidence available;
5. The ability to communicate effectively, both orally and in written form.

Undergraduate Major

In addition to the university and college requirements listed elsewhere in this bulletin, a major in political science requires 33 department hours. Students are required to complete the following four introductory courses: POLS 1000; POLS 1200 or POLS 1250; POLS 2310; and POLS 2460 or POLS 3600. Students are also required to take at least one seminar in political science (and its prerequisites); 8 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages; STAT 2050 or STAT 2070; and a minimum of 9 hours of upper division credit in political science. A maximum of 6 hours of internship credit may be applied toward the 33 hours required for the political science major. Only those political science courses in which a grade of C or better has been earned may be used to satisfy departmental requirements.

Most university studies courses and lower division political science courses should be completed prior to the junior year. Additional information about the political science major may be obtained from the School of Politics, Public Affairs, and International Studies:

www.uwyo.edu/sppais.

5 Year B.A./M.A. Program in Political Science

The Political Science 5 Year B.A./M.A. Program offers highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor's degree (whether B.A. or B.S.) and thereby earn a graduate degree more efficiently. Political science majors with a cumulative major GPA of 3.5 or higher may be invited to apply at the outset of the second semester of the junior year. Interested students will submit an application and 2 letters of recommendation, at least one from a political science faculty to be reviewed, along with unofficial, current UW transcripts, by the M.A. Director and Committee. Upon provisional acceptance into the program in the junior year, students will be required to take the GRE. GRE scores will be considered for full and final acceptance to the M.A. program, which will be made once the student has completed the bachelor's degree.

Provisional acceptance to the 5 Year B.A./M.A. program in Political Science will allow students to apply up to six credit hours of 5000-level courses toward both the B.A./B.S. and M.A. degree programs. To earn graduatelevel credit, students must achieve at least a 3.000 in the course. By successfully completing up to six credit hours of graduate coursework during their senior year, these students will have demonstrated their ability to do graduate level coursework as undergraduates, easing their transition into the Master's Program in Political Science. Interested students may reserve up to six additional credits for graduate study that do not apply to the undergraduate degree by securing appropriate approvals as explained in the Registrar's "Request to Reserve Coursework for Graduate Credit" prior to taking the coursework. Students will be granted the BA/BS upon completion of the credit hours required for the undergraduate degree in political science. Students must complete the BA/BS before formally entering the MA program. To remain in good standing in the program, students must maintain a cumulative and departmental GPA of 3.200 and earn at least a 3.000 in all 5000-level courses. Failure to meet the GPA requirements places a student on probation for one semester. If the GPA requirement is not met after that semester, the student will be suspended from the program. Students in the program are encouraged to take the Plan B option. Please see the Graduate Study section to find the degree requirements of the M.A. in Political Science.

Undergraduate Minors

The school offers optional undergraduate minors in American politics, international relations and comparative government, public law, and political theory. Eighteen hours are required in each minor, including 9 hours of upper-division courses and one seminar. A maximum of 3 hours of internship credit may be applied towards the 18 hours required for the political science minor. At least 12 credit hours in a minor must be from courses not counted toward the student's major. Information relating to specific courses fulfilling minor requirements may be obtained from the School of Politics, Public Affairs, and International Studies: www.uwyo.edu/sppais.

American Politics Minor

A minor in American Politics requires POLS 1000 - American and Wyoming Government, either POLS 4850 - Seminar in American Political Institutions or POLS 4840 - Seminar in Public Law, and 12 hours from an approved list of courses, with a minimum of 9 hours at the 3000-level or above.

Approved American Politics Minor courses:

POLS 2000 - Current Issues in American Government
POLS 2070 - Politics of State & Local Government
POLS 2410 - Introduction to Public Administration
POLS 2430 - Parties, Interest Groups, & Elections
POLS 2450 - Politics & Media

POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3100 - Politics and the Judicial Process
POLS 3520 - Voting & Participation in America
POLS 3550 - Political Communication
POLS 3600 - American Political Thought
POLS 4051 - Environmental Politics
POLS 4052 - Federal Land Politics
POLS 4100 - Constitutional Law: Institutional Powers
POLS 4110 - Constitutional Law: Civil Liberties & Civil Rights
POLS 4330 - American Foreign Relations
POLS 4420 - Seminar in Public Administration (Max. 6)
POLS 4430 - U.S. Presidency

POLS 4435 - Presidential Elections
POLS 4520 - Public Opinion
POLS 4530 - U.S. Congress
POLS 4550 - Internship in Government (dept. approval required)(1-6)
POLS 4560 - Washington Semester Program (Max. 6)
POLS 4710 - Topics in _____ (dept. approval required)(Max. 9)
POLS 4720 - Workshop in Practical Politics (Max. 6)
POLS 4840 - Seminar in Public Law (Max. 6)
POLS 4850 - Seminar in American Politics and Institutions (Max. 6)

International Relations and Comparative Politics Minor

A minor in International Relations and Comparative Politics requires POLS 2310 - Introduction to International Relations, either POLS 1200 - Non-Western Political Cultures or POLS 1250 - Introduction to Comparative Politics, either POLS 4870 - Seminar in International Relations or POLS 4890 - Introduction to Comparative Government and Politics, and 9 hours from an approved list of courses, with a minimum of 6 hours at the 3000-level or above.

Approved International Relations and Comparative Politics Minor courses

POLS 2200 - Politics of Europe and the European Union
POLS 2290 - Government & Politics of Latin America
POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3200 - Comparative Political Cultures
POLS 3220 - Government & Politics of Russia and FSU
POLS 3270 - Government & Politics of the Middle East
POLS 3300 - Model United Nations (Max. 6)
POLS 4013 - Political Geography
POLS 4215 - European Union
POLS 4230 - Government & Politics of Asia
POLS 4255 - Politics of Developing Nations
POLS 4260 - Democratization & Regime Change
POLS 4290 - Inter-American Relations
POLS 4330 - American Foreign Relations
POLS 4340 - International Organizations
POLS 4350 - Sustainable Development & Global Policy
POLS 4360 - International Peace & Conflict
POLS 4375 - Transitional Justice
POLS 4445 - Drug War Geopolitics in the Americas
POLS 4475 - Politics of Natural Resources in Latin America
POLS 4600 - Political Violence
POLS 4710 - Topics in _____ (dept. approval required)(Max. 6)
POLS 4870 - Seminar in International Relations (Max. 6)
POLS 4890 - Seminar in Comparative Government and Politics (Max. 6)

Political Theory Minor

A minor in Political Theory offers an opportunity for interdisciplinary study. Required are POLS 2460 - Introduction to Political Theory, POLS 3600 - American Political Thought, POLS 4810 - Seminar in Political Theory, and 9 hours

from an approved list of courses in political science and other disciplines, with a minimum of 6 hours at the 3000-level or above.

Approved Political Theory Minor courses

POLS 2330 - Environmental Ethics
POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3050 - Athenian Democracy
POLS 3610 - Classics in Environmental Thought
POLS 3620 - Environmental Justice
POLS 4090 - Anglo-American Jurisprudence
POLS 4160 - Legal Philosophy
POLS 4640 - Political Philosophy: Ancient & Medieval
POLS 4650 - Political Philosophy: Modern
POLS 4660 - Political Philosophy: Contemporary
POLS 4710 - Topics in _____ (dept. approval required) (Max. 6)
PHIL 2200 - Social & Political Philosophy (Max. 6)
SOC 3900 - Social Theory

Public Law Minor

A minor in Public Law offers an opportunity for interdisciplinary study. Required are POLS 4100 - Constitutional Law: Institutional Powers, POLS 4110 - Constitutional Law: Civil Liberties & Rights, POLS 4840 - Seminar in Public Law, and 9 hours from an approved list of courses in political science and other disciplines, with a minimum of 3 hours at the 3000-level or above.

Approved Public Law Minor courses

POLS 2490 - Topics in _____ (dept. approval required) (Max. 6)
POLS 3100 - Politics and the Judicial Process
POLS 4090 - Anglo-American Jurisprudence
POLS 4160 - Legal Philosophy
POLS 4710 - Topics in _____ (dept. approval required) (Max. 6)
AGEC 3400 - Agricultural Law
COJO 4500 - Mass Communication Law
CRMJ 2210 - Criminal Law
CRMJ 3110 - Criminal Courts & Processes
CRMJ 4140 - Criminal Legal Procedure
CRMJ 4350 / SOC 4350 - Sociology of Law
CRMJ 4540 / WMST 4540 - Women, Crime, and Law
CRMJ 4730 / PSYC 4730 - Psychology and Law
HIST 4515 - American Legal History
MGT 1040 - Legal Environment of Business

Teacher Education

The teacher certification program in Secondary Social Studies Education, with a concurrent major in Political Science is available through the College of Education. A minimum 2.500 UW grade point average and a 2.500 grade point

average in Political Science and Social Studies content are required to change majors. Further information may be found under the College of Education section in this Catalog.

Major or Minor in Environment and Natural Resources

The Haub School of Environment and Natural Resources (ENR) offers a second major or minor for students interested in interdisciplinary training in the policy, legal, economic, scientific, ethical, and other perspectives associated with ENR challenges. The Haub School uses problem-based learning and interdisciplinary team teaching. Students of all disciplines are welcome to take classes in ENR or add ENR to their degree program. Contact the Haub School at (307) 766-5080, haub.school@uwo.edu, or www.uwo.edu/haub.

Graduate Study

The master of arts and the master of public administration are offered by the School of Politics, Public Affairs, and International Studies. The school's mission is to give graduate students an understanding of the theories and methods necessary for success in (1) research or in post-baccalaureate study in any of the subfields in political science, (2) high school teaching in social science, or (3) careers in policy analysis or public administration in local, state, or federal government, or international governmental, non-profit, or non-governmental organizations. Our graduate students have progressed to senior positions in government, the U.S. Foreign Service, and international organizations; they have pursued rewarding careers in education and the private sector; and they have advanced to Ph.D. programs in political science and related fields.

Program Specific Admission Requirements

Master of Arts in Political Science

Admission is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.0 GPA. Foreign students, who are non-native English speakers, must pass the Oral Proficiency Interview (OPI).

Master of Public Administration (M.P.A.)

Admission is competitive and is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.00 GPA, 2 letters of recommendation, a letter of intent, and a short analytic writing sample. Foreign students, who are non-native English speakers, must also pass the Oral Proficiency Interview (OPI). Only one class, POLS 5000, may be taken prior to full admission into the program with permission of the MPA director.

Program Specific Degree Requirements

Master's Programs

Master of Arts in Political Science, Plan A (thesis)

At least 30 hours of graduate credit, to include:

POLS 5510. Public Policy and Program Management.
POLS 5680. Research Methods for Political Science.
POLS 5684. Empirical Analysis for Public Administration.
POLS 5810. Seminar in Political Philosophy.
At least 6 additional hours of coursework in political science.
A maximum of 9 hours of coursework in disciplines other than political science.
A minimum of 4 hours thesis research.
A master's thesis demonstrating independent research, written under the supervision of the major professor.
An oral examination conducted by the graduate committee covering all coursework and the thesis.
No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.
Students must maintain a graduate GPA of 3.000.

Master of Arts in Political Science, Plan B (non-thesis)

At least 30 hours of graduate credit, to include:

POLS 5510. Public Policy and Program Management.

POLS 5680. Research Methods for Political Science.
POLS 5684. Empirical Analysis for Public Administration.
POLS 5810. Seminar in Political Philosophy.
At least 6 additional hours of coursework in political science.
A maximum of 12 hours of coursework in disciplines other than political science.
Plan B paper that reflects the quality but not scope of a master's thesis, written under the supervision of the major professor.
An oral examination conducted by the graduate committee covering all coursework and the Plan B paper.
No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.
Students must maintain a graduate GPA of 3.000.

Master of Public Administration Plan B (non-thesis)

Thirty-nine hours of graduate credit, to include:

21 hours of core credit,
6 hours of option-core credit,
12 hours of approved elective credit.

Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits. Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/electronic class discussion. Students must maintain a graduate GPA of 3.000.

Master of Public Administration/Juris Doctor

See the M.P.A. Director and/or the College of Law for information. Students must be accepted to both programs.

Major

International Studies, B.A.

Students graduating with a degree in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective. uwo.edu/sppais.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements

All required courses for the major must be passed with a grade of C or better. There are numerous special topics courses offered during the academic year and these courses can fulfill the international studies requirements with approval from your adviser. Students are encouraged to satisfy the USP Q (quantitative reasoning) requirement by taking STAT2070 - Introductory Statistics for the Social Sciences or STAT2050 - Introduction to Statistics.

Core Courses

Students take 9 hours of core coursework. INST2350 - Introduction to Global Studies and INST2310 - Introduction to International Relations provide the theoretical framework for the global and regional tracks. INST4950 - Capstone in International Studies (Capstone) provides the culminating experience for students completing the B.A. degree in international studies and fulfills the COM3 writing requirement for the University Studies Program.

Area of Focus

Students will complete a minimum of 18 hours of coursework in two specific areas of focus, choosing a global and regional track. Students must complete a minimum of 9 hours in each track.

Global and regional tracks have suggested Gateway courses. Most Gateway courses fulfill University Studies requirements. All INST students are required to take the Regional Gateway course in their chosen region. All INST students are required to take the Regional Gateway course in their chosen region. These courses fulfill the COM2 requirement for the University Studies Program and count towards the 9 hours required for the Regional Track.

INST2230 - Introduction to Asian Studies

Credits: 3

Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

INST2240 - Introduction to African Studies

Credits: 3

Confronts African stereotypes by exploring the continent's complex history and current affairs, with the help of different disciplinary perspectives, such as economics, political science, and anthropology. Equipped with the basics, students will be primed to tackle more advanced courses on Africa.

Cross Listed AAST 2240.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

INST2250 - Introduction to Latin American Studies

Credits: 3

An introduction to the culture, history and politics of Latin America, from the US/Mexico border to the Antarctic ice fields of Patagonia. We will consider historical events and encounters from pre-Conquest times to contemporary crises. Our toolkit includes geography, anthropology, history, political economy, literature and cultural studies.

USP 2015 Code U5C2

OR

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.

USP 2015 Code U5C2

OR

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 o r POLS 1250 o r permission of the instructor.

Global Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

- Global Track, Sustainable Development and the Environment
- Global Track, Economic Systems
- Global Track, Culture and Social Issues
- Global Track, Governance and Conflict Resolution

Regional Tracks

9 hours of coursework from a single track. This list is not comprehensive; students are strongly encouraged to review the International Studies Newsletter each semester to see what additional qualifying courses are currently being offered.

- Regional Tracks, Africa and the Middle East
- Regional Tracks, Asia
- Regional Tracks, Europe and the Former Soviet Union
- Regional Tracks, Latin America

Foreign Language

Students must complete a four semester sequence in a single foreign language or show an equivalent level of proficiency. Language courses must be conversational language courses. American Sign Language is not considered a foreign language.

Electives

Students must take 9 hours of elective courses from the international studies curriculum, 6 of which must be upper division. The following Gateway courses can count for the elective requirement:

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H

INST1060 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed Cross listed with: GEOG 1000.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG
OR

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG
Former Course Number [G&R 1000]

INST1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed POLS 1200.
USP 2003-2014 Code U3CS, U3G
OR

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.
USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

INST1330 - World History since 1750

Credits: 3

A history of the world's peoples and societies from 1750 to the present, with an emphasis on the diversity and interconnectedness of human life in the past.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

Political Science B.A.

Political Science is the study of how societies govern themselves and interact with one another. The Political Science major offers the subfields: American politics, comparative government, international relations, political philosophy, public law, and public administration.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Political Science B.A.

POLS1000 - American and Wyoming Government

Credits: 3
Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)
USP 2003-2014 Code U3V
USP 2015 Code U5V

POLS1200 - Non-Western Political Cultures

Credits: 3
Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.
USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG
Or

POLS1250 - Introduction to Comparative Government

Credits: 3
How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.
A&S College Core 2015 ASG

POLS2310 - Introduction to International Relations

Credits: 3
Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G
A&S College Core 2015 ASG

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

Or

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

Additional Requirements:

A major in political science requires 33 department hours.

A maximum of 6 hours of internship credit may be applied toward the 33 hours required for the political science major. Only those political science courses in which a grade of C or better has been earned may be used to satisfy departmental requirements.

Most university studies courses and lower division political science courses should be completed prior to the junior year. Additional information about the political science major may be obtained from the School of Politics, Public Affairs, and International Studies: www.uwyo.edu/sppais.

Students are also required to take

- at least one seminar in political science (and its prerequisites)
- 8 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages
- STAT2070 - Introductory Statistics for the Social Sciences Credits: 4
- OR
- STAT2050 - Fundamentals of Statistics Credits: 4
- minimum of 9 hours of upper division credit in political science.

Political Science, B.A./M.A.

The Political Science 5 Year B.A./M.A. Program offers highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor's degree (whether B.A. or B.S.) and thereby earn a graduate degree more efficiently. Political science majors with a cumulative major GPA of 3.5 or higher may be invited to apply at the outset of the second semester of the junior year.

Interested students will submit an application and 2 letters of recommendation, at least one from a political science faculty to be reviewed, along with unofficial, current UW transcripts, by the M.A. Director and Committee. Upon provisional acceptance into the program in the junior year, students will be required to take the GRE. GRE scores will be considered for full and final acceptance to the M.A. program, which will be made once the student has completed the bachelor's degree.

Provisional acceptance to the 5 Year B.A./M.A. program in Political Science will allow students to apply up to six credit hours of 5000-level courses toward both the B.A./B.S. and M.A. degree programs. To earn graduatelevel credit, students must achieve at least a 3.000 in the course. By successfully completing up to six credit hours of graduate coursework during their senior year, these students will have demonstrated their ability to do graduatelevel coursework as undergraduates, easing their transition into the Master's Program in Political Science. Interested students may reserve up to six additional credits for graduate study that do not apply to the undergraduate degree by securing appropriate approvals as explained in the Registrar's "Request to Reserve Coursework for Graduate Credit" prior to taking the coursework.

Students will be granted the BA/BS upon completion of the credit hours required for the undergraduate degree in political science. Students must complete the BA/BS before formally entering the MA program. To remain in good standing in the program, students must maintain a cumulative and departmental GPA of 3.200 and earn at least a 3.000 in all 5000-level courses. Failure to meet the GPA requirements places a student on probation for one semester. If the GPA requirement is not met after that semester, the student will be suspended from the program. Students in the program are encouraged to take the Plan B option. Please see the Graduate Study section to find the degree requirements of the M.A. in Political Science.

Political Science, B.S.

Political Science studies how states govern themselves and interact. Subfields include: American politics, comparative government, international relations, political philosophy, public law, and public administration with an emphasis on statistical analysis and quantitative methods.

Introductory Courses

Students are required to complete the following four introductory courses:

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG
OR

POLS1250 - Introduction to Comparative Government

Credits: 3

How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.
A&S College Core 2015 ASG

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.
USP 2003-2014 Code U3G
A&S College Core 2015 ASG

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)
OR

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB
USP 2015 Code U5C2
Prerequisite: POLS 1000 or permission of instructor.

Other Requirements

In addition to the university and college requirements listed elsewhere in this bulletin, a major in political science requires 33 department hours.

A maximum of 6 hours of internship credit may be applied toward the 33 hours required for the political science major. Only those political science courses in which a grade of C or better has been earned may be used to satisfy departmental requirements.

Most university studies courses and lower division political science courses should be completed prior to the junior year. Additional information about the political science major may be obtained from the School of Politics, Public Affairs, and International Studies: www.uwyo.edu/sppais.

Students are also required to take

- at least one seminar in political science (and its prerequisites)
- 8 hours of a single foreign language or equivalent credit by examination as determined by the Department of Modern and Classical Languages

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

- minimum of 9 hours of upper division credit in political science.

Minor

American Politics Minor

The American Politics minor delves into the mechanics of politics in the United States by studying historical and current implications.

Requirements

A minor in American Politics requires

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

POLS4850 - Seminar in American Politics and Institutions

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected U. S. government and politics problems.

Dual Listed POLS 5850.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 9 hours of political science including POLS 1000 and consent of instructor.

OR

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

- 12 hours from an approved list of courses, with a minimum of 9 hours at the 3000-level or above.

Approved American Politics Minor Courses

POLS2000 - Current Issues in American Government

Credits: 3

Examines current political topics in the U. S. Focuses on key public policy problems, policy-making process and the final policy choice. Students must keep abreast of political events on daily basis and apply basic concepts in American government to current affairs.

USP 2003-2014 Code U3CS

Prerequisite: POLS 1000.

POLS2070 - Politics of State and Local Government

Credits: 3

Studies politics, organizations, structures and processes of American state and local governments.

Prerequisite: POLS 1000.

POLS2410 - Introduction to Public Administration

Credits: 3

Deals with executive branches of governments in the U. S. : national, state and local. Considers organizational, political and policy-making aspects of each. Discusses administration in other forms of government, such as interstate compacts and regional agreements.

Prerequisite: POLS 1000.

POLS2430 - Parties, Interest Groups and Elections

Credits: 3

Studies nature and functions of political organizations in American democracy. Discusses origins and evolution of American parties, causes of interest group development, political socialization, political participation and voting behavior, as well as activities of interest groups within American society and political system. Emphasizes current trends regarding role of parties versus interest groups.

USP 2003-2014 Code U3CS

Prerequisite: POLS 1000.

POLS2450 - Politics and Media

Credits: 3

Examines the media's coverage of current events, governmental institutions and electoral campaigns. Discusses effect of media on individuals' opinions and behavior.

Prerequisite: POLS 1000.

POLS2490 - Topics In:

Credits: 1-3

Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3100 - Politics and the Judicial Process

Credits: 3

Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

POLS3520 - Voting and Participation in America

Credits: 3

Examines the ways citizens participate in government, including campaigning, donating money, and voting. Topics include mobilization by parties and campaigns, social and demographic differences in participation, explanations of voting behavior, civic responsibility, and the role of participation in a democracy.

Prerequisite: POLS 1000.

POLS3550 - Political Communication

Credits: 3

Examines the intersection of politics and communication. For example, may cover politics and media, interpersonal political discussion, organizational and governmental political communication, political campaigns, politics and technology, etc. Moreover, it may cover the effects of political communication on individuals' opinions and behavior.

Cross Listed COJO 3550.

Prerequisite: COMM 1000, COMM 1040, or POLS 1000.

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC
Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

POLS4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed INST 4330.

Dual Listed POLS 5330.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4420 - Seminar in Public Administration

Credits: 3

Max Credit (Max. 6)

Includes reading and research in selected public administration topics.

Dual Listed POLS 5420.

Prerequisite: POLS 1000 and consent of instructor.

POLS4430 - United States Presidency

Credits: 3

Analyzes office of president, its roles, development, relationships with other governmental agencies and problems in the contemporary world.

Dual Listed POLS 5430.

Prerequisite: POLS 1000.

POLS4435 - Presidential Elections

Credits: 3

Examines the process of electing the U. S. president. Topics include the roles of presidential primaries, caucuses, and conventions; campaign strategies; media coverage; citizen participation; the electoral college; and reforms.

Dual Listed POLS 5435.

Prerequisite: POLS 1000.

POLS4520 - Public Opinion

Credits: 3

Deals with natures of a public in democracy and means of forming and manipulating public opinion. Emphasizes role of public opinion as essential ingredient of the policy-making process in popular government.

Dual Listed POLS 5520.

Prerequisite: POLS 1000.

POLS4530 - U.S. Congress

Credits: 3

Analyzes aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 5530.

Prerequisite: POLS 1000.

POLS4550 - Internship in Government

Credits: 1-6

Integrates practical political experience with academic knowledge. Students are expected to participate in specifically assigned duties and observe broader activities of the sponsoring organization; then, reflect upon this participation and observation in the form of written assignments. Internship credit can be earned for work in political campaigns, Wyoming Legislature or government services.

Prerequisite: 9 hours of political science.

POLS4560 - Washington Semester Program

Credits: 15

Provides students with paid internships in Washington, D. C. , in either congressional offices or federal agencies. Selection into the program is very competitive and is made the semester prior to service.

Prerequisite: POLS 1000 and 6 additional hours of political science courses.

POLS4710 - Topics in

Credits: 1-3

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

POLS4720 - Workshop in Practical Politics

Credits: 1-3

Familiarizes or strengthens participants in techniques of political effectiveness. Includes political organization, campaigning and persuasion. Guest speakers include public officials and experts in the field of practical politics.

Prerequisite: 9 hours of political science.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

POLS4850 - Seminar in American Politics and Institutions

Credits: 3
Max Credit (Max. 6)

Includes reading and research on selected U. S. government and politics problems.

Dual Listed POLS 5850.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: 9 hours of political science including POLS 1000 and consent of instructor.

Asian Studies Minor

The Asian Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of an Asian region or a single country. The program emphasizes a social science approach to the study of Asian history, politics, society, and culture with options to include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Asia is defined first and foremost as a geographic entity to include Western, Northern, Central, South and East Asian areas. Thus, for example, countries such as modern Turkey and areas such as the 'Middle East' can rightly be included in 'Asia' alongside areas more traditionally understood as part of Asia such as China and India.

Course Requirements (18 Credits)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 Credit Hours)

All Asian Studies Minor students must complete one of two required Gateway courses depending on their primary area of interest within Asia.

INST2230 - Introduction to Asian Studies

Credits: 3

Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

OR

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in

the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

Asian Studies Area Courses (15 Credit Hours)

Asian Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved Asian Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition to the approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Asian Studies Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to review the International Studies Newsletter each semester to see what Asian Studies Area courses are currently being offered.

Approved Asian Studies Area Courses

- ART 2720 - Introduction to the Art and Culture of Islam

ART4650 - International Study of Art

Credits: 3

Students will respond creatively to the historical, cultural and aesthetic experience in the country of travel and will use journaling, drawing, and collection of visual material to continue a more in-depth response upon return. Course sections will vary regarding structure/context. All sections will include studio and/or art historical curriculum.

USP 2003-2014 Code U3G
A&S College Core 2015 ASG
Prerequisite: ART 4635.

CHIN1101 - First-Year Seminar

Credits: 3

USP 2003-2014 Code U5FY

CHIN2041 - Contemporary and Traditional Chinese Culture

Credits: 3

Designed to provide those with a serious interest in China and Chinese language with a cultural context for learning Chinese language. Incorporates economic and social material to give students a clear view of Chinese culture with an emphasis on Chinese language instruction.

Prerequisite: CHIN 2030.

CHIN3160 - See Movies, Touch China

Credits: 3

This course combines exploration of classical and contemporary Chinese cultures through prominent Chinese films. The audio-video materials selected will be discussed in their historical context. Students will explore the

transformations China has undergone, and will seek to understand the Chinese mindset.

USP 2003-2014 Code [(none)< >H]

Prerequisite: COM1.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

HIST2040 - Imperial China

Credits: 3

Surveys China's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period through the last imperial dynasty, and China's role in greater E. Asian and world history. Provides background for other Asia-related courses and is part of year-long series; see HIST 2041.

USP 2003-2014 Code U3CS, U3G

HIST2041 - Modern China

Credits: 3

Surveys China's social, intellectual, political, cultural, and ethnohistory from mid-1800s to the present. Themes include colonialism, emergence of nation-state, Communist party, Mao's socio-political agenda, post-Mao reforms, and China's role in Asia. Background for other Asia-related courses and part of year-long series; see HIST 2040.

HIST2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual, spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

OR

RELI2320 - History of Islam

Credits: 3

Focuses on the origins of Islam and its early formation, its growth and spread across the world, and its intellectual,

spiritual and historical character. Time will also be spent on the formation of Islam in the modern world and how that impacts the views and actions of its members.

Cross Listed HIST 2320.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

HIST2460 - Traditional Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, technological and ethnohistory from earliest historical period to the 1800s. Topics include roles of China and Korea, the samurai warrior tradition, family structure, Buddhism and Shinto. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2461.

HIST2461 - Modern Japan

Credits: 3

Surveys Japan's social, intellectual, political, cultural, economic, technological and ethnohistory from the 1800s through the present. Topics include Japan's industrialization, Asian colonialism, post-WWII, and Japan as economic superpower. Provides background for other Asia-related courses and is part of a year-long series; see HIST 2460.

A&S College Core 2015 ASG

HIST2470 - Civilization of India

Credits: 3-4

Max Credit 4

Surveys Indian civilization from earliest times, including cultural aspects.

- HIST 3210 - The Islamic World in the Premodern Era

HIST3220 - History of the Modern Middle East

Credits: 3

Surveys the Middle East from 1700 to the present. Emphasizes the demise of the Ottoman Empire, the rise of domination by European colonial powers, transformations in political, social, religious and cultural life, the rise of nationalist movements, the influence of oil, the growth of Islamist political groups and the Israeli-Palestinian conflict.

Cross Listed RELI 3220.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: 6 hours of HIST, RELI, or INST.

HIST3400 - Mongol Empire

Credits: 3

Examines the history of the Mongol Empire from a world history perspective. Major themes: structure of a nomadic

empire, how that empire interacted with the various settled states it conquered and ramifications of the Mongol conquest on trade, technology, and social and intellectual developments across Eurasia, between the years 1200 to 1450 CE.

Prerequisite: 6 hours of HIST.

GWST4335 - Women and Islam

Credits: 3

Examines women's lives in Islamic societies from the seventh century to the present in the Middle East and throughout the world. Themes include women's position in Islamic law, society and culture, Western images of Muslim women, veiling and Islamist movements, theoretical readings on power, gender and agency.

Cross Listed HIST 4335 and RELI 4335.

Dual Listed GWST 5335.

Prerequisite: 9 hours of HIST, WMST, INST, or RELI.

- HIST 4520 - Modern Far East: China, Japan and India

INST2230 - Introduction to Asian Studies

Credits: 3

Asia, the world's largest continent, is home to virtually half of humanity and a broad spectrum of peoples, languages, religions, and cultures. This course introduces the cultural, political, economic, and environmental landscapes of this diverse region.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

INST3100 - Chinese Society

Credits: 3

Reviews origins and consequences of Chinese revolution in comparative and cultural perspectives. Discusses influence of historical traditions and social structure on individual lives and behavioral patterns.

Cross Listed SOC 3100.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000.

OR

SOC3100 - Chinese Society

Credits: 3

Reviews origins and consequences of Chinese revolution in comparative and cultural perspectives. Discusses influence of historical traditions and social structure on individual lives and behavioral patterns.

Cross Listed INST 3100.

USP 2003-2014 Code U3G

Prerequisite: SOC 1000.

INST3400 - Politics and Society of Turkey

Credits: 3

Examines the history of Turkey with an emphasis on its relationship with the Western world. Major topics include the Ottoman Empire; Ataturk and the founding of the Republic of Turkey; Turkey's role in the Cold War, Kurdish and other minority populations; the changing Turkish political landscape, the evolution of Islamist politics; and recent relations with the United States and European Union.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

Prerequisite: INST 1200/POLS 1200 or POLS 1250 and INST 2310/POLS 2310 or permission of instructor.

INST4200 - China and Globalization

Credits: 3

The economic reforms in China have been political, cultural, and above all, global processes. Understanding these processes of economic reform tells us much about the role of government, culture, and globalization in the transition from socialism to capitalism, as well as about China's future role in the world.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/INST 1250 or HIST 2041 or SOC 3100.

INST4250 - East Asia Society and Economy

Credits: 3

Designed to explore key issues to the historical development of Asian countries from both comparative and international political economy perspectives. Distinctive political, social, and economic characteristics of these nations will be analyzed.

Dual Listed INST 5250.

USP 2003-2014 Code U3G

INST4560 - Global Cities

Credits: 3

Globalization accelerates urbanization processes and creates a new type of city: the global city. This course investigates the debates over global cities, urban culture, new urban landscapes, urban planning practices, and social disparity. Using case studies from around the world, this class explores the diversity of global city formation processes.

Cross Listed GEOG 4560.

Dual Listed Dual listed with INST 5560.

USP 2015 Code U5H

Prerequisite: 9 hours of international studies or geography.

INST4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the 'lens' of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed MKT 4590.

Dual Listed INST 5590.

Prerequisite: advanced business standing.

OR

LANG2150 - Manga: History and Culture

Credits: 3

Manga is one of the most important art forms to emerge from Japan. Its importance as a medium of visual culture and storytelling cannot be denied. Through reading and examination of texts, students will understand the relevance of comics in Japanese society.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: COM1.

LANG3105 - Major Themes in Chinese and Japanese Literature

Credits: 3

Explores mindsets of two rich and ancient civilizations, China and Japan. Considers distinctive characters of each civilization, while illuminating basic elements that we share with these peoples.

Prerequisite: ENGL 1010.

LANG3140 - Anime: History and Culture

Credits: 3

An introduction to the history, development, and cultural significance of Japanese animation. Through the examination of a variety of anime genres, students will gain insight into contemporary Japan as well as important historical periods. We will read analyses of particular anime, emphasizing the unique characteristics of the art and the mystery of its popularity in the US.

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Prerequisite: completion of WA.

LANG4800 - Advanced Instruction In: (TOPIC)

Credits: 1-3

Max Credit (Max. 12)

Advanced study and projects designed to meet special needs and interests of students, to be selected in consultation with a suitable member of the faculty.

Prerequisite: consent of instructor.

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS4230 - Governments and Politics of Asia

Credits: 3

Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 5230.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

RELI2040 - Religions of the Middle East: Judaism, Christianity and Islam

Credits: 3

Analyzes origins and early years of three major religions that arose in the Middle East: Judaism, Christianity and Islam. Looks at historical development, political and cultural context, and structure of each religion.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

RELI2050 - Religions of Asia

Credits: 3

Introduces students to the religions of Asia. Primary focus on Hinduism and Buddhism, but also addresses several smaller religions. Emphasis on beliefs, sacred texts and tales, practices, ethics and worship, as well as historical development and contemporary issues.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

RELI2315 - History of Non-Western Religions

Credits: 3

Max Credit 9

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its

world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed HIST 2315.
USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

RELI3320 - Eastern Thought

Credits: 3
Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed PHIL 3320.
USP 2015 Code U5H
Prerequisite: 3 hours of philosophy.
OR

PHIL3320 - Eastern Thought

Credits: 3
Surveys some of the major concepts in Zen, Hinduism, Buddhism, Taoism and Confucianism.

Cross Listed RELI 3320.
USP 2015 Code U5H
Prerequisite: 3 hours of philosophy, or consent of instructor.

RELI3340 - Mysticism, Yoga, and Enlightenment in the East

Credits: 3
Explores Hindu and Buddhist concepts of enlightenment and the means for reaching them through mysticism and yoga. Study the texts and beliefs and their translation into practice.

Prerequisite: WB and CH.

- RELI 3344 - Gods, Avatars, Heroes, and Mystics
- SOC 3050 - Japanese Society

Optional Asian Study Abroad Component

Asian Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Asia to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards fulfillment of the Asian Studies Area Course requirement on the approval of the student's designated minor advisor. Optional Asian Foreign Language Component Asian Studies Minor students are also strongly encouraged to learn an Asian foreign language as part of their progression towards completion of the Minor. Accordingly, up to eight (8) lower-division (1000-2000) credit hours of an Asian foreign language may be counted towards fulfillment of the Asian Studies Area Course requirement. 'Asian' languages at UW include Japanese, Chinese and Arabic. However, Asian Studies Minor, students need not necessarily be limited to the three languages currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be

fulfilled by other Asian language instruction at UW, other relevant in-country summer intensive programs, or language-focused study abroad programs.

European Studies Minor

The European Studies Minor offers students the opportunity to engage in an interdisciplinary program of study of a European region or a single country. The program emphasizes a social science approach to the study of modern European history, politics, society, and culture with options to include foreign language and study abroad components towards completion of the Minor. For the purposes of this minor, Europe is defined first and foremost as a geographic entity running from the Atlantic to the Urals and from Scandinavia to the Mediterranean and the Caucasus Mountains. Courses that transcend these boundaries should include the study of Europe in a prominent way to count toward the minor.

All required courses for the major must be passed with a grade of C or better. A course cannot simultaneously fulfill more than one major requirement.

Course Requirements (18 Hours)

If your primary major is in the College of Arts and Sciences, at least twelve (12) credit hours must be exclusive to the minor and not counted towards fulfilling major requirements. To count towards the minor, all courses must be completed with a grade of 'C' or better.

Gateway Course (3 Credit Hours)

All European Studies Minor students must complete one of two required Gateway courses, either:

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.

USP 2015 Code U5C2

OR

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

European Studies Area Courses (15 Credit Hours)

European Studies Minor students must complete a minimum of fifteen (15) additional credit hours from the following list of approved European Studies Area Courses. A minimum of nine (9) of these credit hours must be taken at the upper-division (3000+) level. In addition to the approved courses on this list, topics courses, Honors courses, or other special course offerings may count towards fulfilling Area Course requirements based on the approval of the student's designated minor advisor. Students are strongly encouraged to review the International Studies Newsletter each semester to see what European Studies Area courses are currently being offered.

Approved European Studies Area Courses

- A&S 2200 - British Life and Culture

FREN2130 - Contemporary French Culture

Credits: 3

Designed as an introduction to contemporary French culture. It gives students an in-depth insight into contemporary French life. It also deals with issues affecting the French-speaking world in general: Quebec, Africa, New Caledonia, Switzerland, Monaco, etc.

USP 2015 Code U5H

Prerequisite: FREN 1020 or equivalent.

FREN3110 - Contemporary French Civilization

Credits: 3

Emphasizes the institution and values of contemporary France. Deals with the major political, social, cultural and economic aspects of today's France. Will be taught in French.

Prerequisite: FREN 3050.

- FREN 4085 - Studies in French Culture

GERM3006 - 20th Century German Culture and Civilization

Credits: 3

Major political, ideological and cultural developments in Germany between 1871 and the present. An interdisciplinary approach (history, art history, film and literature) allows students to explore and assess a nation's culture and civilization as well as far-reaching events (WWI, WWII and the Holocaust) from various perspectives.

USP 2003-2014 Code U3CH, U3WC

Prerequisite: junior standing.

GERM3150 - German History and Culture

Credits: 3

Taught in English, this class engages students both theoretically and practically with German history and culture throughout the ages from the Middle Ages to today. Reading content is complemented with outings to culturally and historically significant sites in Germany as part of a summer study abroad program.

USP 2003-2014 Code U3CH, U3G

A&S College Core 2015 ASG

Prerequisite: WA or equivalent.

- GERM 4265 - Divided Nation: Politics and Culture in Germany 1945 - 1990

GERM4285 - 20th/21st Century German Film

Credits: 3

Introduces students to classical German films, and thereby enhances their skills to conduct research in the Humanities.

Themes to be discussed: representation of authority, issues of race and gender, German culture and history, the

Americanization of German culture, minorities in contemporary Germany.

Dual Listed GERM 5285.

Prerequisite: WB.

HIST2080 - Holocaust

Credits: 3

Surveys the destruction of European Jewry, 1933-1945.

Cross Listed RELI 2080.

USP 2003-2014 Code U3CH

Former Course Number [4315]

HIST2240 - The History of Russia Since 1855

Credits: 3

General survey of modern Russian history from 1855 to the present.

HIST3110 - Modern Germany

Credits: 3

A cultural, social, and political history of German-Speaking Europe from 1789 to the present.

Prerequisite: 6 hours of HIST or INST.

HIST4170 - Europe in the Nineteenth Century

Credits: 3

An intensive study of European history from the beginning of the nineteenth century through to the origins of the First World War in 1914.

Dual Listed HIST 5170.

Prerequisite: HIST 1120.

HIST4180 - Europe in the 20th Century

Credits: 3

An intensive study of European history from 1914 through 2000.

Dual Listed HIST 5180.

Prerequisite: 9 hours of HIST.

- HIST 4190 - Europe: 1930 - Present
- HIST 4195 - European Economic History

HIST4270 - France: Old Regime and Revolution

Credits: 3

The social, political and cultural history of early modern France (1598-1789), from the rise of the Absolutist state under Louis XIV to the outbreak of the Revolution. Explores the cultural and intellectual shifts from court culture at Versailles, to the Enlightenment, to the rise of revolutionary ideologies.

Dual Listed HIST 5270.

Prerequisite: 9 hours of HIST.

- HIST 4280 - France Since 1814

HIST4290 - History of the Soviet Union

Credits: 3

Depicts Russia under Communism, including particularly the development of totalitarian dictatorship in its political, economic, social and cultural manifestations.

Dual Listed HIST 5290.

Prerequisite: 9 hours of HIST.

HIST4310 - World War II in Europe

Credits: 3

Covers the origins, course and consequences of one of this century's defining global developments. World War II in Europe was a transnational development which shaped the world as it is known today.

Dual Listed HIST 5310.

Prerequisite: 9 hours of HIST.

HIST4315 - History, Politics and Memory of the Holocaust in Europe

Credits: 3

Offers students the opportunity to learn about the history of the Holocaust through travel to various sites in Central Europe where the events themselves occurred, such as Berlin, Warsaw, Krakow and Auschwitz-Birkenau.

Cross Listed INST 4315.

Dual Listed HIST 5315.

Prerequisite: 9 hours of HIST or INST.

HIST4320 - Memory and National Identity in Twentieth Century Europe

Credits: 3

Europe in the twentieth century saw a century of unprecedented violence. Examines the public representation of such historical trauma through the concept of "collective memory" and focuses in particular on how memory has become a contested part of defining identity in modern-day Europe.

Dual Listed HIST 5320.

Prerequisite: 9 hours of HIST.

INST2280 - Introduction to European Studies

Credits: 3

This class explores the historical development of notions of community and difference, territories and borders, race and identity, and nationalism and post-national integration in Europe between 1789 and the present. It draws upon history, politics, geography, cultural studies, and anthropology.

Cross Listed HIST 2280.

USP 2015 Code U5C2

INST4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed POLS 4330.

When Offered (Normally offered once a year)

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

POLS4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed INST 4330.

Dual Listed POLS 5330.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

OR

- SOC 4330 - The World System

INST4380 - International History of Human Rights

Credits: 3

Examine the modern history of human rights in the global system, with particular emphasis on developments since the

Second World War. Topics include the philosophy of human rights ideas; the histories of rights and rights violations in various regions; and the resulting international responses.

Cross Listed HIST 4380.

Dual Listed INST 5380.

Prerequisite: 9 hours of HIST or INST.

INST4881 - International Social Welfare and Social Development

Credits: 3

Examines the basic framework of social welfare analysis and social development programming in the international arena, employing a multinational comparative analysis approach to explore the wide array of responses to social need across the globe. Students employ multinational comparative analyses to an area of social concern.

Cross Listed SOWK 4881.

Dual Listed INST 5881.

Prerequisite: POLS 1000; ECON 1010 recommended.

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS3220 - Government and Politics of Russia and FSU

Credits: 3

Examines the political, economic and identity transitions of Russia and other states of the former Soviet Union during the post-communist era. Explores how current challenges relate to past Soviet practices.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS4215 - European Union

Credits: 3

Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed INST 4215.

Dual Listed POLS 5215.

Former Course Number [4220]

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

- RELI 4150 - Christianity, Jews and Muslims in Iberia

SPAN3220 - Spanish-American Cultures in Context

Credits: 3

Introduction to the Spanish-speaking cultures of Latin America and the United States through a historical overview and a focus on contemporary politics and culture.

Prerequisite: SPAN 2040 or SPAN 2140 or consent of instructor.

Optional European Study Abroad Component

European Studies Minor students are also strongly encouraged to participate in a relevant study abroad program in the region of Europe to supplement their coursework at UW. Accordingly, up to six (6) hours of relevant study abroad credit may be counted towards fulfillment of the European Studies Area Course requirement on the approval of the student's designated minor advisor.

Optional European Foreign Language Component

European Studies Minor students are also strongly encouraged to learn an European foreign language (other than English) as part of their progression towards completion of the Minor. Accordingly, up to eight (8) lower division (1000-2000) credit hours of an European foreign language may be counted towards fulfillment of the European Studies Area Course requirement. 'European' languages at UW include French, German, and Spanish. However, European Studies Minor students need not necessarily be limited to the three languages currently taught at UW. On the approval of the student's designated minor advisor these optional language credit hours may be fulfilled by other European language instruction at UW, other relevant in-country summer intensive programs, or language-focused study abroad programs.

International Relations and Comparative Politics Minor

Requirements

A minor in International Relations and Comparative Politics requires

POLS2310 - Introduction to International Relations

Credits: 3

Analyzes the nature of international relations, emphasizing various methods of explaining and interpreting the behavior of nation-states. In doing so, the course illustrates the contemporary problems of world politics.

Cross Listed INST 2310.

USP 2003-2014 Code U3G

A&S College Core 2015 ASG

POLS1200 - Non-Western Political Cultures

Credits: 3

Gives students appreciation of non-western political cultures and how these cultures have created different political institutions and practices. Non-Western nations of Asia, Africa, and the Middle East are used as case studies.

Cross Listed INST 1200.
USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG

OR

POLS1250 - Introduction to Comparative Government

Credits: 3

How do foreign states deal with the numerous challenges to their stability? Do institutions affect a state's approach to solving different problems? How do these different approaches affect policy? This course introduces students to different styles of governance and compare countries from around the world with reference to their political ideology.

Cross Listed INST 1250.
A&S College Core 2015 ASG

POLS4870 - Seminar in International Relations

Credits: 3

Max Credit (Max. 6)

Encompasses reading and research in international law and politics.

Dual Listed POLS 5870.
USP 2015 Code U5C3
Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

OR

POLS4890 - Seminar in Comparative Government and Politics

Credits: 3

Max Credit (Max. 6)

Researches selected topics in comparative government and politics.

Dual Listed POLS 5890.
USP 2003-2014 Code U3G, U3WC
USP 2015 Code U5C3
Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

- 9 hours from an approved list of courses, with a minimum of 6 hours at the 3000-level or above.

Approved International Relations and Comparative Politics Minor Courses

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS2290 - Governments and Politics of Latin America

Credits: 3

Studies chief cultural and historical factors influencing Latin American political process. Surveys major institutions and political patterns of the region.

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

POLS2490 - Topics In:

Credits: 1-3

Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3200 - Comparative Political Cultures

Credits: 3

Histories and experiences of various societies have shaped their values, norms, beliefs, expectations, and attitudes. This class explores how the beliefs, values, and lifestyles of various societies shape peoples' views of their place in the politics of the state and of the state's place in their daily lives.

Cross Listed POLS 3200.

Prerequisite: POLS 1200/INST 1200 or POLS 1250/ INST 1250 or permission of instructor.

POLS3220 - Government and Politics of Russia and FSU

Credits: 3

Examines the political, economic and identity transitions of Russia and other states of the former Soviet Union during the post-communist era. Explores how current challenges relate to past Soviet practices.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3270 - Governments and Politics of the Middle East

Credits: 3

Acquaints students with basic political, social and economic institutions of Middle Eastern countries. Emphasizes post-World War I developments, contemporary issues and problems. Special attention is given to politics of major nations in the Middle East such as Turkey, Iran, Israel, Egypt, Saudi Arabia, Iraq and Syria.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS3300 - Model United Nations

Credits: 1-3
Max Credit (Max. 6)

Focuses on the United Nations (UN) system and multilateral diplomacy to prepare students to participate in a Model UN simulation. Students learn to evaluate the UN system, learn strategies to address international problems, and develop skills to effectively represent a country in a role-playing exercise.

Prerequisite: POLS 1200 or POLS 1250 or permission of instructor.

POLS4013 - Political Geography

Credits: 3
Geographic space is subdivided into political units to aid human interaction and to facilitate political processes. Examines the spatial organization of political space and its effects upon political processes at varying geographic scales ranging from the local to international.

Cross Listed GEOG 4013.

Dual Listed POLS 5013.

Prerequisite: Completion of USP H requirement.

POLS4215 - European Union

Credits: 3
Examines the European Union's history, institutional structures, and policy areas and explores the positive and negative effects of European integration.

Cross Listed INST 4215.

Dual Listed POLS 5215.

Former Course Number [4220]

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4230 - Governments and Politics of Asia

Credits: 3
Studies political systems of East Asia. Analyzes impact of social and economic factors upon political institutions.

Dual Listed POLS 5230.

Prerequisite: POLS 1200 or POLS 1250 or POLS 2310 or permission of instructor.

POLS4255 - Politics of Developing Nations

Credits: 3

An analysis of the processes of political, economic and social change in the non-Western world.

Cross Listed INST 4255.

Dual Listed POLS 5255.

Prerequisite: 9 hours of political science or international studies, including POLS 1200/INST 1200 or POLS 1250/INST 1250 or POLS 2310/INST 2310, or permission of instructor.

POLS4260 - Democratization and Regime Change

Credits: 3

Examines the theoretical/empirical research on causes of democratic transition and consolidation, including new waves of democratization and prospects for democratization in other contexts. Focus is given to a variety of theoretical/methodological perspectives such as the structural, strategic, social/cultural, institutional, and economic approaches.

Cross Listed INST 4260.

Dual Listed POLS 5260.

Prerequisite: 9 hours of political science or international studies, including POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS4290 - Inter-American Relations

Credits: 3

Surveys inter-American system and idea of hemispheric unity. Analyzes major issues confronting inter-American community.

Cross Listed INST 4290.

Dual Listed POLS 5290.

Prerequisite: 9 hours of political science, including POLS 1200/ INST 1200, or POLS 1250/INST 1250, or POLS 2310/ INST 2310, or permission of instructor.

POLS4330 - American Foreign Relations

Credits: 3

Analyzes American foreign policy decision-making process and selected contemporary foreign policy problems. Stresses political and institutional factors, along with analysis of policy options.

Cross Listed INST 4330.

Dual Listed POLS 5330.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4340 - International Organizations

Credits: 3

Encompasses development of world organizations, such as League of Nations, United Nations and its affiliate bodies. Also studies regional organizations and private international bodies.

Cross Listed INST 4340.

Dual Listed POLS 5340.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 5350.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4360 - International Peace and Conflict

Credits: 3

Why do nations go to war, engage in atrocities such as genocide, or move toward peace following conflict? Examines underlying processes behind both conflict and peace in the international system, including sources of conflict and ways conflicts might be moved toward sustainable peace.

Cross Listed INST 4360.

Dual Listed POLS 5360.

Prerequisite: 9 hours of political science or international studies including POLS 2310.

POLS4375 - Transitional Justice

Credits: 3

Mechanisms provide accountability for gross human rights violations and acts of mass atrocity within nations. Case studies are used to examine types of transitional justice interventions; tensions between demands of justice at local, national, and international levels; and transitional justice's role in post-conflict peace-building and reconciliation.

Cross Listed INST 4375.

Dual Listed POLS 5375.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 4445.

Dual Listed POLS 5445.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

POLS4475 - Politics of Natural Resources in Latin America

Credits: 3

This course examines major trends in resource extraction, management, and conservation in Latin America, and the politics surrounding those trends, from theoretical, social, political, economic, and ecological perspectives and through a variety of grounded case studies. The theories and concepts we study are applicable to resource politics beyond Latin America.

Cross Listed INST 4475.

Dual Listed POLS 5475.

Prerequisite: 9 hours of international studies or social science coursework and junior standing.

POLS4600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Cross Listed CRMJ 4600.

Dual Listed POLS 5600.

When Offered (Normally offered every other year)

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS4710 - Topics in

Credits: 1-3

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

POLS4870 - Seminar in International Relations

Credits: 3

Max Credit (Max. 6)

Encompasses reading and research in international law and politics.

Dual Listed POLS 5870.

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4890 - Seminar in Comparative Government and Politics

Credits: 3

Max Credit (Max. 6)

Researches selected topics in comparative government and politics.

Dual Listed POLS 5890.

USP 2003-2014 Code U3G, U3WC

USP 2015 Code U5C3

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

International Studies Graduate Minor

Students graduating with a minor in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective.

Additional Requirements

A graduate minor in international studies provides students in graduate programs other than international studies with the opportunity to acquire a basic graduate-level familiarity with international relations, global processes and cultural diversity around the world. Students acquire a foundation in intergovernmental relations and research methodology. Beyond this, students work closely with a graduate director to fashion a program of study appropriate for their interests and post-graduate plans. The minor complements several other graduate degree programs.

Prerequisites for Admission

Declaration of an international studies minor is contingent on admission to a master's or doctoral degree program. Application is in the form of a letter of interest to the director of the program, including the background, anticipated course of study, and reason for seeking the minor. An interview with the director is also required. All prerequisites for entering the graduate program in international studies as a major apply to the minor with the exception of proficiency in a second language. Students must be prepared for coursework in international studies at the graduate level and be willing to take prerequisite courses if necessary.

Course and Committee Requirements

Graduate students minoring in international studies must satisfy the requirements of their graduate major and take twelve credits of guided graduate coursework in international studies. With the approval of the department of the graduate major, these twelve hours may also count toward the major. Students are required to take at least one advanced theory course (INST 5200) and one advanced research methods course. All courses will be determined in consultation with the program director.

International Studies Minor

Students graduating with a minor in international studies will be able to recognize and appreciate the historical, political, social, cultural, and economic dimensions of international processes and issues, integrating these into an interdisciplinary perspective.

Additional Information

A minor in international studies requires 12 hours of a single foreign language and 15 hours of international studies curriculum, with a minimum of 9 hours at the 3000-level or above.

Political Theory Minor

A minor in Political Theory offers an opportunity for interdisciplinary study.

Requirements

POLS2460 - Introduction to Political Philosophy

Credits: 3

Surveys history of Western political thought including study of concepts and approaches to political philosophy.

When Offered (Offered once a year)

POLS3600 - American Political Thought

Credits: 3

Examines key primary sources and traditions from the founding to present.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: POLS 1000 or permission of instructor.

POLS4810 - Seminar in Political Philosophy

Credits: 3

Max Credit (Max. 6)

Seminar in Political Philosophy; Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 5810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

- 9 hours from an approved list of courses in political science and other disciplines, with a minimum of 6 hours at the 3000-level or above.

Approved Political Theory Minor Courses

POLS2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

POLS2490 - Topics In:

Credits: 1-3
Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3050 - Athenian Democracy

Credits: 3

Examines democratic government in ancient Athens: its origins and development, its practical workings, how politics were conducted and power was gained and exercised, citizen participation, law courts, and evaluations of democracy in the ancient world and since.

Cross Listed CLAS 3050/HIST 3050.

Prerequisite: WB or COM2.

POLS3610 - Classics in Environmental Thought

Credits: 3

Surveys classic texts in environmental thought from the nineteenth century through the present.

Prerequisite: POLS 1000.

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS4090 - Anglo-American Jurisprudence

Credits: 3

Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 5090.

Prerequisite: 9 hours of political science or philosophy, including POLS 1000.

POLS4160 - Legal Philosophy

Credits: 3

This course examines the philosophies that undergird the law, considering both ancient and modern legal thought. Throughout the course, both historical and contemporary examples will be used to illustrate the salient differences between philosophical approaches, to better articulate our understanding of the law.

Dual Listed POLS 5160.

Prerequisite: POLS 1000.

POLS4640 - Political Philosophy: Ancient and Medieval

Credits: 3

Surveys political philosophy from Classical Greek period to Machiavelli.

Dual Listed POLS 5640.

Prerequisite: POLS 2460, or POLS 3600, or consent of the instructor.

POLS4650 - Political Philosophy: Modern

Credits: 3

Surveys political philosophy from Machiavelli through the 19th century.

Dual Listed POLS 5650.

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS4660 - Political Philosophy: Contemporary

Credits: 3

Examines central developments in political philosophy that guide action in today's world.

Dual Listed POLS 5660.

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

POLS4710 - Topics in

Credits: 1-3

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

POLS2200 - Politics of Europe and the European Union

Credits: 3

Examines formal and informal aspects of politics in European countries and the European Union.

USP 2015 Code U5C2

Prerequisite: POLS 1200 or POLS 1250 or permission of the instructor.

- SOC 3900 - Social Theory

Public Law Minor

A minor in Public Law offers an opportunity for interdisciplinary study.

Requirements

POLS4100 - Constitutional Law: Institutional Powers

Credits: 3

Encompasses case-study analysis of judicial decisions and policies affecting constitutional interrelationships among the three branches of federal government, federal-state relations, as well as powers of the states and federal government in the area of social and economic regulatory laws.

Dual Listed POLS 5100.

Prerequisite: POLS 1000.

POLS4110 - Constitutional Law: Civil Liberties and Rights

Credits: 3

Encompasses case-study analysis of judicial decisions and policies of the constitutional interpretation of the 1st Amendment (freedom of speech, press, association and religion), privacy rights, the rights of the criminally accused, and civil rights (racial and gender equality).

Cross Listed CRMJ 4110.

Dual Listed POLS 5110.

Prerequisite: POLS 1000, POLS 3100 recommended.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

- 9 hours from an approved list of courses in political science and other disciplines, with a minimum of 3 hours at the 3000-level or above.

Approved Public Law Minor Courses

POLS2490 - Topics In:

Credits: 1-3
Max Credit (Max. 6)

Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000.

POLS3100 - Politics and the Judicial Process

Credits: 3
Analyzes courts and their personnel in the American political system, including examination of functions of courts, characteristics of judicial process, approaches to the study of judicial behavior, and role of courts as policy makers.

Former Course Number [2100]

Prerequisite: POLS 1000.

POLS4090 - Anglo-American Jurisprudence

Credits: 3
Considers topics, such as functions of law in a democratic society; historical origins and growth of the common law as contrasted to the civil (code) law systems; and principal theories of nature and functions of law which have influenced development of English and American legal institutions.

Dual Listed POLS 5090.

Prerequisite: 9 hours of political science or philosophy, including POLS 1000.

POLS4160 - Legal Philosophy

Credits: 3
This course examines the philosophies that undergird the law, considering both ancient and modern legal thought. Throughout the course, both historical and contemporary examples will be used to illustrate the salient differences between philosophical approaches, to better articulate our understanding of the law.

Dual Listed POLS 5160.

Prerequisite: POLS 1000.

POLS4710 - Topics in

Credits: 1-3
Accommodates various specialized subjects not offered as regular courses.

Prerequisite: POLS 1000 and 3 additional hours of political science.

AGEC3400 - Agricultural Law

Credits: 3

Surveys legal issues and principles of practical concern to agriculture and examines legal institutions authorized to carry out laws affecting agriculture.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Former Course Number [4400]

Prerequisite: WA/ COM1 and junior standing.

COJO4500 - Mass Communication Law

Credits: 3

Studies development of First Amendment law. Includes practical application of law to mass media practice; relationship of legal and social responsibilities of the mass media; and problems of law and regulation, such as constitutional, statutory and administrative.

Prerequisite: COM2 with a grade of C or better.

CRMJ2210 - Criminal Law

Credits: 3

Introduces the fundamental principles of substantive criminal law: the history and philosophy of modern criminal law, the basic dimension of criminality, the elements of major crimes, criminal defenses and the nature of criminal sanctions.

Prerequisite: CRMJ 1001 and POLS 1000.

CRMJ3110 - Criminal Courts and Processes

Credits: 3

Examines the structure, organization and operation of criminal courts and their role in the larger criminal justice system; the process of adjudication of criminal cases from initial charging through post-conviction review; the constitutional rights of the accused; and the roles of the major courtroom participants.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ4140 - Criminal Legal Procedure

Credits: 3

Examines the constitutional principles that safeguard the rights and liberties of criminal suspects and constrain police

during the investigatory stages of the criminal justice process: arrest; search and seizure; interrogation; undercover operations; pretrial identification; and the exclusionary rule.

Prerequisite: CRMJ 1001, CRMJ 2210, and CRMJ 2400/SOC 2400, or declared Public Law minor.

CRMJ4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed SOC 4350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

OR

SOC4350 - Sociology of Law

Credits: 3

A consideration of sociological concepts such as inequality, stratification, social control and social change in an analysis of the law and legal institutions. Topics include: the role of the police, lawyers, judges, and juries; race, sex, age, and sexuality discrimination and civil rights; free speech, and toxic torts.

Cross Listed CRMJ 4350.

Dual Listed SOC 5350.

Prerequisite: 6 hours of sociology/criminal justice, including SOC 1000, and at least junior standing.

CRMJ4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed GWST 4540 / GWST 5540 .

Dual Listed CRMJ 5540.

Prerequisite: ENGL 1080/WMST/GWST 1080 , WMST/GWST 2500 , WMST/SOC 3500, or CRMJ 2400/SOC 2400.

OR

GWST4540 - Gender and Crime

Credits: 3

Addresses issues pertaining to gender and the criminal justice system to include women's roles as offenders and victims and their unique experiences in the criminal justice system. Feminist perspectives, LGBTQ+ and special populations are also explored.

Cross Listed CRMJ 4540.

When Offered (Offered every other year)

Prerequisite: ENGL 1080/GWST 1080, WMST/SOC 3500, or CRMJ 2400/SOC 2400 , WMST/GWST 2500

CRMJ4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed PSYC 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

OR

PSYC4730 - Psychology and Law

Credits: 3

Exposes students to the application of psychological principles to problems in law. Emphasizes the American trial system, correction systems and civil commitment.

Cross Listed CRMJ 4730.

Prerequisite: A grade of C or better in 6 hours in psychology.

HIST4515 - American Legal History

Credits: 3

An intensive course in the history of American law, the judicial system, the legal profession and legal administration from colonial times to the present.

Dual Listed HIST 5515.

Former Course Number [4710]

Prerequisite: 9 hours of HIST.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

Graduate

International Studies, M.A.

MA students will be able to pursue international, interdisciplinary research in order learn about global problems from a variety of historical, political, social, cultural, and economic perspectives.

Plan A (Thesis)

Students are encouraged to construct, with the adviser's approval, a program that focuses their own intellectual interests and career plans. To promote that end, students should be prepared to file a plan of study with the graduate adviser during the second semester of coursework.

No later than the second semester in residence, each student shall select a graduate committee to oversee his or her academic work. The committee will be chaired by the student's major professor and must have at least one member from outside of The School of Politics, Public Affairs, and International Studies. Students also will prepare a thesis proposal and give a presentation of their preliminary project before the International Studies faculty and complete a thesis prospectus defense with their graduate committee by the end of their second semester.

Students must pass an oral examination at the completion of their program. Normally, examination will center on the thesis, but may also encompass coursework of the candidate.

Required Coursework

Advanced Theory Course

INST5200 - Graduate Proseminar in International Studies

Credits: 3-6
Max Credit (Max. 6)

Introduces students to different interdisciplinary approaches - perspectives, theories, and paradigms - within International Studies in order to explain the economic, historical, social, cultural, and political dimensions of international processes and issues. Students explore emerging trends in the global system and the most pressing challenges facing states, societies, and peoples.

Prerequisite: graduate student status.

Research Methods Course

INST5400 - International Social Science Research Methods

Credits: 3
Introduces students to a wide variety of interdisciplinary social science methodologies that have proven especially conducive to international research.

Prerequisite: graduate standing.

Additional Information

Students take the Plan A (thesis). Students must have a minimum of 26 hours of graded non-thesis coursework and 4 hours of thesis.

Program Specific Admission Requirements

Admission is open to all students holding a bachelor's degree in any major. Foreign students, who are non-native English speakers, must pass the Oral Proficiency Interview (OPI).

Program Specific Degree Requirements

Master's Program

Students must meet three requirements:

1. Each student must take INST 5400.
2. Each student must take INST 5200.
3. Each student must demonstrate proficiency in a foreign language, accomplished in the course of the program or from previous experience or coursework. Foreign language hours do not count toward the M.A. degree.

The program also offers a joint International Studies/Environment and Natural Resources degree. See www.uwyo.edu/sppais for specific degree requirements.

Political Science, M.A.

Political Science studies how states govern themselves and interact. Subfields include: American politics, comparative government, international relations, political philosophy, public law, and public administration.

Plan A (Thesis)

Graduate Credit

At least 30 hours of graduate credit, to include:

- At least 6 additional hours of coursework in political science.
- A maximum of 9 hours of coursework in disciplines other than political science.
- A minimum of 4 hours thesis research.
- A master's thesis demonstrating independent research, written under the supervision of the major professor.
- An oral examination conducted by the graduate committee covering all coursework and the thesis.
- No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.
- Students must maintain a graduate GPA of 3.000.

INST5200 - Graduate Proseminar in International Studies

Credits: 3-6

Max Credit (Max. 6)

Introduces students to different interdisciplinary approaches - perspectives, theories, and paradigms - within International Studies in order to explain the economic, historical, social, cultural, and political dimensions of international processes and issues. Students explore emerging trends in the global system and the most pressing challenges facing states, societies, and peoples.

Prerequisite: graduate student status.

And

INST5400 - International Social Science Research Methods

Credits: 3

Introduces students to a wide variety of interdisciplinary social science methodologies that have proven especially conducive to international research.

Prerequisite: graduate standing.

Plan B (Non-Thesis)

Graduate Credit

At least 30 hours of graduate credit, to include:

- At least 6 additional hours of coursework in political science.
- A maximum of 12 hours of coursework in disciplines other than political science.
- Plan B paper that reflects the quality but not scope of a master's thesis, written under the supervision of the major professor.
- An oral examination conducted by the graduate committee covering all coursework and the Plan B paper.
- No more than 6 hours of grades lower than 3.000 may be counted toward the minimum number of hours required for the degree.
- Students must maintain a graduate GPA of 3.000.

INST5200 - Graduate Proseminar in International Studies

Credits: 3-6

Max Credit (Max. 6)

Introduces students to different interdisciplinary approaches - perspectives, theories, and paradigms - within International Studies in order to explain the economic, historical, social, cultural, and political dimensions of international processes and issues. Students explore emerging trends in the global system and the most pressing challenges facing states, societies, and peoples.

Prerequisite: graduate student status.

And

INST5400 - International Social Science Research Methods

Credits: 3

Introduces students to a wide variety of interdisciplinary social science methodologies that have proven especially conducive to international research.

Prerequisite: graduate standing.

Public Administration (MPA)

The Master's in Public Administration degree offered at the University of Wyoming is considered an ethics based program where complicated issues of administrative decision making are the hallmarks of professional life.

Admissions

Admission is competitive and is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.00 GPA, 2 letters of recommendation, a letter of intent, and a short analytic writing sample. Foreign students, who are non-native English speakers, must also pass the Oral Proficiency Interview (OPI).

Only one class, POLS 5000, may be taken prior to full admission into the program with permission of the MPA director.

Plan B (non-thesis)

Thirty-nine hours of graduate credit, to include:

- 24 hours of core credit,
- 15 hours of approved elective credit.

Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits.

Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/electronic class discussion.

Students must maintain a graduate GPA of 3.000.

Current Core Courses

Thirty-nine hours of graduate credit, to include:

POLS5000 - Survey of Public Administration

Credits: 3

Designed to introduce the beginning graduate student to the study and practice of public administration at all levels of government. Attention is also directed to specific functions and processes such as intergovernmental relations, budgeting, personnel, and regulation.

Prerequisite: graduate status and consent of instructor.

POLS5400 - Public Personnel Management

Credits: 3

Designed to integrate information about the political environment of personnel administration with problem solving exercises in such specific areas as job analysis, affirmative action, and flextime. A number of topics including the

evolution of the civil service, the rights and responsibilities of governmental employees, the functions of public personnel management, and collective bargaining processes are also covered.

Prerequisite: POLS 5000.

POLS5410 - Administrative Behavior and Theory of Organization

Credits: 3

An advanced course in the theory of organization and the workings of public agencies.

Prerequisite: POLS 5000.

POLS5440 - Principles and Processes of Government Budgeting

Credits: 3

Analyzes the principles, processes and politics of the budgetary process in the U. S. It examines the various theories of budgetary decision-making, the politics of budgeting and budgetary reforms.

Prerequisite: POLS 5000 and graduate standing.

POLS5480 - Ethics In Government

Credits: 3

The student is introduced to the ethical nature and dilemmas of public administration in American constitutional government. Such topics are addressed as source of ethical obligation, role of loyalty, application of moral philosophy, constitutional theory and ethical obligation, relation of theory and practice, and methods of ethical reflection.

Prerequisite: POLS 5000.

POLS5510 - Public Policy and Program Management

Credits: 3

An overview of governmental policy making processes in the U. S and the uses of applied policy analysis.

Prerequisite: POLS 5000.

POLS5684 - Empirical Analysis for Public Administration

Credits: 3

Designed for students in public administration to train them to make decisions based on empirical evidence in policy and management. Course draws concepts from system analysis, management science, operations research, and social science methodology to provide an understanding of various policy analysis and program management techniques across many applications.

Prerequisite: POLS 5000.

POLS5690 - Capstone in Public Management

Credits: 3

Integrates theories and concepts introduced in core and option-core courses, and emphasizes students' application of them to various administrative settings.

Prerequisite: completion of all other core and option core requirements in the MPA Program.

Approved Elective Credit

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS5051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051/ ENR 4051/GEOG 4051/REWM 4051.

Dual Listed POLS 4051.

Prerequisite: POLS 1000.

POLS5420 - Seminar In Public Administration

Credits: 3

Max Credit (Max. 6)

A reading and research course in selected topics in public administration.

Dual Listed POLS 4420.

Prerequisite: POLS 1000 and consent of instructor.

POLS5445 - Drug War Geopolitics in the Americas

Credits: 3

This course examines illegal drug commodity chains and international efforts to police the drug trade in the Americas. It approaches the drug war through a "critical geopolitics" framework, also covering broader themes such as

international politics, livelihoods, development, environmental justice, the global economy, race-based discrimination, public health, and resistance movements.

Cross Listed INST 5445.

Dual Listed POLS 4445.

Prerequisite: 9 hours of international studies or social science coursework

POLS5450 - Administrative Regulation

Credits: 3

Significant points of contact between government and business are stressed. Government activities designed to regulate and aid such economic interests as business, labor, agriculture, and consumers are dealt with at length.

Prerequisite: POLS 5000.

POLS5460 - Public Administration and Law

Credits: 3

Focuses on various facets of the relationship between American public administration and law. Emphasis is placed on the emerging body of administrative law as a context for jurisprudential reasoning in administrative decision making.

Prerequisite: POLS 5000.

POLS5465 - Survey of the Nonprofit Sector

Credits: 3

This foundational course is designed to give students of diverse backgrounds a common framework for understanding the nonprofit sector in the United States and globally. Students in this course will identify and interpret key theories, issues, and challenges in the nonprofit world and will consider the implications for practice.

Dual Listed POLS 4465.

Prerequisite: graduate standing.

POLS5500 - Internship in Public Administration

Credits: 1-6

Max Credit (Max. 6)

Educationally-oriented assignments for work in selected public agencies, with tutorial types of supervision.

Prerequisite: consent of instructor.

POLS5530 - USCongress

Credits: 3

Analyze aspects of the U. S. Congress, including election of congressmen, legislative process, congressional-

presidential relations, and the influence of political parties, interest groups, and constituents on the legislative process.

Dual Listed POLS 4430

Prerequisite: POLS 1000.

POLS5540 - Public Policy Perspectives

Credits: 3

Acquaints students with the underlying structure and dynamics of public policy formulation, implementation, and evaluation at the state, local, and federal levels. Drawing on a number of analytic approaches, the course seeks to understand this complex political phenomenon in the context of the institutions that drive it.

Prerequisite: graduate standing.

POLS5600 - Political Violence

Credits: 3

Examines causes and consequences of violence both among individuals and among nations.

Dual Listed POLS 4600.

Prerequisite: POLS 1000, or SOC 1000, or POLS 1200, or POLS 1250, or POLS 2310, or permission of instructor.

POLS5685 - Program Evaluation and Policy Analysis

Credits: 3

Explores techniques for analyzing and evaluating public policy choices and impacts.

Dual Listed POLS 4685.

Prerequisite: STAT 5070 or equivalent and an introductory research methods course in social science or related discipline.

POLS5710 - Topics In Political Science

Credits: 1-3

Max Credit (Max. 9)

Intended to accommodate various specialized subjects not offered as regular courses.

Prerequisite: graduate standing.

POLS5810 - Seminar in Political Philosophy

Credits: 3

Encompasses reading and research on selected problems in political philosophy.

Dual Listed POLS 4810.

USP 2015 Code U5C3

Prerequisite: POLS 2460, or POLS 3600, or consent of instructor.

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

CRMJ5000 - Survey of Criminal Justice

Credits: 3

Provides an overview of criminal justice theory by providing critical evaluation and discussion of research in the criminal justice field. It will emphasize seminal works and review current research concerning the structure, function, operation, interaction of the criminal justice system's primary components, and future trends.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5100 - Public Policy and Crime

Credits: 3

This course is designed to take a multidimensional look at public policy issues related to the prevention and control of crime in the United States. Issues covered include the development, implementation, and evaluation of crime control policy.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5280 - Comparative Criminal Justice

Credits: 3

Compares the incidence, trends, control, treatment and prevention of crime across nations using mainstream criminological theories. Examines criminal justice systems from an international perspective and draws lessons for the American society. Explores forms of international cooperation and difficulties in the control of transnational crimes.

Dual Listed CRMJ 4280.

USP 2003-2014 Code U3G, U3WC

A&S College Core 2015 ASG

Prerequisite: graduate standing.

CRMJ5500 - Internship in Criminal Justice

Credits: 3

Educationally-oriented assignments for work in selected criminal justice agencies, with tutorial types of supervision.

Prerequisite: Admission to the MPA Program or consent of instructor.

CRMJ5860 - Social Inequality, Crime, Criminal Justice and the Law

Credits: 3

Provides an in-depth look at social inequality and its impact on crime, criminal justice, and the law. Particular emphasis will be given to the individual and interactive effects of race, class, and gender inequality. Critical theoretical perspectives that promote social justice will be the primary analytical focus.

Dual Listed CRMJ 4860.

Prerequisite: graduate standing or consent of the instructor.

CNSL5060 - Counseling Ethics and Professional Issues

Credits: 3

Designed to provide students with a philosophical base for making ethical decisions in the professional situations they encounter. In addition, it involves a chance to discuss many specific ethical and professional issues that are commonly encountered in the profession.

Prerequisite: program admission or consent of instructor.

EDRE5530 - Introduction To Research

Credits: 3

Basic concepts of educational research design, statistics, and measurement. The focus of the course is on reading and critiquing research articles, both quantitative and qualitative, and includes an introduction to statistics. Students learn to conduct a review of the literature relevant to a specific research problem.

Prerequisite: graduate standing.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

STAT5220 - Advanced Design

Credits: 3

Advanced study of experimental designs, observational designs, and mixed models. Topics include fixed and random

effects, factorial, split-plot and repeated measures designs, and hierarchical models. Linear model methodology and Data Science concepts will also be emphasized.

Prerequisite: MATH 5265/STAT 4265/STAT 5265, and at least one of STAT 4015/STAT 5015, STAT 4025/STAT 5025, or STAT 5210.

Public Administration (MPA/JD)

The Master's in Public Administration degree offered at the University of Wyoming is considered an ethics based program where complicated issues of administrative decision making are the hallmarks of professional life.

Admissions

Admission is competitive and is open to all students holding a bachelor's degree in any major. Applicants must have a minimum 3.00 GPA, 2 letters of recommendation, a letter of intent, and a short analytic writing sample. Foreign students, who are non-native English speakers, must also pass the Oral Proficiency Interview (OPI).

Only one class, POLS 5000, may be taken prior to full admission into the program with permission of the MPA director.

Plan B (non-thesis)

Thirty-nine hours of graduate credit, to include:

- 24 hours of core credit,
- 15 hours of approved elective credit.

Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits.

Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course documents libraries, working on course projects, and for conducting interactive/electronic class discussion.

Students must maintain a graduate GPA of 3.000.

Current Core Courses

POLS5000 - Survey of Public Administration

Credits: 3

Designed to introduce the beginning graduate student to the study and practice of public administration at all levels of government. Attention is also directed to specific functions and processes such as intergovernmental relations, budgeting, personnel, and regulation.

Prerequisite: graduate status and consent of instructor.

POLS5400 - Public Personnel Management

Credits: 3

Designed to integrate information about the political environment of personnel administration with problem solving exercises in such specific areas as job analysis, affirmative action, and flextime. A number of topics including the evolution of the civil service, the rights and responsibilities of governmental employees, the functions of public personnel management, and collective bargaining processes are also covered.

Prerequisite: POLS 5000.

POLS5410 - Administrative Behavior and Theory of Organization

Credits: 3

An advanced course in the theory of organization and the workings of public agencies.

Prerequisite: POLS 5000.

POLS5440 - Principles and Processes of Government Budgeting

Credits: 3

Analyzes the principles, processes and politics of the budgetary process in the U. S. It examines the various theories of budgetary decision-making, the politics of budgeting and budgetary reforms.

Prerequisite: POLS 5000 and graduate standing.

POLS5480 - Ethics In Government

Credits: 3

The student is introduced to the ethical nature and dilemmas of public administration in American constitutional government. Such topics are addressed as source of ethical obligation, role of loyalty, application of moral philosophy, constitutional theory and ethical obligation, relation of theory and practice, and methods of ethical reflection.

Prerequisite: POLS 5000.

POLS5510 - Public Policy and Program Management

Credits: 3

An overview of governmental policy making processes in the U. S and the uses of applied policy analysis.

Prerequisite: POLS 5000.

POLS5684 - Empirical Analysis for Public Administration

Credits: 3

Designed for students in public administration to train them to make decisions based on empirical evidence in policy and management. Course draws concepts from system analysis, management science, operations research, and social

science methodology to provide an understanding of various policy analysis and program management techniques across many applications.

Prerequisite: POLS 5000.

POLS5690 - Capstone in Public Management

Credits: 3

Integrates theories and concepts introduced in core and option-core courses, and emphasizes students' application of them to various administrative settings.

Prerequisite: completion of all other core and option core requirements in the MPA Program.

Academic Regulations

- A student in the joint Juris Doctor/Master of Public Administration program must be admitted to both the College of Law and College of Arts and Sciences. The degrees are awarded concurrently by each college upon successful completion of the combined degree program requirements. In fulfillment of the J.D. degree, the College of Law will accept up to nine hours of MPA credits in courses approved by the law faculty (see Academic Regulations). In fulfillment of the MPA degree, the College of Arts and Sciences will accept up to 12 hours of credits earned in the J.D. program. For additional information regarding these joint degree programs, contact the College of Law or the joint program of interest.
- Significant administrative experience is required of all M.P.A. graduates. If the M.P.A. student has little or no administrative experience an internship is required and will be included as 3 hours of the required elective credits.
- Students entering the M.P.A. Program are expected to possess basic computer literacy, and to have access to a computer for such purposes as communicating with professors via e-mail, receiving M.P.A. Program memos, conducting research on the Web, retrieving articles from course.
- Students must maintain a graduate GPA of 3.000.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

Department of Psychology

135 Biological Sciences Building,

(307) 766-6303

FAX: (307) 766-2926

Web site: www.uwyo.edu/psychology

Department Chair: Sean McCrea

Professors:

KAREN BARTSCH ESTES, B.S. Colorado State University 1981; M.A. Oxford University 1983; Ph.D. University of Michigan 1988; Professor of Psychology 2007, 1992.

MATTHEW J. GRAY, B.A. Creighton University 1993; M.S. Drake University 1995; Ph.D. University of Mississippi 2000; Professor of Psychology 2014, 2002.

CYNTHIA M. HARTUNG, B.S. University of Wisconsin-Madison 1990; M.A. University of Kentucky 1993; Ph.D. 1998; Professor of Psychology 2019, 2007.

SEAN M. McCREA, B.A. Bucknell University 1996; Ph.D. Indiana University 2002; Professor of Psychology 2019, 2009.

CHRISTINE L. McKIBBIN, B.S. Michigan State University 1991; M.S. University of North Texas 1994; Ph.D. 1997; Professor of Psychology 2019, 2007.

NARINA NUÑEZ, B.A. State University of New York at Cortland 1980; M.S. 1984; Ph.D. Cornell University 1987; Professor of Psychology 2000, 1987.

CAROLYN M. PEPPER, B.S. Western Michigan University 1989; M.A. State University of New York at Stony Brook 1992; Ph.D. 1995; Professor of Psychology 2011, 2002.

BENJAMIN M. WILKOWSKI, B.A. Ohio University 2002; M.S. North Dakota State University 2005; Ph.D. 2008; Professor of Psychology 2020, 2008.

Associate Professors:

JOSHUA D. CLAPP, B.A. University of Wyoming 2003; M.A. State University of New York at Buffalo 2008; Ph.D. 2012; Associate Professor of Psychology 2018, 2012.

KYLE P. De YOUNG, B.S. University of Iowa 2004; M.A. State University of New York at Albany 2008; Ph.D. 2011; Associate Professor of Psychology 2020, 2016.

ALISON R. LOOBY, B.A. University of California-San Diego 2002; M.A. State University of New York at Albany 2007; Ph.D. 2011; Associate Professor of Psychology 2020, 2016.

MEREDITH E. MINEAR, B.S. University of Illinois at Urbana-Champaign 1994; Ph.D. University of Michigan 2004; Associate Professor of Psychology 2019, 2013.

Assistant Professor:

KAYLA A. BURD, B.A. Hofstra University 2010; M.A. Cornell University 2016; Ph.D. 2018; Assistant Professor of Psychology 2020.

CHRISTINA MCDONNELL, B.A. University of Notre Dame 2018; M.A. University of Notre Dame 2014; Ph.D. University of Notre Dame 2018; Assistant Professor of Psychology 2021.

KASEY STANTON, B.S. Montana State University 2012; M.A. University of Notre Dame 2014; Ph.D. University of Notre Dame 2018; Assistant Professor of Psychology 2021.

ANNE STEVENS, B.A. Davidson College 2007, M.A. Appalachian State University 2014; Ph.D. University of Wyoming 2020; Clinical Assistant Professor of Psychology 2021.

Academic Professional Lecturer:

CATHERINE P. CARRICO, B.A. Austin College; Ph.D. University of Northern Colorado; Clinical Associate Professor 2020.

TARA K. CLAPP, B.A. State University of New York at Buffalo 2005; M.S. Niagara University 2010; Associate Academic Professional Lecturer in Psychology 2018, 2012.

SCOTT FRENG, B.S. Black Hills State University 1995; M.A. University of South Dakota 1998; Ph.D. University of Nebraska - Lincoln 2001; Senior Lecturer in Psychology 2013, 2003.

MARIA I. KUZNETSOVA, B.A. Syktyvkar State University-Russia 2000; M.S. University of South Carolina-Aiken 2005; Ph.D. Virginia Commonwealth University 2011; Associate Academic Professional Lecturer in Psychology 2017, 2011.

Professor Emeritus

George Blau, David Estes, Charles J. Ksir, Karen B. Nicholas

The Department of Psychology offers coursework at several levels:

1. Introductory courses for students in other programs who wish an elementary knowledge of psychology.
2. Courses supportive of work in other majors.
3. An undergraduate major that is sufficiently flexible to allow students to prepare for graduate programs in psychology, professional schools (e.g. law, medicine) or for employment after graduation.
4. Graduate course work leading to the Ph.D. in clinical psychology, social psychology, cognition/cognitive development, or psychology and law.

Facilities are available for course work and laboratory experiences in areas of psychology such as cognition, personality, social, biological psychology, cognitive development, and psychology and law.

Students who wish to increase chances of employment related to their undergraduate majors should consult an adviser concerning areas of specialization within psychology.

Students planning graduate work in psychology should consult with their faculty adviser concerning career choices and development.

Learning Outcomes

We expect that our Psychology graduating students will have:

1. a basic knowledge of psychology and related fields.
2. the ability to evaluate the assumptions, purposes, methods, and results of psychological research and scholarship.
3. skills in teamwork, leadership, writing, speaking and listening, especially concerning psychology-related topics.

Credit by Examination

Credit by examination will be allowed only for PSYC 1000. The examination accepted is the College Level Examination Program (CLEP); the passing score is 50.

Advanced Placement

The psychology department will accept a score of 4 on the AP exam for credit in PSYC 1000, effective Fall 2015.

Undergraduate Major

A major requires a minimum of 33 semester hours and may not exceed 60 hours in psychology. Of these, 18 hours must be at the 3000 level or above. These upper-division courses must also be taken from at least two different members of the psychology department faculty listed in this *Catalog*.

Students must complete the following courses:

PSYC 1000 General Psychology

PSYC 2000 Research Psychological Methods

Four of five cores:

Biological,

PSYC 2210 Drugs and Behavior **or** PSYC 2080 Biological Psychology

Developmental,

PSYC 2300 Developmental Psychology

Clinical,

PSYC 2340 Abnormal Psychology

Social,

PSYC 2380 Social Psychology

Cognitive,

PSYC 3120 Cognitive Psychology

Additionally **one** of the following restricted enrollment (seminar or writing intensive) courses is required: PSYC 4040, 4150, 4250, 4320, 4350, 4380, 4390, 4400, 4740, 4860.

Also required are 6 hours of anthropology, communication/journalism, criminal justice, economics, political science, or sociology; LIFE 1003 or 1010; and STAT 2050 or 2070.

One approved 3-4 credit hour STEM course: CHEM 1000, CHEM 1020, COSC 1010, COSC 1100, KIN/ZOO 2040, KIN/ ZOO 2041, LIFE 2002, LIFE 2022, LIFE 2023, LIFE 2050, MATH 1050, MATH 1405, MATH 2200, MICR/MOLB 2021, PHYS 1050, PHYS 1110, STAT 2000, STAT 3050, or ZOO 3600.

Students who have an established UW GPA and who wish to change their major to Psychology, or to add Psychology as a major, will be required to have a UW GPA of at least 2.500.

For graduation, students must receive a C or better grade in all courses taken to satisfy department requirements.

Psychology courses taken 15 or more years ago will not be used to satisfy degree requirements.

Undergraduate Minors

The Department of Psychology offer two undergraduate minors: psychology and aging studies.

Psychology

A minor in psychology requires 18 semester hours in psychology. These must include PSYC 1000 or equivalent and 9 hours at the 3000- level or above. A grade of C or better is required in all minor courses.

Students seeking a minor must have 12 hours exclusive to the minor and not used in the major.

Aging Studies

A minor in aging studies requires 18 credit hours. These must include the following:

Core Courses

NURS 2240, FCSC 2110, HLSC 4985

Elective Courses - 9 credits

6 credits must be outside student major

Academic Standards

At least 12 credit hours in a minor must be from courses that are not being counted toward the student's major. No grade below a C is acceptable for courses applied to the minor.

Background Check

Students seeking the minor in Aging Studies will be required to obtain a background check as specified by College of Health Sciences policy. Please contact us for specific information.

Program Plan

Complete the Program Plan of Study with both your major academic advisor and your minor advisor.

Graduate Study

The Department of Psychology offers the doctor of philosophy in psychology with programs in clinical (APA accredited) psychology, social psychology, cognition/ cognitive development, and psychology and law.

Program Specific Admission Requirements

The deadline for receipt of all application materials is December 1.

We only admit students one time per year. Our graduate students begin their programs of study in the fall semester.

Although our graduate programs technically consist of separate master's and doctoral degree components, only students who are applying for, and who expect to complete, the doctoral program are considered for admission. That is, we do not offer a terminal master's degree.

Application materials include the application, one to two page statement of purpose, undergraduate and graduate (if applicable) transcripts, curriculum vitae, and three letters of recommendation. An application fee of \$50 is required.

Applications are evaluated based on the applicants' academic qualifications (e.g., undergraduate GPA, graduate GPA if applicable, course specific grades) and stated research and (if applicable) clinical interests. Particular attention is paid to the goodness of fit between the applicant's expressed research/clinical interests and the particular strengths and offerings of our program.

Our program does not employ a set of formal "cut-offs" with regard to any of the quantitative application elements (e.g., undergraduate/graduate GPA). Often a strong record in one area may make up for a weakness in another area. Applicants interested in information on the qualifications of admitted students should consult the student summary data (www.uwyo.edu/psychology).

Program Specific Graduate Assistantships

Applicants are considered for graduate assistantships at the time of admission. Graduate students typically receive some departmental financial support for the first four years.

Program Specific Degree Requirements

Master's Programs Plan A (thesis)

In addition to the general requirements specified in this Catalog, the following are required: (1) successful completion and oral defense of a thesis; (2) PSYC 5060. Statistical Methods in Psychology - 3 hours or STAT 5050. Statistical Methods in Biological Science - 3 hours; PSYC 5300. Applied Multivariate Analysis - 3 hours or STAT 5055. Statistical Methods for Biologists II - 3 hours; PSYC 5520. Research Design in Psychology - 3 hours; (3) at least 9 hours in 5000-level courses exclusive of those listed above and exclusive of research and thesis research credit.

A minimum of 30 semester hours is required (26 coursework hours and 4 thesis hours).

Doctoral Programs

Clinical Psychology

Students complete a four-year, on-campus sequence of required courses covering core areas of psychology and clinical competency. In addition, the following are required: successful completion of a thesis, a preliminary comprehensive examination, a dissertation, two summer clerkships, and a full year APA accredited internship.

Social Psychology, Cognition/Cognitive Development, or Psychology and Law

Students complete course requirements in topics designated as core areas of psychology, a preliminary comprehensive examination, and a research-based dissertation.

Major

Psychology, B.S.

Learn empirical approaches to understanding human behavior from biological, clinical, cognitive, developmental, neuroscientific, and social psychological perspectives. Develop skills in critical thinking, communication, and scientific research.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D - Diversity 3 credits
G - Global 3 Credits

Students Must Complete the Following Courses:

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

PSYC2000 - Research Psychological Methods

Credits: 4

Introduces some of the methods of investigating psychological questions. Exposure to various research strategies ranging from observational to experimental, using representative laboratory exercises, lectures, readings, films and demonstrations. Requires written and oral reports. May be used to satisfy department's written and oral communication

requirement for majors. Laboratory two hours per week.

USP 2003-2014 Code U3WB

Prerequisite: A grade of C or better in PSYC 1000, WA or COM1, STAT 2050 or STAT 2070.

Four of Five Cores:

Biological Core

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

PSYC2080 - Biological Psychology

Credits: 3

Introduces biological bases of behavior. Includes ethology and comparative behavior, psychobiological development, physiological and sensory mechanisms of behavior, and evolution and behavioral genetics. Presents basic structural and functional properties of the nervous system.

When Offered (Normally offered fall semester)

Prerequisite: A grade of C or better in PSYC 1000 and general biology.

Social Psychology Core

PSYC2380 - Social Psychology

Credits: 3

Examines how peoples' thoughts, feelings, and behaviors are influenced by the presence of others. Course will cover a broad range of theories and research in social psychology.

When Offered (Normally offered fall semester)

Former Course Number [4755]

Prerequisite: A grade of C or better in PSYC 1000.

Clinical Core

PSYC2340 - Abnormal Psychology

Credits: 3

Provides a general overview of abnormal behavior, emphasizing types, etiology and treatment methods.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: A grade of C or better in PSYC 1000.

Cognitive Core

PSYC3120 - Cognitive Psychology

Credits: 3

Deals with higher mental processes that are primarily unique to human beings from theoretical and research orientations. Emphasizes interrelationships between various cognitive processes and continuity of those processes with perceptual and non-cognitive activities. Discusses how information is processed and remembered.

When Offered (Normally offered spring semester)

Former Course Number [4120]

Prerequisite: A grade of C or better in 6 hours of psychology including PSYC 1000.

Developmental Core

PSYC2300 - Developmental Psychology

Credits: 3

Introduces psychological development, including age-related changes in thinking, emotion, and behavior. Major theories, methodologies, and empirical discoveries are surveyed in an exploration of developments beginning with conception, with emphasis on social, affective, and cognitive developments in childhood and infancy and their implications for policy and practice.

When Offered (Normally offered spring semester)

Prerequisite: A grade of C or better in PSYC 1000.

One of the Following

Additionally **one** of the following restricted enrollment (seminar or writing intensive) courses is required:

PSYC4150 - Cognitive Development

Credits: 3

Examines cognitive development from infancy through adolescence. Explores, through lecture, discussion and projects,

major theories and current empirical research on cognitive development, as well as implications for social and educational policies concerning children.

Prerequisite: A grade of C or better in 9 hours of psychology, including child psychology course.

PSYC4250 - Psychological Aspects of Chronic Illness

Credits: 3

Investigates the impact of chronic physical illnesses on diagnosed children and adults, their families, and society. Emphasizes effects of illnesses on psychological adaptation and quality of life. Should be of particular interest to helping professionals and health care workers.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 3250.

PSYC4320 - Intellectual Disability

Credits: 3

Acquaints students with all aspects of intellectual disability including assessment, diagnosis and classification, etiology, and associated health and mental health difficulties. Prevention, educational and psychological intervention, family adaptation, and community involvement are also addressed.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 4300 or FCSC 2121 or EDST 2450.

PSYC4350 - Psychology of Adulthood

Credits: 3

Examines theories and research on psychological development from early adulthood to the end of life, with special emphasis on positive development, successful aging, and methodological issues in the study of adult development.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4380 - Death and Dying

Credits: 3

Designed to provide a comprehensive overview of the field of thanatology. Death is considered from both an individual and sociocultural perspective. Aims to provide solid ground in research, methods, and theory of end-of-life issues and to encourage contemplation of personal and professional applications of death studies.

Prerequisite: A grade of C or better in PSYC 1000 and junior/ senior standing.

PSYC4390 - Personality Science

Credits: 3

Examines the contemporary science in personality psychology, with a focus on the genetic, biological, social, cognitive, and affective variables which interact to influence individual differences and personality coherence.

Former Course Number [3390]

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 2340 or PSYC 2380.

PSYC4400 - Principles of Psychological Testing

Credits: 3

Encompasses basic concepts, principles and procedures of psychological testing, with a lecture, discussion, laboratory project approach. Emphasizes nature and uses of test reliability, validity, norms and transformations, selecting and evaluating tests, test interpretation models and professional ethics in test use. Lecture three hours per week.

Prerequisite: A grade of C or better in 6 hours of psychology and STAT 2050 or STAT 2070.

PSYC4740 - Advanced Social Psychology

Credits: 3

Concentrates on critical assessment of interpersonal behavior. Students are expected to become familiar with data gathering, analysis and reporting procedures commonly used in contemporary social psychology.

USP 2003-2014 Code U3WC

Prerequisite: A grade of C or better in PSYC 2000 and PSYC 2380.

PSYC4860 - Seminar

Credits: 1-6

Course consists of extended and in-depth discussions of particular topics in psychology. Topics vary semester to semester. Class format may include lecture, group discussion, and group activities. Reading assignments will draw heavily from scientific literature and may include journal articles, textbooks, or book chapter.

Prerequisite: 9 hours in psychology.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

A total of 18 hours at the 3000 level or higher are required

Also Required

Also required are

- 6 hours of anthropology, communication/journalism, criminal justice, economics, political science, or sociology;

LIFE1003 - Current Issues in Biology

Credits: 4

Emphasizes central themes of biology - cell biology, genetics, evolution, ecology - and scientific methodology by focusing on current issues in biology. Fundamental concepts are addressed through classroom and laboratory activities and discussions. This course is intended for non-science majors. Students cannot receive duplicate credit for LIFE 1010 or LIFE 1020.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1003]

OR

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STEM Course

One approved 3-4 credit hour STEM course:

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1100 - Computer Science Principles and Practice

Credits: 3

Introduces use of computers for algorithmic problem solving. Studies scope, major contributions, tools and current status of computer science. Presentation of computer science principles; use of software packages and evaluation of their effectiveness; and elementary programming.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: C or better in MATH 1400 or in any University Studies QB or Level 4 or higher on Mathematics Placement Exam.

ESS4001 - Analysis of Nature's Data

Credits: 3

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." In this course, we lead with environmental questions to examine elements of statistics, statistical thinking, data analysis, and data visualization in the environmental sciences. We use program R for all applications.

Prerequisite: STAT 2050 , or STAT 2070 , or consent of the instructor.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

- ZOO 2040

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

- ZOO 2041

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the

derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

MICR4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed PATB 4001.

Dual Listed MICR 5001.

Prerequisite: STAT 2050.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for

students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

STAT2000 - Statistics and the World

Credits: 3

Discusses statistical reasoning and methods as related to today's society. Emphasizes ideas rather than specific techniques. Focuses on real examples of the use (and misuse) of statistics. Includes sampling, experimentation, descriptive statistics, elementary probability and statistical inference.

USP 2003-2014 Code U3QB,U3Q

Prerequisite: grade of C or better in MATH 0921 or level 2 on the Math Placement Exam or Math ACT of 21 or Math SAT of 600 or concurrent enrollment in MATH 1080.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and

incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.

Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

Additional Requirements

A major requires a minimum of 33 semester hours and may not exceed 60 hours in psychology. Of these, 18 hours must be at the 3000 level or above. These upper-division courses must also be taken from at least two different members of the psychology department faculty listed in this *Catalog*.

Students who have an established UW GPA and who wish to change their major to Psychology, or to add Psychology as a major, will be required to have a UW GPA of at least 2.500.

For graduation, students must receive a C or better grade in all courses taken to satisfy department requirements.

Psychology courses taken 15 or more years ago will not be used to satisfy degree requirements.

Minor

Aging Studies Minor

Background Check

Students seeking the minor in Aging Studies will be required to obtain a background check. Please contact us for specific information.

Program Plan

Complete the Program Plan of Study with both your major academic advisor and your minor advisor.

A minor in aging studies requires 18 credit hours. These must include the following:

Core Courses

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

HLSC4985 - Health Sciences Internship

Credits: 1-6

Max Credit (Max. 6)

Gives students an opportunity to gain practical experience in a health care field of their choice. The intense relationship with a mentor allows the student to become socialized into a health care field, gain practice skills, and relate to other health care professionals in an interdisciplinary way.

When Offered (Offered fall, spring and summer)

Prerequisite: completion of all other degree requirements.

Elective Courses - 9 Credits

- 6 credits must be outside student major

Academic Standards

At least 12 credit hours in a minor must be from courses that are not being counted toward the student's major. No grade below a C is acceptable for courses applied to the minor.

Psychology Minor

Learn empirical approaches to understanding human behavior from biological, clinical, cognitive, developmental, neuroscientific, and social psychological perspectives. Develop skills in critical thinking, communication, and scientific research.

A minor in psychology requires 18 semester hours in psychology. These must include PSYC 1000 or equivalent and 9 hours at the 3000- level or above. A grade of C or better is required in all minor courses.

Students seeking a minor must have 12 hours exclusive to the minor and not used in the major.

Psychology, Minor in Aging Studies

Academic Standards:

At least 12 credit hours in a minor must be from courses that are not being counted toward the student's major. No grade below a C is acceptable for courses applied to the minor.

Background Check:

Students seeking the minor in Aging Studies will be required to obtain a background check. Please contact us for specific information.

Core Courses

FCSC2110 - Fundamentals of Aging and Human Development

Credits: 3

Discusses aging as a lifelong process, involving interrelationships of the individual and his or her environment. Includes future demographic trends, family health care, social policy and mass media.

Prerequisite: PSYC 1000 or SOC 1000.

PSYC3400 - Community Resources for Older Adults

Credits: 3

The purpose of this course is to raise student awareness of the needs of older adults in the community and to evaluate the continuum of long-term care resources available, service gaps, program models, and funding mechanisms. Community-based learning is required.

Prerequisite: FCSC 2110 or PSYC 1000

PSYC4970 - Aging Minor Internship

Credits: 1-6

This course provides students in the Aging Studies Minor the opportunity to experience applied aspects of aging studies in a community setting. Prior to registration the student must work with the minor advisor and instructor to identify the internship setting and complete all required paperwork.

Prerequisite: Completion of all other degree requirements

Electives

(9 credits hours - 6 credits must be outside student major)

An interdisciplinary program, current approved courses are offered through the College of Agriculture, College of Arts and Sciences, and College of Health Sciences.

Graduate

Psychology, Ph.D.

Doctoral Programs

- Clinical Psychology
- Social Psychology, Cognition/Cognitive Development, or Psychology and Law

Department of Theatre and Dance

2099 Buchanan Center for the
Performing Arts, (307) 766-2199

Web site: uwyo.edu/thd/

Department Head: **Margaret Wilson**

Professors:

CECILIA ARAGÓN, B.S. McMurry University 1991; M.A. University of New Mexico 1996; Ph.D. Arizona State University 2003; Professor of Theatre and Dance 2017, 2005.

MARGARET WILSON, B.A. University of Wyoming 1981; M.S. 1987; Ph.D. Texas Woman's University 2007; Professor of Theatre and Dance 2016, 2005.

Associate Professor:

PATRICK KONESKO, B.A. Saginaw Valley University 2008; M.A. Bowling Green State University 2009; Ph.D. 2013; Assistant Professor of Theatre and Dance 2015, 2021.

Assistant Professors:

CATHERINE FOLDENAUER, B.S. University of California, Davis 2006; M.F.A. California Institute of the Arts 2021; Assistant Professor of Theatre and Dance 2020.

SCOTT TEDMON-JONES, B.F.A. University of Wyoming 2001; M.F.A. Carnegie Mellon University 2010; Assistant Professor of Theatre and Dance 2018.

Assistant Lecturers:

JASON BANKS, B.F.A. University of Florida 2004; M.F.A. The Ohio State University 2007; Assistant Lecturer FTTC 2020.

ANDREW LIA, B.A. Augustana College 2009; M.F.A. California Institute of the Arts 2013; Assistant Lecturer FTTC 2020.

Adjunct Professor:

Neil F. Humphrey

Emeritus Professors:

Rebecca Hilliker, Patricia Tate, Ron Steger, Larry Hazlett, Leroy Hodgson

Degrees Offered

The Department of Theatre and Dance offers curricula leading to the B.A. degree and the Bachelor of Fine Arts and courses which fulfill a part of University Studies and various colleges' requirements, including the College of Arts and Sciences.

Curricula

Students may not take a course for S/U credit to satisfy course requirements in the major. This does not apply to courses offered for S/U only. Requirements for students majoring in the areas of the department are indicated below.

Theatre

The study of theatre provides students with a broad understanding of the art of theatre in a liberal arts college. The study of theatre is considered to provide a basis for more specialized theatre study in a graduate or professional school. The liberal arts education in theatre together with extensive experience in the production program also provides the foundation for a professional career in theatre, motion pictures, or television drama for those individuals with special desires and abilities. Secondary teaching certification in theatre can be obtained through this program of study.

Dance

The dance concentration within the Department of Theatre and Dance is designed to provide students with a broad foundation in the humanities and specific emphasis in performance and production aspects of dance. Students pursuing this course of study will have opportunities to attain technical competency in ballet and/or modern dance, to perform in yearly dance productions, to obtain practical experience in the fundamentals of teaching dance and to gain experience in technical theatre as an aid to dance production. The program seeks to provide a comprehensive view of dance as an artistically expressive medium, as well as a creative and recreational tool to human expression.

Students completing this program will qualify for more advanced private instruction as well as advanced academic instruction.

All dance students are matriculated into the BA degree. Students wishing to apply for the BFA in Dance Performance or BFA in Dance Science do so the second semester of their freshman year.

Students must receive a C or better in all courses designated THEA to satisfy department degree requirements. A student's transfer courses in Theatre and Dance must also reflect a C or better to be accepted for credit. A grade of C- does not meet the requirement.

Outcomes:

Our goal is to nurture artists and scholars within aesthetic, social, critical, historical and contemporary performance and dance idioms, who appreciate cultural literacy and respect diversity, who think critically, who master discipline-specific performance and production skills, and who foster knowledge and make compelling artistic choice on stage.

The Theatre and Dance Department expects that upon graduation all students will be able to:

- Demonstrate or detail the basic production process and make an informed assessment of quality in all areas of theatre and dance,
- Honor and represent historical, contemporary, and cultural diversity in academic and performance settings,
- Articulate the intersection of their personal, aesthetic, and social/political ideas in relation to a particular play, performance work or production,
- Develop collaborative skills, communicate effectively and function in a variety of contexts with self-knowledge, resilience, and resourcefulness, both in performance and in creation,
- Understand the demands and expectations of the profession,
- Synthesize and utilize knowledge from courses in the breadth of the discipline,
- Recognize and be familiar with postgraduate training opportunities in professional theatre, dance and academia.

Scholarships

A number of scholarships are available to interested majors in theatre or within the dance option. The University Theatre also maintains a summer company. Applications should be sent to the Department of Theatre and Dance, Dept. 3951, 1000 E. University Ave., Laramie, WY 82071.

Departmental Activities/ Organizations

The department sponsors one of the largest all-student activities on campus. Nearly 150 students take part in its productions each season. All students are eligible to participate in its productions through auditions.

Productions are mounted in the Buchanan Center for the Performing Arts which includes a flexible proscenium theatre, thrust theatre and experimental-studio theatre complete with scenic and costume support facilities.

Auditions, open to all university students, are publicly announced for each production. Qualified students may receive credit in performance and production areas (THEA 2050).

The Wyoming Summer Theatre presents a season of plays of varying types during the summer session. Theatre majors and minors are urged to spend at least one summer working with this group.

Graduate Study

At present, no program for graduate degrees in theatre and dance is offered.

Major

Theatre and Dance, Acting Performance Concentration, B.F.A.

The BFA in Acting Performance permits a total of 70-71 credits in the major. It is designed primarily for those desiring to pursue additional pre-professional training in musical theatre and or for those preparing to enter MFA graduate programs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Acting Concentration: *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1040 - Production Crew I

Credits: 0.5
Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3
Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1300 - Musical Theatre Workshop: Voice and Acting

Credits: 2
Max Credit (Max. 8)

Musical Theatre Workshop: Voice & Acting will focus on developing and strengthening the speaking and singing voice for stage, wherein students will construct performances through integration of breath and voice work.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3
First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3
Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

THEA2170 - Speech for the Actor

Credits: 3

Studies speech techniques, including the International Phonetic Alphabet and Standard American Speech for the Stage. Builds upon the FitzmauriceVoicework technique as well as other voice methodologies.

Prerequisite: THEA 1100 and THEA 1700.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2720 - Movement for Actors I

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100.

THEA2790 - Stage Management

Credits: 3

Study of the essential elements of supervising theatrical productions. Stresses the art of organizing auditions, casts, crews, rehearsals, and performances while developing a unique professional relationship with directors, designers and actors. Students will work on a live production.

Prerequisite: THEA 1100, THEA 1200, THEA 2220.

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3740 - Acting Styles

Credits: 3

Focuses on textual analysis of plays from different periods and styles of dramatic literature. Emphasizes vocal and physical interpretation of character as represented in non-realistic styles of drama.

Prerequisite: THEA 1100 and THEA 3710.

THEA3750 - Acting for the Camera

Credits: 3

Addresses performance skills required in acting for the camera. Covers various techniques, styles, and skills necessary to be successful in the professional world of film and television as an actor. Students perform scenes for 3-camera and single camera set-ups, and become familiar with rudimentary technical skills as crewmembers for shoots. Lecture and test material cover career opportunities, union affiliations, and current trends in the film and television industry.

Prerequisite: THEA 1100 and THEA 3710. THEA 3805. Stage Lighting II.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD

Former Course Number [591]

Prerequisite: junior standing.

THEA3950 - Dialects for the Actor

Credits: 3

Introduces the actor to five major dialects for the stage. Examines sensibility, vowel and consonant changes, pitch placement and charting.

Prerequisite: THEA 1100, THEA 1700, and THEA 2170.

THEA4710 - Acting IV

Credits: 3

Max Credit 3

Involves intensive work at an advanced level dealing with individual actor's problems through the medium of scene study.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 3710

THEA4720 - Auditioning and Professional Issues

Credits: 3

Introduces actors to process of finding, preparing and executing successful audition material, including monologues, songs and dance combinations. Exposes actors to business aspects of the theatre world, including resumes, photos, contracts, unions, internships, apprenticeships, Equity Membership Candidacy programs, URTA's and professional actor training graduate programs. Culminates preparation for final semester auditions for the company/school of choice.

Prerequisite: THEA 1100, THEA 3710 and THEA 3740.

THEA4730 - Movement for Actors II

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the

actor in all performance efforts.

Prerequisite: THEA 1100 and THEA 2720 .

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

THEA4940 - Theatre History II

Credits: 3

Second semester of a one-year series. Continues THEA 4930.

Prerequisite: THEA 4930.

- Foreign Language Credits: 8
A&S Global Credits: 3
A&S Diversity Credits: 3

Three Hours From the Following:

THEA1410 - Beginning Ballet I

Credits: 1

Introduces principles and practices of classical ballet technique.

USP 2015 Code U5H

Prerequisite: THEA 1410 or instructor permission.

THEA1430 - Beginning Modern I

Credits: 1

Introduces principles and techniques of modern dance.

USP 2015 Code U5H

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA1480 - Beginning Jazz Dance I

Credits: 1

Explores basic jazz dance techniques and related principles of jazz dance composition.

USP 2003-2014 Code H

Theatre and Dance, B.A.

The University Studies Program 2015

Tracks:

- Theatre and Dance, Theatre Track, B.A.
- Theatre and Dance, Dance Track, B.A.

University Studies Program Requirements

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Theatre and Dance, Dance Performance Concentration, B.F.A.

The BFA in Dance Performance is a professionally oriented degree for students interested in a career of performing or choreographing and permits a total of 71-74 credits in the major. Admission to the BFA is by application only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Dance Performance Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1021 - Academic and Professional Issues in Dance

Credits: 1

Introduces freshman to the discipline of dance and academic study at the University of Wyoming. Key intellectual and literacy concepts will be introduced, including, but not limited to: critical thinking and analysis, knowledge of the discipline, career options, diversity of the discipline, university and region.

USP 2003-2014 Code U3I,U3L

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1405 - Introduction to Pilates Training

Credits: 1

Max Credit (Max. 2)

An introduction to Pilates based training, including mat work and exercises on the Reformer.

Prerequisite: consent of instructor.

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2050 - Theatre Practice

Credits: 1-2

Encompasses individually supervised practical training in performance and production.

Prerequisite: consent of instructor.

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

OR

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

OR

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2200 - Backgrounds of Dance

Credits: 3

Surveys ethnic and theatrical dance forms from primal society to 20th century. Examines the place of the arts as a reflection of the culture.

USP 2003-2014 Code U3CA,U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

THEA2410 - Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary, and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2420 - Intermediate Ballet II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2430 - Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA2440 - Intermediate Modern II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester modern dance technique class for dance majors and minors. Mastering vocabulary and

principles will be augmented with a deeper understanding of historical techniques and their application to contemporary dance.

USP 2015 Code U5H

Prerequisite: THEA 2430. Limited to dance majors and minors; admission by permission only.

THEA2450 - Intermediate Tap I

Credits: 1

Continued studies in techniques and principles of tap dance and tap dance composition.

Prerequisite: THEA 1450.

THEA2480 - Intermediate Jazz I

Credits: 1

Continued studies in techniques and principles of jazz dance and jazz dance composition.

USP 2015 Code U5H

Prerequisite: THEA 1480. Instructor permission required.

THEA3021 - Foundations of Dance Pedagogy

Credits: 1

Introduces students to basic theories and practices of dance pedagogy. Lecture and discussion will be balanced with peer teaching and coaching, observation of lessons and integration within a dance classroom situation with some teaching responsibilities and development of a portfolio with lessons and resources for teaching.

Prerequisite: sophomore standing in the department of Theatre and Dance; successful completion of THEA 3420 or THEA 3440.

THEA3100 - Kinesiology for Dance

Credits: 3

Encompasses seminar in current kinesiology research for dancers. Includes practicum based projects, lectures and supplementary materials.

Prerequisite: ZOO 2040.

THEA3410 - Adv/Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester ballet technique class for dance majors and minors. Emphasis is placed on improving technical skills and learning more advanced steps. Includes research into one discipline of ballet.

Prerequisite: successful completion of THEA 2440 and admission by permission only. Limited to dance majors and minors.

THEA3420 - Adv/Intermediate Ballet II

Credits: 1.5
Max Credit (Max. 3).

Second semester, second year ballet technique class for dance majors and minors. Emphasizes broadening the dancer's movement vocabulary while refining acquired technical skills. Dancers begin work in study of Baroque dance terms.

Prerequisite: successful completion of THEA 3410 or equivalent required. Limited to dance majors and minors; admission by permission only.

THEA3430 - Adv/Intermediate Modern I

Credits: 1.5
Max Credit (Max. 3)

A second year, first semester, intermediate level modern dance technique class for dance majors and minors. Continued training in classical modern dance and continued historical survey of modern dance will be augmented by rhythmic analysis and compositional forms.

Prerequisite: successful completion of THEA 2440 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3440 - Adv/Intermediate Modern II

Credits: 1

A second year, second semester, modern dance technique class with continuing studies of sequential modern dance technique at the intermediate level, introduction of Laban effort/shape theory, compositional forms, improvisation and additional rhythmic analysis.

Prerequisite: THEA 3430 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3480 - Adv/Intermediate Jazz I

Credits: 1
Max Credit (Max. 2)

An intermediate jazz technique class. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation and incorporate them into class compositions.

Prerequisite: THEA 2480.

THEA3490 - Advanced Jazz I

Credits: 1
Max Credit (Max. 2)

An advanced class in jazz technique and performance. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation as well as incorporate them into class compositions.

Prerequisite: THEA 3480.

THEA4001 - Historical Dance

Credits: 2
Max Credit (Max. 2)

Historical dance forms in the "Noble Style" dating from the 15th through 18th Centuries. Class work covers the relationship of musical forms to the specific step vocabulary and dances of each period, deportment, period costume as it relates to movement, social environment, period style with an emphasis on reconstruction of 17th and 18th Century dances from Feuillet notation.

Prerequisite: THEA 3440.

- *Plus 8 credits total in any combination of THEA 4010 and THEA 4030*

THEA4010 - Advanced Ballet

Credits: 1-3
Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3
Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

THEA4200 - 20th Century Dance

Credits: 3

Intensely studies dance in 20th Century, emphasizing contemporary movement in modern, ballet, jazz and musical theatre dance. Examines social, political and aesthetic trends influencing dance theory and performance.

USP 2003-2014 Code U3CA,U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2200.

THEA4250 - Beginning Dance Composition

Credits: 2

Presents and criticizes movement studies based on various approaches to composition. Explores experimentation in choreography.

Prerequisite: THEA 2420, THEA 2440.

THEA4260 - Intermediate Dance Composition

Credits: 2-3

Prerequisite: THEA 4250 and consent of instructor.

THEA4700 - Auditioning and Careers in Dance

Credits: 1

Designed for dance majors as a culminating course in preparation for final semester auditions and applications for companies and graduate schools. Through this course, students will set career goals, create an audition portfolio, and gain exposure to the many challenges and opportunities in dance.

Prerequisite: senior standing, THEA 1021, and one semester of THEA 4010 or THEA 4030.

- THEA4880 - Advanced Theatre Practice Credits: 1

THEA4880 - Advanced Theatre Practice

Credits: 1-2

Prerequisite: 12 hours in theatre and consent of instructor.

THEA4950 - Senior Thesis

Credits: 3

Encompasses senior research project under faculty member guidance and supervision.

Prerequisite: senior standing.

OR

THEA4960 - Senior Project

Credits: 1-3
Max Credit (Max. 3)

Exercise in the practical application of production, centered on a UW production, either main stage or studio. It may deal with design in scenery, costumes, properties, sound, makeup, playwriting, technical direction, directing, dance pedagogy, or choreography. The project is intended to be a "real" exercise in theatrical production.

THEA4975 - Theatre/Dance Internship

Credits: 1-12
Max Credit (Max. 12)

The intent of this course is designed to provide professional experiences to students outside of the academic curriculum of Theatre and Dance Department. It is designed to advance the students potential career opportunities and help advance their knowledge in the field.

Restricted Restricted to sophomores, juniors, and seniors.

Prerequisite: Must have completed 6 hours in the department of Theatre and Dance.

- LIFE 1000 Credits: 4
OR

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

OR

ANTH1100 - Introduction to Biological Anthropology

Credits: 4

Basic concepts relating to the origin, evolution and biological nature of the human species.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

- Foreign Language Credits: 8
- First Aid/CPR Credits: 0
- A&S Global Credits: 3
- A&S Diversity Credits: 3

Theatre and Dance, Dance Science Concentration, B.F.A.

The BFA in Dance Science permits 78 credits in the major and is a professionally oriented degree for students interested in a career in research or science. The degree provides summation and synthesis of dance training. Admission by application only.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Dance Science Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1021 - Academic and Professional Issues in Dance

Credits: 1

Introduces freshman to the discipline of dance and academic study at the University of Wyoming. Key intellectual and literacy concepts will be introduced, including, but not limited to: critical thinking and analysis, knowledge of the discipline, career options, diversity of the discipline, university and region.

USP 2003-2014 Code U3I,U3L

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1405 - Introduction to Pilates Training

Credits: 1

Max Credit (Max. 2)

An introduction to Pilates based training, including mat work and exercises on the Reformer.

Prerequisite: consent of instructor.

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2050 - Theatre Practice

Credits: 1-2

Encompasses individually supervised practical training in performance and production.

Prerequisite: consent of instructor.

THEA2200 - Backgrounds of Dance

Credits: 3

Surveys ethnic and theatrical dance forms from primal society to 20th century. Examines the place of the arts as a reflection of the culture.

USP 2003-2014 Code U3CA,U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

THEA2410 - Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary, and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2420 - Intermediate Ballet II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2430 - Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA2440 - Intermediate Modern II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester modern dance technique class for dance majors and minors. Mastering vocabulary and principles will be augmented with a deeper understanding of historical techniques and their application to contemporary dance.

USP 2015 Code U5H

Prerequisite: THEA 2430. Limited to dance majors and minors; admission by permission only.

THEA2480 - Intermediate Jazz I

Credits: 1

Continued studies in techniques and principles of jazz dance and jazz dance composition.

USP 2015 Code U5H

Prerequisite: THEA 1480. Instructor permission required.

THEA3021 - Foundations of Dance Pedagogy

Credits: 1

Introduces students to basic theories and practices of dance pedagogy. Lecture and discussion will be balanced with peer teaching and coaching, observation of lessons and integration within a dance classroom situation with some teaching responsibilities and development of a portfolio with lessons and resources for teaching.

Prerequisite: sophomore standing in the department of Theatre and Dance; successful completion of THEA 3420 or THEA 3440.

THEA3100 - Kinesiology for Dance

Credits: 3

Encompasses seminar in current kinesiology research for dancers. Includes practicum based projects, lectures and supplementary materials.

Prerequisite: ZOO 2040.

THEA3410 - Adv/Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester ballet technique class for dance majors and minors. Emphasis is placed on improving technical skills and learning more advanced steps. Includes research into one discipline of ballet.

Prerequisite: successful completion of THEA 2440 and admission by permission only. Limited to dance majors and minors.

THEA3420 - Adv/Intermediate Ballet II

Credits: 1.5

Max Credit (Max. 3)

Second semester, second year ballet technique class for dance majors and minors. Emphasizes broadening the dancer's movement vocabulary while refining acquired technical skills. Dancers begin work in study of Baroque dance terms.

Prerequisite: successful completion of THEA 3410 or equivalent required. Limited to dance majors and minors; admission by permission only.

THEA3430 - Adv/Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester, intermediate level modern dance technique class for dance majors and minors. Continued training in classical modern dance and continued historical survey of modern dance will be augmented by rhythmic analysis and compositional forms.

Prerequisite: successful completion of THEA 2440 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3440 - Adv/Intermediate Modern II

Credits: 1

A second year, second semester, modern dance technique class with continuing studies of sequential modern dance technique at the intermediate level, introduction of Laban effort/shape theory, compositional forms, improvisation and

additional rhythmic analysis.

Prerequisite: THEA 3430 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3480 - Adv/Intermediate Jazz I

Credits: 1
Max Credit (Max. 2)

An intermediate jazz technique class. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation and incorporate them into class compositions.

Prerequisite: THEA 2480.

- *Plus 2 credits total in any combination of THEA 4010 and THEA 4030*

THEA4010 - Advanced Ballet

Credits: 1-3
Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3
Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

THEA4200 - 20th Century Dance

Credits: 3
Intensely studies dance in 20th Century, emphasizing contemporary movement in modern, ballet, jazz and musical theatre dance. Examines social, political and aesthetic trends influencing dance theory and performance.

USP 2003-2014 Code U3CA,U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2200.

THEA4250 - Beginning Dance Composition

Credits: 2

Presents and criticizes movement studies based on various approaches to composition. Explores experimentation in choreography.

Prerequisite: THEA 2420, THEA 2440.

THEA4260 - Intermediate Dance Composition

Credits: 2-3

Prerequisite: THEA 4250 and consent of instructor.

THEA4880 - Advanced Theatre Practice

Credits: 1-2

Prerequisite: 12 hours in theatre and consent of instructor.

THEA4990 - Research in Theatre

Credits: 1-3

Prerequisite: 6 hours in area of research and consent of instructor.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

KIN4020 - Motor Behavior

Credits: 3

Provides undergraduate majors in kinesiology and health the foundation of motor learning and control theories to be applied to decisions related to the enhancement of human performance.

Prerequisite: C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; and 2.750 GPA.

OR

KIN3034 - Lifespan Motor Development

Credits: 3

Studies lifespan motor development. Emphasizes developmental periods of infancy through adolescence. Gives attention to observation and analysis of motor behavior and movement performance of individuals across lifespan.

Former Course Number [PEPR 3034]

Prerequisite: grade of C or better in PSYC 1000; junior standing; 2.750 GPA.

KIN3037 - Sport Psychology

Credits: 3

Studies psychological theories and techniques applied to sport to enhance the performance and personal growth of athletes and coaches. Emphasizes the influence of personality, anxiety, motivation, social factors, and psychological skills training.

Former Course Number [PEPR 3037]

Prerequisite: Admitted to the last two years of one of the programs in DK&H.

OR

KIN3038 - Exercise Psychology

Credits: 3

Studies psychological theories for understanding and predicting health-oriented exercise behavior, including psychological intentions for increasing exercise participation and adherence. Emphasizes psychological and psychobiological responses to exercise.

Prerequisite: grade of C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; 2.750 GPA.

- Foreign Language Credits: 8
A&S Global Credits: 3
A&S Diversity Credits: 3

Additional Upper-division Required Course Work

(minimum 6 hours from the following courses):

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3040 - Teaching Human Anatomy

Credits: 3

Students develop communication and teaching skills while expanding their knowledge in anatomy. Under faculty instruction, each student develops lecture and laboratory lessons for all human anatomy systems. Under direct faculty supervision, each student demonstrates their teaching skills through preparation of videotape segments and actual laboratory teaching experience in the lower-division human anatomy course.

Former Course Number [PEPR 3040]

Prerequisite: 2.750 GPA and grade of B or better in KIN 2040 and consent of instructor.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

FCSC3145 - Sports Nutrition and Metabolism

Credits: 3

Discusses roles played by carbohydrate, fat, protein, water, and key vitamins and minerals as they relate to physical exercise. Applies principles of nutrition.

Prerequisite: FCSC 1141; ZOO 3115.

FCSC4147 - Nutrition and Weight Control

Credits: 3

Advanced course in physiological and metabolic determinants of weight control emphasizing pathology, psychodynamics, assessment and treatment of obesity.

Dual Listed FCSC 5147.

Prerequisite: FCSC 1141; ZOO 3115.

PSYC3120 - Cognitive Psychology

Credits: 3

Deals with higher mental processes that are primarily unique to human beings from theoretical and research orientations. Emphasizes interrelationships between various cognitive processes and continuity of those processes with perceptual and non-cognitive activities. Discusses how information is processed and remembered.

When Offered (Normally offered spring semester)

Former Course Number [4120]

Prerequisite: A grade of C or better in 6 hours of psychology including PSYC 1000.

PSYC3250 - Health Psychology

Credits: 3

Provides overview of growing partnership between psychology and health care, including history of psychology in health care; theoretical foundations of health and illness; intervention and research techniques; stress and high risk behaviors (e. g. , substance abuse, eating behaviors, AIDS); psychology's contribution to improving outcomes and quality of life in chronic and life-threatening behaviors.

Cross Listed NURS 3250.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4070 - Motivation

Credits: 3

Covers classic and contemporary theories and research concerning motivation and the pursuit of goals. Discusses the study of motivation from a variety of perspectives, including biological, environmental, and psychological. Considers the role of emotion in motivational processes.

Prerequisite: C or better in 6 hours in psychology.

Theatre and Dance, Design Tech Management Concentration, B.F.A.

The BFA Design Tech Management permits 69-70 credits in the major and is a professionally oriented degree for students interested in pre-professional theatre design, technology and management or graduate study.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Design Tech Management Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1050 - Beginning Drawing and Painting

Credits: 3

An introductory drawing and painting technique course for students to achieve a working knowledge of a variety of mediums that cross the disciplines of scenic, costume, and lighting design. Form, perspective, texture and basic color theories will be explored.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2150 - Drafting for Design

Credits: 3

Introduces Design and Technical students to the basics of hand drafting and numerous drafting techniques and conventions. After completing this course, students will be well prepared for scenic and lighting design courses.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2250 - Computer Aided Design I

Credits: 3

Building on skills and techniques learned in THEA 2150 Drafting for Design, the course introduces and provides students with training on commonly used software, that may include CAD, 3D-modeling, and photo editing software. Skills acquired will be built upon in later courses.

Prerequisite: THEA 2150 or by permission of instructor.

THEA2790 - Stage Management

Credits: 3

Study of the essential elements of supervising theatrical productions. Stresses the art of organizing auditions, casts, crews, rehearsals, and performances while developing a unique professional relationship with directors, designers and actors. Students will work on a live production.

Prerequisite: THEA 1100, THEA 1200, THEA 2220.

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

THEA2990 - Period Style for Theatre I

Credits: 3

First semester of a one-year survey. Studies antiquity to the Renaissance with an overview of the architecture, décor, clothing, arts and culture as related in their use and understanding of Western drama. The social, economic, and political histories of each period will be discussed as well. THEA 2990 and THEA 2995 should be taken in sequence.

THEA2995 - Period Style for Theatre II

Credits: 3

Second semester of a one-year survey. Studies Renaissance to Contemporary with an overview of the architecture, decor, clothing, arts and culture as related in their use and understanding of Western drama. The social, economic, and political histories of each period will be discussed as well. THEA 2990 and 2995 should be taken in sequence.

Prerequisite: THEA 2990 or permission of instructor.

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3805 - Stage Lighting 2

Credits: 3

Max Credit 3

Analyze proposed productions in terms of period, style, theatre limitations and instrument inventories. Determine appropriate design solutions in written descriptive analyses that result in 2-D drawings of the design. Produce all supporting paperwork including drafting a plan view, section view, instrument schedules, magic sheets and proposed cue lists. Instructor permission required.

Prerequisite: THEA 2800

THEA3810 - Scene Design I

Credits: 3

An in-depth study of idea development from script analysis through design conception using different types of theaters and source material. The design process will cover research, drawing, drafting, model making, and rendering.

Prerequisite: THEA 2150 and THEA 2220 or by permission of instructor.

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

THEA3850 - Design and Technology Seminar

Credits: 2

Introduces designer/technician to process of preparing successful interview material, including a professionally developed portfolio. Exposes designer/technician to business aspects of the theatre world, including resumes, letters of inquiry and application, contracts, unions and professional organizations, internships, apprenticeships, URTAs and professional design/technical training programs. Culminates in junior End-of-the-Year Evaluations.

Prerequisite: junior standing in the BFA Program with Design/Technical emphasis.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD

Former Course Number [591]

Prerequisite: junior standing.

THEA4810 - Scene Design II

Credits: 3

Building on previous coursework, this course will focus on further development of the individual creative and design processes, honing research and presentation skills, and refinement of artistry and craftsmanship. Strong emphasis will be on the presentation of ideas and the advancement of the portfolio.

Prerequisite: THEA 2250 and THEA 3810.

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4850 - Stage Costuming II

Credits: 3

Explores costume design, emphasizing various rendering techniques. Emphasis is placed on the portfolio.

Prerequisite: THEA 3820.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

THEA4940 - Theatre History II

Credits: 3

Second semester of a one-year series. Continues THEA 4930.

Prerequisite: THEA 4930.

Foreign Language Credits: 8

A&S Global Credits: 3

A&S Diversity Credits: 3

Recommended Electives:

THEA2145 - Costume Construction

Credits: 3

Teaches the basic skills and terminology that are used in costume construction. Teaches hand and machine sewing focusing on techniques used to stitch historical and modern costumes as well as basic knowledge of fabric.

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

THEA2810 - Scenic Painting for the Theatre

Credits: 3

Introduces the art of scenic painting by the hands-on use and instruction of a variety of scenic paints, application on select construction materials, the use of unique tools and techniques commonly used to paint scenery for the stage. Safe use and proper handling of such material are addressed.

Prerequisite: THEA 2220.

THEA2900 - Sound Design for Theatre and Dance

Credits: 3

Examines the basic aspects of sound design for the theatre, dance, entertainment and film worlds. Topics covered include recording, sampling, live mixing, playback, and non-linear editing through several software packages.

Prerequisite: THEA 2220.

ART2010 - Art History I

Credits: 3

First semester of a one-year survey. Studies ancient, medieval, renaissance and modern art with special reference to various social, economic and historic factors which motivated and conditioned the aesthetic forms. Includes ancient, medieval and early renaissance periods. ART 2010 and ART 2020 are required of all art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

ART2020 - Art History II

Credits: 3

Second semester of a one-year survey. Studies European/American Art from the Renaissance through Contemporary with special emphasis and historical factors which motivated and conditioned the aesthetic forms. Covers Renaissance, Baroque, Rococo, 18th Century, 19th Century, Early Modernism and Contemporary Art. ART 2010 and 2020 are required of art majors and should be taken in sequence.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Theatre and Dance, Musical Theatre Performance Concentration, B.F.A.

The BFA in Musical Theatre Performance permits a total of 60-70 credits in the major. It is designed primarily for those desiring to pursue additional pre-professional training in theatre and or for those preparing to enter MFA graduate programs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on

developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

The following are the required courses for a Bachelor of Fine Arts in Performance (Musical Theatre):

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA1300 - Musical Theatre Workshop: Voice and Acting

Credits: 2

Max Credit (Max. 8)

Musical Theatre Workshop: Voice & Acting will focus on developing and strengthening the speaking and singing voice for stage, wherein students will construct performances through integration of breath and voice work.

THEA1360 - Fundamentals of Music for Theatre Majors

Credits: 3

Basics of music theory to include music notation, rhythm, pitch, scales, key signatures, triads, and basic ear training and keyboard skills, specific to the needs of Musical Theatre. Assumes little or no music theory background.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2160 - Stage Makeup

Credits: 2

Introduction to theatrical makeup with the stage performer in mind. Focus on principles, materials, and techniques; concentrating on problems of designing and executing specific makeup designs and applications for a wide range of ages, types, and styles.

THEA2170 - Speech for the Actor

Credits: 3

Studies speech techniques, including the International Phonetic Alphabet and Standard American Speech for the Stage. Builds upon the FitzmauriceVoicework technique as well as other voice methodologies.

Prerequisite: THEA 1100 and THEA 1700.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2300 - MT Workshop: Scene Study

Credits: 1

Max Credit 1

Study and analysis of written aspects of Musical Theatre (Book, Lyrics, Music) with an emphasis on translating analysis into tangible aspects of musical theatre performance. Study and practice outside of class, as well as rehearsals with assigned scene partner(s) is required.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1300

THEA2340 - Musical Theatre Voice Lesson

Credits: 1

Max Credit (Max. 8)

Solo instruction in singing techniques and performance styles associated with Musical Theatre. Includes demonstration, brief lecture, discussion, and active participation through singing, analyzing, movement, and performance.

THEA2720 - Movement for Actors I

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100.

THEA2790 - Stage Management

Credits: 3

Study of the essential elements of supervising theatrical productions. Stresses the art of organizing auditions, casts, crews, rehearsals, and performances while developing a unique professional relationship with directors, designers and actors. Students will work on a live production.

Prerequisite: THEA 1100, THEA 1200, THEA 2220.

THEA3300 - MT Workshop: Production

Credits: 1-2
Max Credit 2

Focusing on solos, duets and/or large and small ensemble pieces, instruction will include music preparation, choreography, blocking, acting, character study and performance. Additional scene study, rehearsals outside of class times, mock auditions, and study of materials will be required. The course will be repeated twice for credit.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1300

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3740 - Acting Styles

Credits: 3

Focuses on textual analysis of plays from different periods and styles of dramatic literature. Emphasizes vocal and physical interpretation of character as represented in non-realistic styles of drama.

Prerequisite: THEA 1100 and THEA 3710.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD
Former Course Number [591]

Prerequisite: junior standing.

THEA3950 - Dialects for the Actor

Credits: 3

Introduces the actor to five major dialects for the stage. Examines sensibility, vowel and consonant changes, pitch placement and charting.

Prerequisite: THEA 1100, THEA 1700, and THEA 2170.

THEA4330 - History of American Musical Theatre

Credits: 3

History of the American Musical from its inception to today. Emphasis on developments and literature.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at the 3000-level.

THEA4710 - Acting IV

Credits: 3

Max Credit 3

Involves intensive work at an advanced level dealing with individual actor's problems through the medium of scene study.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 3710

THEA4720 - Auditioning and Professional Issues

Credits: 3

Introduces actors to process of finding, preparing and executing successful audition material, including monologues, songs and dance combinations. Exposes actors to business aspects of the theatre world, including resumes, photos, contracts, unions, internships, apprenticeships, Equity Membership Candidacy programs, URTA's and professional actor training graduate programs. Culminates preparation for final semester auditions for the company/school of choice.

Prerequisite: THEA 1100, THEA 3710 and THEA 3740.

THEA4730 - Movement for Actors II

Credits: 2

This course explores physical awareness, movement integration and non-verbal story telling as essential skills for the actor in all performance efforts.

Prerequisite: THEA 1100 and THEA 2720 .

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

- Foreign Language Credits: 8
- Plus two additional dance courses in an area of choice.

A&S Global Credits: 3

A&S Diversity Credits: 3

Plus 3 Hours From the Following:

THEA1410 - Beginning Ballet I

Credits: 1

Introduces principles and practices of classical ballet technique.

USP 2015 Code U5H

Prerequisite: THEA 1410 or instructor permission.

THEA1430 - Beginning Modern I

Credits: 1

Introduces principles and techniques of modern dance.

USP 2015 Code U5H

THEA1450 - Beginning Tap Dance I

Credits: 1

Explores basic tap techniques and related principles of tap dance composition.

THEA1480 - Beginning Jazz Dance I

Credits: 1

Explores basic jazz dance techniques and related principles of jazz dance composition.

USP 2003-2014 Code H

Theatre and Dance, Theatre/English Concentration, B.F.A.

The BFA in English Theatre permits 60-70 credits in the major field. It is designed primarily for students who seek additional professional education and certification, or for those who wish to enter MFA graduate programs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Courses

These are the required courses for a B.F.A. with Theatre/English Concentration. *Certain substitutions may have to be made and all scheduling of classes should be discussed with an adviser.*

THEA1040 - Production Crew I

Credits: 0.5
Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual

production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2100 - Acting II

Credits: 3

Max Credit 3

Acting II builds on previous experience in acting with continued emphasis on analyzing, rehearsing and performing scenes, creating a believable stage image. Scene work, including scoring, will be examined with focus on contemporary realism. In addition, the course will focus on professional development and career readiness.

Restricted Theatre & Dance majors, instructor permission

Prerequisite: THEA 1100 OR equivalent

THEA2150 - Drafting for Design

Credits: 3

Introduces Design and Technical students to the basics of hand drafting and numerous drafting techniques and conventions. After completing this course, students will be well prepared for scenic and lighting design courses.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

THEA3710 - Acting III

Credits: 3

Building on concepts explored in Acting II, this course seeks to further develop the student's ability to interpret, create and sustain a well-developed, believable character. Acting III develops the actor's voice and body for characterization and character interaction through performances of scenes as well as the study of character and scene.

Restricted Theatre majors or permission of instructor

Prerequisite: THEA 2100

THEA3740 - Acting Styles

Credits: 3

Focuses on textual analysis of plays from different periods and styles of dramatic literature. Emphasizes vocal and physical interpretation of character as represented in non-realistic styles of drama.

Prerequisite: THEA 1100 and THEA 3710.

THEA3810 - Scene Design I

Credits: 3

An in-depth study of idea development from script analysis through design conception using different types of theaters and source material. The design process will cover research, drawing, drafting, model making, and rendering.

Prerequisite: THEA 2150 and THEA 2220 or by permission of instructor.

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

THEA3910 - 20th Century Theatre Diversity

Credits: 3

Studies plays and production techniques, within the context of historical and sociological events, as developed in the 20th Century that has led to the cultural diversity seen in modern theatre.

A&S College Core 2015 ASD

Former Course Number [591]

Prerequisite: junior standing.

THEA4820 - Directing I

Credits: 3

Tools course. Focuses on basic pictorial and blocking skills of the director. Includes in-class exercises that cover structural and character analysis of play scripts, blocking annotation and prompt scripts, developing ground plans, creating compositions with emphasis, focus and balance, and employing movement as a dynamic tool. Requires two outside directing projects with verbal evaluations of all project work.

Prerequisite: THEA 2010, THEA 2020, THEA 3710, and THEA 3810 or instructor permission.

THEA4830 - Directing II

Credits: 3

Focuses on creative process of developing directorial concepts, establishing the world and style of the play, working with the actor, and functioning as a designer. Includes exercises that analyze different directorial approaches, as well as the audition and casting process. Culminates one-act mounted production performed before invited audience.

Prerequisite: THEA 4820 and written permission of instructor.

THEA4930 - Theatre History I

Credits: 3

First semester of a one-year series. Surveys theatrical and dramatic practices from origins of Western European theatre to the theatre of the avant-garde. Specifically focuses on the climate of ideas and theoreticians, theatrical practitioners and audiences. Offered fall semester.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: THEA 2010, THEA 2020, 6 hours in theatre at 3000-level.

THEA4940 - Theatre History II

Credits: 3

Second semester of a one-year series. Continues THEA 4930.

Prerequisite: THEA 4930.

- ENGL 2000 Credits 6
 - ENGL 4000 Credits: 9
 - ENGL 4110 Credits: 3
- OR**
- ENGL 4120 Credits: 3
 - Foreign Language Credits: 8
 - A&S Global Credits: 3
 - A&S Diversity Credits: 3

Minor

Dance Minor

Required Courses

THEA1021 - Academic and Professional Issues in Dance

Credits: 1

Introduces freshman to the discipline of dance and academic study at the University of Wyoming. Key intellectual and literacy concepts will be introduced, including, but not limited to: critical thinking and analysis, knowledge of the discipline, career options, diversity of the discipline, university and region.

USP 2003-2014 Code U3I,U3L

THEA1040 - Production Crew I

Credits: 0.5

Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA2200 - Backgrounds of Dance

Credits: 3

Surveys ethnic and theatrical dance forms from primal society to 20th century. Examines the place of the arts as a reflection of the culture.

USP 2003-2014 Code U3CA,U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

THEA4250 - Beginning Dance Composition

Credits: 2

Presents and criticizes movement studies based on various approaches to composition. Explores experimentation in choreography.

Prerequisite: THEA 2420, THEA 2440.

Ballet Technique: 5-6 Credit Hours

Four (4) Consecutive Classes in Ballet Technique.* Choose From:

THEA1410 - Beginning Ballet I

Credits: 1

Introduces principles and practices of classical ballet technique.

USP 2015 Code U5H

Prerequisite: THEA 1410 or instructor permission.

THEA1420 - Beginning Ballet II

Credits: 1

Continues studies in classical ballet technique. Instructor permission required.

USP 2015 Code U5H

Prerequisite: THEA 1410.

THEA2410 - Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester ballet technique class for dance majors and minors. This course focuses on expanding the dancer's understanding and knowledge of technique, vocabulary, and principles of classical ballet.

USP 2015 Code U5H

Prerequisite: Admission by permission only.

THEA2430 - Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA3410 - Adv/Intermediate Ballet I

Credits: 1.5

Max Credit (Max. 3)

A second year, first semester ballet technique class for dance majors and minors. Emphasis is placed on improving technical skills and learning more advanced steps. Includes research into one discipline of ballet.

Prerequisite: successful completion of THEA 2440 and admission by permission only. Limited to dance majors and minors.

THEA3420 - Adv/Intermediate Ballet II

Credits: 1.5

Max Credit (Max. 3).

Second semester, second year ballet technique class for dance majors and minors. Emphasizes broadening the dancer's movement vocabulary while refining acquired technical skills. Dancers begin work in study of Baroque dance terms.

Prerequisite: successful completion of THEA 3410 or equivalent required. Limited to dance majors and minors; admission by permission only.

THEA4010 - Advanced Ballet

Credits: 1-3

Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

Modern Technique: 5-6 Credit Hours

Four (4) Consecutive Classes in Modern Technique.* Choose from:

THEA1430 - Beginning Modern I

Credits: 1

Introduces principles and techniques of modern dance.

USP 2015 Code U5H

THEA1440 - Beginning Modern II

Credits: 1

Continues studies in modern dance techniques.

USP 2015 Code U5H

Prerequisite: Prerequisite THEA 1430 or instructor permission.

THEA2430 - Intermediate Modern I

Credits: 1.5

Max Credit (Max. 3)

A first year, first semester, modern dance technique class for dance majors and minors. Knowledge of basic vocabulary and principles will be augmented with an understanding of historical techniques and their application to contemporary dance. Class meets three times per week.

USP 2015 Code U5H

Prerequisite: Limited to dance majors and minors; admission by permission only.

THEA2440 - Intermediate Modern II

Credits: 1.5

Max Credit (Max. 3)

A first year, second semester modern dance technique class for dance majors and minors. Mastering vocabulary and principles will be augmented with a deeper understanding of historical techniques and their application to contemporary dance.

USP 2015 Code U5H

Prerequisite: THEA 2430. Limited to dance majors and minors; admission by permission only.

THEA3430 - Adv/Intermediate Modern I

Credits: 1.5
Max Credit (Max. 3)

A second year, first semester, intermediate level modern dance technique class for dance majors and minors. Continued training in classical modern dance and continued historical survey of modern dance will be augmented by rhythmic analysis and compositional forms.

Prerequisite: successful completion of THEA 2440 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA3440 - Adv/Intermediate Modern II

Credits: 1

A second year, second semester, modern dance technique class with continuing studies of sequential modern dance technique at the intermediate level, introduction of Laban effort/shape theory, compositional forms, improvisation and additional rhythmic analysis.

Prerequisite: THEA 3430 or its equivalent. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3
Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

Jazz or a Mix of Jazz and Tap Class: 2 Credit Hours

Two (2) Consecutive Classes in Jazz or a Mix of Jazz and Tap Classes.* Choose from: 2

THEA1450 - Beginning Tap Dance I

Credits: 1
Explores basic tap techniques and related principles of tap dance composition.

THEA1480 - Beginning Jazz Dance I

Credits: 1
Explores basic jazz dance techniques and related principles of jazz dance composition.

USP 2003-2014 Code H

THEA2450 - Intermediate Tap I

Credits: 1

Continued studies in techniques and principles of tap dance and tap dance composition.

Prerequisite: THEA 1450.

THEA2480 - Intermediate Jazz I

Credits: 1

Continued studies in techniques and principles of jazz dance and jazz dance composition.

USP 2015 Code U5H

Prerequisite: THEA 1480. Instructor permission required.

THEA3480 - Adv/Intermediate Jazz I

Credits: 1

Max Credit (Max. 2)

An intermediate jazz technique class. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation and incorporate them into class compositions.

Prerequisite: THEA 2480.

THEA3490 - Advanced Jazz I

Credits: 1

Max Credit (Max. 2)

An advanced class in jazz technique and performance. Students will learn varying styles of jazz dance, ranging from historical to contemporary, and will perform these for evaluation as well as incorporate them into class compositions.

Prerequisite: THEA 3480.

Elective at 3000-4000 level: 2-3 Credit Hours

Suggested:

THEA4010 - Advanced Ballet

Credits: 1-3

Max Credit (Max. 8)

A continuing course in the principles and techniques of classical ballet. Emphasis is placed on continuing to broaden the dancer's movement vocabulary while refining acquired technical skills.

Prerequisite: THEA 3420. Limited to dance majors and minors; admission by permission only.

THEA4030 - Advanced Modern Dance

Credits: 1-3
Max Credit (Max. 8)

This class will develop a professional dancer capable of working within diverse modern dance styles and techniques through the interweaving of classical and contemporary movement modalities along with an experiential anatomy approach.

Prerequisite: THEA 3440. Limited to dance majors and minors; admission by permission only.

THEA4001 - Historical Dance

Credits: 2
Max Credit (Max. 2)

Historical dance forms in the "Noble Style" dating from the 15th through 18th Centuries. Class work covers the relationship of musical forms to the specific step vocabulary and dances of each period, deportment, period costume as it relates to movement, social environment, period style with an emphasis on reconstruction of 17th and 18th Century dances from Feuillet notation.

Prerequisite: THEA 3440.
OR

THEA4200 - 20th Century Dance

Credits: 3
Intensely studies dance in 20th Century, emphasizing contemporary movement in modern, ballet, jazz and musical theatre dance. Examines social, political and aesthetic trends influencing dance theory and performance.

USP 2003-2014 Code U3CA,U3WC
USP 2015 Code U5C3
Prerequisite: THEA 2200.

Minor Total 17.5-22.5

Theatre Minor

Required Courses

*THEA 2150 is a prerequisite for THEA 3810

THEA1040 - Production Crew I

Credits: 0.5
Participation in one Departmental production during semester enrolled. Contribute to the preparation and/ or actual

production of one stage play in the areas(s) of lighting, costume construction, set construction, scenic painting, stage properties, or arts management. Required for all Theatre & Dance freshmen.

Prerequisite: consent of instructor.

THEA1100 - Acting I

Credits: 3

Acting I introduces students to the study of the actor's process with an emphasis on analyzing, rehearsing and performing scenes in front of an audience. The student will be introduced to exercises which promote creative expression. Scene work and scoring will focus on contemporary realism.

USP 2003-2014 Code U3CA

USP 2015 Code U5H

Restricted Theater majors or permission of instructor

THEA1200 - Introduction to Design

Credits: 3

Introduces and explores visual aesthetic principles as they relate to various aspects of stage design. Studio projects in scene, lighting, and costume design supplement lectures. Prerequisite for other design courses.

THEA2010 - Theatrical Backgrounds Drama I

Credits: 3

First semester of a two-course series. Introduces dramatic literature through the ages.

THEA2020 - Theatrical Backgrounds Drama II

Credits: 3

Second semester of a one-year course. Continues THEA 2010.

Prerequisite: THEA 2010.

THEA2040 - Production Crew II

Credits: 0.5

Continues the "hands-on" production crew experience provided by Production Crew I. Contribute to a Theatre Department production in the area(s) of lighting, costume construction, set construction, scenic painting, stage properties, stage management, or arts management. Required for all Theatre & Dance majors.

Prerequisite: THEA 1040.

THEA2220 - Stagecraft

Credits: 3

Introduces students to basic stage production practices and techniques, including safe rigging practices, set

construction, scenic painting, stage properties, and stage lighting. Students are encouraged to participate in "hands-on" demonstrations during classes.

THEA2800 - Stage Lighting I

Credits: 3

Examines the elemental aspects of stage lighting including equipment, facilities, color, and fundamental electricity. Requires studio work on departmental productions. Intended for majors in the program.

Former Course Number [3800]

Prerequisite: THEA 2150 and THEA 2220.

OR

THEA3810 - Scene Design I

Credits: 3

An in-depth study of idea development from script analysis through design conception using different types of theaters and source material. The design process will cover research, drawing, drafting, model making, and rendering.

Prerequisite: THEA 2150 and THEA 2220 or by permission of instructor.

OR

THEA3820 - Stage Costuming I

Credits: 3

A study of basic drawing and rendering skills, and a selective study of historical silhouettes. Objectives include the ability to trust instinct, application of the basic elements of design, applying historical reference and research to a specific character, developing a concept and finally the application of these principles to a final project.

Former Course Number [4840]

Prerequisite: THEA 1100.

- Plus 3 hours of electives in Theatre and Dance (must be 4000 level or above)

Department of Zoology and Physiology

114 Aven Nelson

(307) 766-4207

Web site: www.uwyo.edu/Zoology

Department Head: Robert S. Seville

Professors:

MERAV BEN-DAVID, B.S. Tel Aviv University 1984; M.S. 1988; Ph.D. University of Alaska 1996; Professor of Zoology and Physiology 2010, 2000.

CRAIG W. BENKMAN, B.A. University of California at Berkeley 1978; M.S. Northern Arizona State University 1981; Ph.D. State University of New York at Albany 1985; Robert Berry Professor of Ecology, Professor of Zoology and Physiology 2004.

MICHAEL E. DILLON, B.S. University of Texas, Austin 1998; Ph.D. University of Washington 2005; Professor of Zoology and Physiology 2021, 2009.

JACOB R. GOHEEN, B.S. Kansas State University 1998; M.S. Purdue University 2002; Ph.D. University of New Mexico 2006; Professor of Zoology and Physiology 2020, 2010.

MATTHEW J. KAUFFMAN, B.A. University of Oregon 1992; Ph.D. University of California, Santa Cruz 2003; Professor of Zoology and Physiology 2021, 2006.

JONATHAN F. PRATHER, B.S. University of Virginia 1995; Ph.D. Emory University 2001; Associate Professor of Zoology and Physiology 2021, 2009.

FRANK J. RAHEL, B.A. Kenyon College 1974; M.S. University of Wisconsin 1977; Ph.D. 1982; Professor of Zoology and Physiology 1998, 1985.

ROBERT S. SEVILLE, B.S. San Diego State University 1981; M.S. University of Wyoming 1987; Ph.D. 1992; Professor of Zoology and Physiology 2011, 1995.

QIAN-QUAN SUN, B.Sc. Shandong Normal University 1990; M.S. 1993; Ph.D. St. Andrews University 1998; Professor of Zoology and Physiology 2016, 2004.

Associate Professors:

MATTHEW D. CARLING, B.S. University of Michigan 1997; M.S. University of Idaho 2002; Ph.D. Louisiana State University 2008; Associate Professor of Zoology and Physiology 2017, 2011.

ANNA D. CHALFOUN, B.A. Smith College 1995; M.S. University of Missouri-Columbia 2000; Ph.D. University of Montana-Missoula 2006; Associate Professor of Zoology and Physiology 2016, 2011.

BRIAN D. CHERRINGTON, B.A. Washington University 1996; M.S. Colorado State University 2001; Ph.D. 2005; Associate Professor of Zoology and Physiology 2017, 2011.

AMY C. KRIST, B.A. State University of New York at Potsdam 1991; Ph.D. Indiana University 1998; Associate Professor of Zoology and Physiology 2017, 2004.

AMY M. NAVRATIL, B.S. Colorado State University 1999; Ph.D. 2005; Associate Professor of Zoology and Physiology 2019, 2011.

KARA PRATT, B.A.S. University of Delaware 1989; Ph.D. Brandeis University 2004; Associate Professor of Zoology and Physiology 2017, 2011.

ANNIKA W. WALTERS, B.A. Princeton University 2002; M.S. Yale University 2006; Ph.D. 2009; Associate Professor of Zoology and Physiology 2019, 2011.

Assistant Professors:

NICOLE L. BEDFORD, B.S. University of British Columbia 2010; Ph.D Harvard University 2019; Assistant Professor of Zoology and Physiology 2021.

RILEY FEHR BERNARD, B.Sc. Linfield College 2007; M.Sc. University of Hawaii Hilo 2011; Ph.D. University of Tennessee 2015; Assistant Professor of Zoology and Physiology, 2020.

SARAH M. COLLINS, B.A. Lewis & Clark College 2007; Ph.D. Cornell University 2015; Assistant Professor of Zoology and Physiology 2018.

FETZER, WILLIAM WARREN, B.S. University of Wisconsin-Madison 2005; M.S. Cornell University 2009; Ph.D. 2013. Assistant Professor of Zoology and Physiology 2020.

YUN LI, B.S. University of Science and Technology of China 1996; M.S. 1998; Ph.D. University of Texas Health Center at San Antonio 2003; Assistant Professor of Zoology and Physiology 2018.

JEROD A. MERKLE, B.S. University of Arizona 2006; M.S. University of Montana 2011; Ph.D. Université Laval 2014; Assistant Professor of Zoology and Physiology 2018.

ADAM C. NELSON, B.S. University of Montana 2001; Ph.D. University of Utah 2011; Assistant Professor of Zoology and Physiology 2021.

COREY E. TARWATER, B.S. University of California, Davis 1999; M.S. University of Illinois, Urbana-Champaign 2006; Ph.D. 2010; Assistant Professor of Zoology and Physiology 2015.

W.D. (TREY) TODD, B.S. Baylor University 2005; M.A. University of Iowa 2009; Ph.D. 2012; Assistant Professor of Zoology and Physiology 2019.

Assistant Professor of Practice:

BETHANN G. MERKLE, B.A. University of Montana 2007; M.F.A. University of Wyoming 2017; Assistant Professor of Practice 2021.

Senior Academic Professional Research Scientist:

ZHAOJIE ZHANG, B.S. Shandong University 1985; M.S. 1988; Ph.D. University of Oklahoma 1999; Director, Microscopy Core Facility, University of Wyoming 2001; Senior Research Scientist in Zoology and Physiology 2012.

Assistant Academic Professional Research Scientist:

JONATHAN PATRICK KELLEY, A.B. Harvard 2001; Ph.D. University of California, Davis 2012; Assistant Research Scientist in Zoology and Physiology 2018.

Professors Emeritus:

Harold L. Bergman, Steven W. Buskirk, Francis W. Flynn, Zoltan M. Fuzessery, Robert P. George, William A. Gern, Robert O. Hall, Henry J. Harlow, Wayne A. Hubert, Robert M. Kitchin, J.A. Lillegraven, Frederick G. Lindzey, James R. Lovvorn, Carlos Martinez del Rio, David B. McDonald, Graham Mitchell, James D. Rose, Joan Smith-Sonneborn

Academic Professional Lecturer Emeritus:

Jane Beiswenger

Wyoming Cooperative Fish and Wildlife Research Unit Unit:

Wyoming Cooperative Fish and Wildlife Research Unit Unit Leader: Matthew W. Kauffman

Assistant Unit Leader for Fisheries: Annika W. Walters

Assistant Unit Leader for Wildlife: Anna D. Chalfoun

Department of Zoology and Physiology

The Department of Zoology and Physiology offers a variety of courses in the biological sciences that encompass many aspects of animal form, function, and biology. Whether you are interested in the intricacies of cell biology or the complexities of ecosystem functioning and whether you want to become a wildlife biologist or a physician, we offer a major that will suit your needs.

Undergraduate Degrees:

Students can choose from three undergraduate degrees: physiology, wildlife and fisheries biology and management, or zoology.

Learning Outcomes for Undergraduates

The learning outcomes that direct the teaching of the department's degrees and which we expect our graduates to have acquired are:

- Competence in basic sciences;
- Competence in the content of the specific courses that constitute the principal knowledge of the degree;
- Ability to comprehend, analyze, and interpret biological data where appropriate; and
- Ability to synthesize information from the biological literature, and communicate it effectively in writing or orally.

Undergraduate Minors:

Minors in human and animal physiology, wildlife fisheries biology management, neuroscience, and zoology are offered.

Graduate Study

The Department of Zoology and Physiology offers programs leading to the master of science and the doctor of philosophy in zoology and physiology. We also participate in graduate programs through the Neuroscience Program and the Program in Ecology.

Program Specific Admission Requirements

Admission is open to all students who meet the minimum requirements set forth in the admissions section of this *Catalog*.

Research and teaching assistantships are available for graduate students working toward the M.S. or Ph.D. degrees. Applicants can apply for this financial assistance at the time they apply for admission to graduate standing. Applications must be completed by February 15 in order to be considered for the following academic year.

Information on how to apply to the graduate program in the Department of Zoology and Physiology is detailed on our web site. Begin by identifying a faculty member in our department whose research interests are similar to yours. We will only consider an application if a faculty member has indicated a willingness to serve as the student's adviser. After finding a potential adviser, e-mail a completed departmental application form, a copy of your curriculum vitae, copies of college transcripts, and recommendation letters to him or her. Our graduate admissions committee will review all applications and make decisions on admission based on the availability of funding and a commitment from a faculty member to serve as the adviser. Students recommended for admission will then be asked to fill out an application to the University of Wyoming and pay a non-refundable application fee.

Consult the website, www.uwyo.edu/zoology, to find out about faculty research.

Learning Outcomes for M.S. Students

1. Comprehend and synthesize advanced knowledge in a specific area of biology.
2. Collect and analyze data to address a research question.
3. Summarize research findings and communicate them effectively in writing and orally.

Learning Outcomes for Doctoral Students

1. Comprehend and synthesize advanced knowledge in a specific area of biology.
2. Develop a research project which constitutes a substantial and original contribution to the field of study.
3. Summarize research findings and communicate them effectively in writing and orally.

Major

Physiology, B.S.

Physiology is the science of how the body functions in health and disease. A degree in physiology provides excellent preparation for careers or graduate study in the health professions and biomedical research or related disciplines.

Additional Information

Physiology is the study of how animals work: how they breathe, feed, interact with their environment, and carry out many other activities and functions. Physiology is the knowledge that the health sciences are built on and so is especially important for students who may be thinking of becoming medical practitioners, veterinarians or health care professionals.

All courses in the major must be completed with a grade of "C" or better.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

A&S College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Foundation Courses:

(MATH 1450 may substituted for MATH 1400 and MATH 1405)

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces

associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics

and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

OR

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Two Additional CHEM Courses:

*MOLB 3610 may be used as a CHEM elective, but cannot also count as a PHSO Core Elective.

*CHEM 3550 may be used as a CHEM elective, but cannot also count as a PHSO Core Elective

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM3020 - Environmental Chemistry

Credits: 3

Environment and modern environmental problems in terms of chemical structures and reactions. Chemical principles of equilibrium, kinetics, and thermodynamics are used to help understand our changing environment. Topics include toxicological chemistry, aquatic chemistry, atmospheric chemistry, and green chemistry.

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 2230; and QA course.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

Physiology Core Required Courses

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data.

Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Physiology Core Electives

A minimum of 10 of the 18 Physiology Core Elective credits must be exclusive to the PHSO major.

At the end of this program students will have a thorough knowledge of physiology, will be well prepared to enter health sciences or graduate education, and will have a range of skills attractive to employers.

Choose a Total of 18 Credits From:

**cannot count towards PHSO electives if used as a CHEM requirement in the Foundational Courses

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4260 - Mammalian Endocrinology

Credits: 3

Introduces principles of endocrinology, role of endocrine systems in regulating metabolism, growth, reproduction and lactation in mammals.

Dual Listed ANSC 5260.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010, ZOO 3115, or equivalent.

ANTH4210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 5210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular, circulatory, and

respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3038 - Exercise Psychology

Credits: 3

Studies psychological theories for understanding and predicting health-oriented exercise behavior, including psychological intentions for increasing exercise participation and adherence. Emphasizes psychological and psychobiological responses to exercise.

Prerequisite: grade of C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; 2.750 GPA.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

KIN4042 - Advanced Biomechanics

Credits: 3

Provides understanding of biomechanical theories and the application of biomechanical measurements to human movement in sports, training, and rehabilitation. Emphasis on using equipment to collect biomechanical data to answer research and clinical questions. Lecture and data collection topics include electromyography, force, balance, kinematics, and kinetics.

Prerequisite: C or better in KIN 3042, minimum 2.750 GPA.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MICR4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed PATB 4001.

Dual Listed MICR 5001.

Prerequisite: STAT 2050.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

NEUR4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 4295.

Dual Listed NEUR 5295.

Prerequisite: ZOO 4280.

NEUR5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed ZOO 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 5295.

Dual Listed NEUR 4295.

NEUR5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms will be covered in addition to the basic neurophysiology of nerve cells.

Cross Listed ZOO 5685.

Prerequisite: one course in physiology, chemistry, physics.

NEUR5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

PATB4001 - Epidemiology (Diseases in Population)

Credits: 3

Basic epidemiologic concepts and approaches to population problems in medicine, with examples from veterinary and human health. Covers a wide spectrum of topics and introduces practical applications of epidemiology.

Cross Listed MICR 4001

Dual Listed PATB 5001

Prerequisite: STAT 2050 or STAT 2070

PATB4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed MICR 4130

Dual Listed PATB 5130

When Offered (Normally offered spring semester)

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

PATB4140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action and their effects on various organisms including man

and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 5140

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: 9 hours of biological science (e.g., physiology), 4 hours chemistry, 3 hours biochemistry.

PATB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed MOLB 4400

Dual Listed PATB 5400

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PSYC3250 - Health Psychology

Credits: 3

Provides overview of growing partnership between psychology and health care, including history of psychology in

health care; theoretical foundations of health and illness; intervention and research techniques; stress and high risk behaviors (e. g. , substance abuse, eating behaviors, AIDS); psychology's contribution to improving outcomes and quality of life in chronic and life-threatening behaviors.

Cross Listed NURS 3250.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

PSYC4080 - Physiological Psychology

Credits: 4

Examines physiological mechanisms of behavior, strongly emphasizing neural and hormonal processes. Includes fundamentals of neuroanatomy and evolution of the nervous system, basic neurophysiology, sensory and motor processes, as well as the physiology of emotion, motivation, learning and memory. Lecture three hours per week. Laboratory two hours per week.

USP 2003-2014 Code U3SB

Prerequisite: A grade of C or better in 6 hours of psychology and LIFE 1000, LIFE 1003, or LIFE 1010 or an introductory zoology course.

PSYC4250 - Psychological Aspects of Chronic Illness

Credits: 3

Investigates the impact of chronic physical illnesses on diagnosed children and adults, their families, and society. Emphasizes effects of illnesses on psychological adaptation and quality of life. Should be of particular interest to helping professionals and health care workers.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 3250.

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

SOC4160 - Sociology of Aging

Credits: 3

The process of aging from the individual to the societal level is the focus of the course. Consequences of this process such as the increase in the number of elderly, retirement and health are examined from the major social institutions, the relationships between these institutions and American society as a whole.

Dual Listed SOC 5160.

Former Course Number [4150]

Prerequisite: 6 hours of sociology (including SOC 1000) and at least junior standing.

ZOO3010 - Vertebrate Anatomy, Embryology, and Histology

Credits: 4

Provides a comprehensive overview of vertebrate anatomy. The structural organization, embryological derivation, and histological organization of the major organ systems will be emphasized. The evolution and functional organization of anatomical structure will also be emphasized. Includes laboratory sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: LIFE 2022 or equivalent, and a semester of chemistry.

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

- ZOO 4670

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed NEUR 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

ZOO5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms are covered in addition to the basic neurophysiology of nerve cells. The laboratory complements the lecture sequence.

Cross Listed NEUR 5685.

Prerequisite: one course in physiology, chemistry, physics.

SPPA3265 - Anatomy and Physiology of Speech, Swallowing and Hearing

Credits: 4

Introduces the student to the anatomy of the normal speech and hearing systems as well as the physiologic underpinnings of the speech (respiration, phonation, articulation), swallowing, and hearing (external, middle, and inner ear) systems. Theories of speech production and speech perception are presented.

Former Course Number [3400]

Prerequisite: KIN 2040 or consent of instructor.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

Wildlife and Fisheries Biology and Management, B.S.

Provides a solid foundation in the theory and techniques involved in the management, conservation, and captive propagation of wildlife and fish populations. Includes both classroom and field experiences in a Rocky Mountain setting.

Additional Information

Wildlife and Fisheries Biology and Management is a professional degree designed to prepare students for state, federal, and other positions in resource management and conservation biology. The degree provides students with knowledge of the natural world, understanding of processes governing dynamics of wildlife and fish populations, as well as an appreciation of human-mediated effects on wildlife and fish populations. A student graduating with this degree will be familiar with the theory of resource management as well as with methods used to determine population status, habitat quality, and conservation. In Wyoming the abundance of wild animals and pristine habitats provide a unique natural laboratory for studying the responses of wildlife and fish populations to changing climates and habitats.

A student graduating with a degree in WFBM will have comprehensive knowledge of wildlife and fisheries biology and management, will have earned a degree that is compatible with the requirements for professional certification with the American Fisheries Society or the Wildlife Society, and will have a range of knowledge and skills that are valuable to potential employers.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on

developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3

A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3

A&S Core: Global Awareness Course

Foundation Courses

(MATH 1450 may substitute for MATH 1400 and MATH 1405)

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

OR

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

OR

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

Data Science course

Choose ONE course from the following:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1100 - Computer Science Principles and Practice

Credits: 3

Introduces use of computers for algorithmic problem solving. Studies scope, major contributions, tools and current status of computer science. Presentation of computer science principles; use of software packages and evaluation of their effectiveness; and elementary programming.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: C or better in MATH 1400 or in any University Studies QB or Level 4 or higher on Mathematics Placement Exam.

COSC1200 - Computer Information Systems

Credits: 3

Introduces computers and information processing, computer systems and hardware, computer software, information processing systems, information systems and information resource management. Uses word processing, data base language and electronic spreadsheet program in hands-on exercises.

Prerequisite: passing of Mathematics Placement Examination at Level 2 or equivalent.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application or remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

Core Required Courses

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4970 - Internship in Wildlife Management

Credits: 1

Max Credit (Max. 1)

Provides practical field experience in resource management for undergraduate credit.

Prerequisite: consent of instructor.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Options

Complete Terrestrial OR Aquatic Option

Aquatic Option

A minimum of 10 of the AQUATIC OPTION requirements listed below (ZOO 4330 and ZOO 4440 and ZOO 4430 and Restricted Electives) must be exclusive to the WFBM major.

REQUIRED COURSES

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

Restricted Electives

15 Credits of Electives from the following list:

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

- BOT 0000:5999
- ENR 0000:5999
- REWM 0000:5999

Terrestrial Option

A minimum of 10 of the TERRESTRIAL OPTION requirements listed below (BOT 4700 and ZOO 4300 and Restricted Electives) must be exclusive to the WFBM major.

REQUIRED COURSES

BOT4700 - Vegetation Ecology

Credits: 4

Reviews the ecology of major vegetation types, emphasizing patterns of vegetation distribution, vegetation-environment relationships, succession, the effect of fire and management decisions, and methods of vegetation analysis.

Dual Listed BOT 5700.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

Restricted Electives

14 Credits of Electives from the following list:

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)
Prerequisite: CHEM 1030, CHEM 1060 or equivalent.

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.
Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).
Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

- BOT 0000:5999
- ENR 0000:5999
- REWM 0000:5999

Zoology, B.S.

Zoology majors explore form, function, behavior, ecology, evolution and conservation of animals and hone analytical, writing, and research skills for diverse careers from graduate school to state and federal agencies, consulting, and nonprofits.

Additional Information

Zoology is the study of animals: their structure, physiology, development and evolution. One of the enduring fascinations of zoology is that we can learn so much about ourselves and our environment by studying what our fellow creatures do.

At the end of this program students will have a comprehensive knowledge of zoology, will be well prepared for graduate education, and will be equipped to enter any of the many employment opportunities that are available.

University Studies Program

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

A&S College Core

D- - Diversity

Credits: 3
A&S Course: Diversity in the United States

G- - Global Awareness

Credits: 3
A&S Core: Global Awareness Course

Foundation Courses

(MATH 1450 may substitute for MATH 1400 and MATH 1405)

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2230 - Quantitative Analysis

Credits: 5

Broad, general coverage of analytical techniques, principles and calculations.

Lab/Lecture Hours Laboratory: 6 hours per week.

When Offered (Normally offered spring semester)
Prerequisite: CHEM 1030, CHEM 1060 or equivalent.
OR

CHEM2300 - Introductory Organic Chemistry

Credits: 4
Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)
Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.
OR

CHEM2420 - Organic Chemistry I

Credits: 4
First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.
When Offered (Normally offered fall)
Prerequisite: CHEM 1030 or CHEM 1060.
OR

CHEM2440 - Organic Chemistry II

Credits: 4
Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.
When Offered (Normally offered spring semester)
A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.
Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.
OR

CHEM3020 - Environmental Chemistry

Credits: 3
Environment and modern environmental problems in terms of chemical structures and reactions. Chemical principles of equilibrium, kinetics, and thermodynamics are used to help understand our changing environment. Topics include toxicological chemistry, aquatic chemistry, atmospheric chemistry, and green chemistry.

Prerequisite: CHEM 2300 or CHEM 2420; CHEM 2230; and QA course.
OR

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

OR

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

OR

CHEM4230 - Instrumental Methods of Chemical Analysis

Credits: 5

Introduces optical, electroanalytical and separation methods of analysis, emphasizing practical industrial applications.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 2230.

OR

CHEM4400 - Biological Chemistry

Credits: 3

Covers the main principles of biological chemistry from a chemical standpoint. Highlights the chemical structure of biological molecules and examines biological processes with emphasis on the underlying organic chemistry. Introduces biological NMR spectroscopy and other biophysical methods. Discusses main metabolic pathways.

Dual Listed CHEM 5400.

Prerequisite: CHEM 2440 or consent of instructor

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied.

Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

PHYS1120 - General Physics II

Credits: 4

Follows PHYS 1110 and completes introduction to physics without calculus. Includes electricity, magnetism, optics and modern physics. Laboratory sessions illustrate principles studied. Students receiving credit in PHYS 1120 cannot receive credit in PHYS 1050, PHYS 1220 or PHYS 1320.

When Offered (Normally offered spring and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: P HYS 1110.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

ZOO4101 - Scientific Communication Lab

Credits: 1

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4101.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Advanced Zoology Course

* if more than one of the required courses is completed, additional courses can count towards the Zoology Approved Core Electives below.

One of:

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

Zoology Approved Core Electives

A minimum of 10 of 18 Zoology Approved Core Electives must be exclusive to the ZOOL major.

Choose a total of 18 credits from:

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4430 - Limnology Laboratory

Credits: 2

Utilizes basic field techniques in limnology. Emphasizes analysis and interpretation of data obtained from field and laboratory exercises.

When Offered (Offered fall semester)

Prerequisite: concurrent enrollment in ZOO 4440.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ANSC3010 - Comparative Anatomy and Physiology of Domestic Animals

Credits: 4

Teaches comparative anatomy and physiology of digestion, circulation, production, reproduction and environment of farm animals.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1010 and LIFE 2022, or concurrent registration with LIFE 2022.

ANSC3100 - Principles of Animal Nutrition

Credits: 3

Description of the nutrients, nutrient digestion and absorption, and nutrient function within the body of various domesticated animals.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 2300 or ANSC 2010.

ANSC3150 - Equine Nutrition and Physiology

Credits: 3

Provides general knowledge of nutrition, physiology and biochemistry of exercise and reproductive processes of equine.

When Offered (Normally offered fall semester)

Prerequisite: 4 hours of biology.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.

Dual Listed BOT 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

BOT4664 - Special Topics in Evolution

Credits: 1-4

Max Credit (Max. 6)

Advanced topics in evolutionary biology are engaged by studying primary research and topical synthesis in the current literature.

Dual Listed BOT 5664.

Prerequisite: LIFE 3500 or equivalent.

BOT4790 - Special Topics in Ecology

Credits: 1-3

Acquaints students with various topics not covered in regular courses. Emphasizes recent developments appearing in journal literature.

Dual Listed BOT 5790.

Former Course Number [4710]

Prerequisite: two courses in ecology.

- GEOG 3150

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480
USP 2003-2014 Code U3G, U3WB
A&S College Core 2015 ASG
Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application or remote sensing principles using digital image processing.

USP 2003-2014 Code Q
Former Course Number GIST 3111

ENTO4300 - Insect Ecology

Credits: 3

Examines concepts of insect ecology and their application to the management of agricultural and rangeland insect pests. Control of rangeland weeds using insects is also examined. Covers population dynamics, predator-prey and insect-plant interactions, biological control and integrated pest management.

Prerequisite: ENTO 1000 or LIFE 1003 or LIFE 1020 or consent of instructor.

ENTO4682 - Insect Anatomy and Physiology

Credits: 5

Studies structure and function of the insect body, particularly emphasizing the relationship between anatomical features and their cellular/biochemical functions.

Dual Listed ENTO 5682.
When Offered (Normally offered spring semester of even-numbered years)
Prerequisite: ENTO 1000.

ENTO4678 - Aquatic Entomology

Credits: 3

Emphasizes biology, ecology, distribution, and taxonomy of aquatic insects. Includes aquatic insects as indicators of pollution. Students must make and identify a collection of immature aquatic insects.

Dual Listed ENTO 5678.
When Offered (Normally offered fall semester of even-numbered years)
Prerequisite: ENTO 1000, ENTO 1001.

ENTO4684 - Classification of Insects

Credits: 4

Studies insect orders, families and taxonomic treatises. Requires collection of adult insects representing 100 families, or equivalent museum project, for completion of course requirements.

Dual Listed ENTO 5684.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ENTO 1000.

PATB4170 - Diseases of Wildlife

Credits: 3

Introduction to wildlife diseases of the Rocky Mountain region and North America. Emphasis on infectious, parasitic, traumatic, toxic, and other disease agents with coverage of mechanisms of disease, epidemiology, and disease impacts on wildlife populations and species. Significant discussion of zoonotic diseases and diseases at the wildlife/domestic animal interface.

Dual Listed PATB 5170

When Offered (Offered spring semester of even numbered years)

A&S College Core 2015 12 hours of biological or zoological sciences.

Former Course Number [4120]

- PATB 4310
- PATB 4360

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

Minor

Human and Animal Physiology Minor

Physiology is the science of how the body functions in health and disease. A minor in physiology provides additional background for students in a variety of majors.

Human and Animal Physiology minor - requirements

Requirements for the minor in human and animal physiology (AHPY) include a minimum of 18 credit hours. Courses counted towards one minor may not be counted towards another. A grade of C or better is required in all courses.

Required Courses

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

At Least One of These Three:

* if more than one of the three required courses is completed, additional courses can count towards Physiology Core elective courses requirement below.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

Elective Courses

Physiology Core Electives. At least three courses from:

ANSC4120 - Principles of Mammalian Reproduction

Credits: 4

Overview of the anatomy, physiology, endocrinology and biochemistry of reproductive processes in male and female mammals. Includes lecture and laboratory components.

Dual Listed ANSC 5120.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010 OR ZOO 3115

ANSC4260 - Mammalian Endocrinology

Credits: 3

Introduces principles of endocrinology, role of endocrine systems in regulating metabolism, growth, reproduction and lactation in mammals.

Dual Listed ANSC 5260.

When Offered (Normally offered fall semester)

Prerequisite: ANSC 3010, ZOO 3115, or equivalent.

ANTH4210 - Human Osteology

Credits: 3

Provides a detailed study of the human skeleton.

Dual Listed ANTH 5210.

When Offered (Normally offered spring semester)

Prerequisite: ANTH 1100, LIFE 2022.

ANTH4230 - Forensic Anthropology

Credits: 3

Introduces methods and purposes of physical anthropology as applied in human identification for law enforcement agencies.

Cross Listed CRMJ 4230.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: ANTH 1100.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3038 - Exercise Psychology

Credits: 3

Studies psychological theories for understanding and predicting health-oriented exercise behavior, including psychological intentions for increasing exercise participation and adherence. Emphasizes psychological and psychobiological responses to exercise.

Prerequisite: grade of C or better in PSYC 1000; concurrent enrollment in or completion of KIN 3021; 2.750 GPA.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

KIN4042 - Advanced Biomechanics

Credits: 3

Provides understanding of biomechanical theories and the application of biomechanical measurements to human movement in sports, training, and rehabilitation. Emphasis on using equipment to collect biomechanical data to answer

research and clinical questions. Lecture and data collection topics include electromyography, force, balance, kinematics, and kinetics.

Prerequisite: C or better in KIN 3042, minimum 2.750 GPA.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4670 - Advanced Molecular Cell Biology

Credits: 3

Key concepts in eukaryotic cell biology will be presented with a focus on cellular processes that form the basis for human diseases. Cellular organization, dynamics, and signaling will be emphasized. Students will also explore principles of research design by critical reading and discussion of scientific literature.

Dual Listed MOLB 5670

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600

NEUR4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 4295.

Dual Listed NEUR 5295.

Prerequisite: ZOO 4280.

NEUR5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed ZOO 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 5295.

Dual Listed NEUR 4295.

NEUR5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms will be covered in addition to the basic neurophysiology of nerve cells.

Cross Listed ZOO 5685.

Prerequisite: one course in physiology, chemistry, physics.

NEUR5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

PATB4130 - Mammalian Pathobiology

Credits: 3

Anatomical basis of disease in mammals. Emphasis on concepts of pathogenesis of disease, and the gross, microscopic and clinicopathological changes associated with lesions: cell injury and death; cellular degeneration; disturbances of growth and circulation; neoplasia; inflammation; and recognition of gross and microscopic tissue changes. Background in immunology will be beneficial.

Cross Listed MICR 4130

Dual Listed PATB 5130

When Offered (Normally offered spring semester)

USP 2015 Code U5C3

Prerequisite: C or better in LIFE 2022.

PATB4140 - Principles of Toxicology

Credits: 3

Toxicology is the study of poisons, their mechanisms of action and their effects on various organisms including man and domestic animals. Designed to provide students in the life and environmental sciences with an understanding of the principles of toxicology as they apply to animal and human health, food safety and environmental studies.

Dual Listed PATB 5140

When Offered (Normally offered fall semester of even-numbered years)

Prerequisite: 9 hours of biological science (e.g., physiology), 4 hours chemistry, 3 hours biochemistry.

PATB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed MOLB 4400

Dual Listed PATB 5400

When Offered (Normally offered spring semester)

Prerequisite: MOLB 2021/MICR 2021 or MOLB 2240/MICR 2240 or PATB 2220, and a minimum grade of C- in MOLB 3000 or MOLB 3610.

PATB4710 - Medical Virology

Credits: 3

Human and animal viruses as biological entities. Methods of study, classification, replication strategies, diagnostic approaches, epidemiology and significance as disease agents.

Cross Listed MICR 4710

Dual Listed PATB 5710

When Offered (Normally offered fall semester)

Prerequisite: MOLB 2240

PSYC3250 - Health Psychology

Credits: 3

Provides overview of growing partnership between psychology and health care, including history of psychology in health care; theoretical foundations of health and illness; intervention and research techniques; stress and high risk behaviors (e. g. , substance abuse, eating behaviors, AIDS); psychology's contribution to improving outcomes and quality of life in chronic and life-threatening behaviors.

Cross Listed NURS 3250.

Prerequisite: A grade of C or better in PSYC 1000.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

PSYC4080 - Physiological Psychology

Credits: 4

Examines physiological mechanisms of behavior, strongly emphasizing neural and hormonal processes. Includes

fundamentals of neuroanatomy and evolution of the nervous system, basic neurophysiology, sensory and motor processes, as well as the physiology of emotion, motivation, learning and memory. Lecture three hours per week. Laboratory two hours per week.

USP 2003-2014 Code U3SB

Prerequisite: A grade of C or better in 6 hours of psychology and LIFE 1000, LIFE 1003, or LIFE 1010 or an introductory zoology course.

PSYC4250 - Psychological Aspects of Chronic Illness

Credits: 3

Investigates the impact of chronic physical illnesses on diagnosed children and adults, their families, and society. Emphasizes effects of illnesses on psychological adaptation and quality of life. Should be of particular interest to helping professionals and health care workers.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 3250.

SOC3550 - Medical Sociology

Credits: 3

Considers sociological contributions to diagnosis and treatment of illness. Studies social organization of health professions and agencies.

Prerequisite: SOC 1000.

SOC4160 - Sociology of Aging

Credits: 3

The process of aging from the individual to the societal level is the focus of the course. Consequences of this process such as the increase in the number of elderly, retirement and health are examined from the major social institutions, the relationships between these institutions and American society as a whole.

Dual Listed SOC 5160.

Former Course Number [4150]

Prerequisite: 6 hours of sociology (including SOC 1000) and at least junior standing.

ZOO3010 - Vertebrate Anatomy, Embryology, and Histology

Credits: 4

Provides a comprehensive overview of vertebrate anatomy. The structural organization, embryological derivation, and histological organization of the major organ systems will be emphasized. The evolution and functional organization of anatomical structure will also be emphasized. Includes laboratory sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: LIFE 2022 or equivalent, and a semester of chemistry.

OR

ZOO4110 - HIV/AIDS: The Disease and the Dilemma

Credits: 3

Explores the basic biology of the HIV virus, and its effects upon the human body, the magnitude of the global HIV/AIDS pandemic, treatment and prevention of AIDS, and the social, political, economic, and legal issues of HIV/AIDS.

Prerequisite: LIFE 1003 or LIFE 1010.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

- ZOO 4670

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4

Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.

Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.

ZOO5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed NEUR 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

ZOO5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms are covered in addition to the basic neurophysiology of nerve cells. The laboratory complements the lecture sequence.

Cross Listed NEUR 5685.

Prerequisite: one course in physiology, chemistry, physics.

SPPA3265 - Anatomy and Physiology of Speech, Swallowing and Hearing

Credits: 4

Introduces the student to the anatomy of the normal speech and hearing systems as well as the physiologic underpinnings of the speech (respiration, phonation, articulation), swallowing, and hearing (external, middle, and inner ear) systems. Theories of speech production and speech perception are presented.

Former Course Number [3400]

Prerequisite: KIN 2040 or consent of instructor.

CHEM3550 - Physical Chemistry for the Life Sciences

Credits: 3

Deals with areas of physical chemistry of interest to students majoring in the life sciences. Covers thermodynamics, kinetics, equilibrium and spectroscopy, using biological systems for development and illustration. Credit is allowed for only one of the courses: CHEM 3550 or CHEM 4507.

When Offered (Normally offered every other year)

Prerequisite: CHEM 1030, MATH 2200.

Neuroscience Minor

Neuroscience explores the nervous system structure and function. Electrical signaling of neurons provides the basis of our thoughts, perceptions, learning, movement, emotion, sleep-wakefulness, and behavior.

Additional Information

Minimum credit hours: 17. Courses counted towards one minor my NOT count towards a different minor. A grade of "C" or better is required in all coursework in the Neurosciences minor.

Required Courses

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4280 - Introduction to Neuroscience

Credits: 3

Examines the basic electrical properties of neurons and from there identifies determinants of brain development, how neuronal "circuits" are formed and how these neuronal systems enable the processing of sensory information, coordinated movement, adaptation to the environment, and other complex functions (e. g. , sleep, sex).

Dual Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

Elective Courses:

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

ZOO4735 - Advanced Topics in Physiology

Credits: 1-4
Max Credit (Max. 12)

Designed to cover advanced topics in Physiology for students specializing in Physiology or related fields. Examples of topics include endocrinology, cardiovascular, renal, neurological, respiratory, and metabolic physiology. Integrative topics (e. g. circadian rhythms, thermal stress) may also be included.

Dual Listed ZOO 5735.
Former Course Number [5730]

Prerequisite: ZOO 3115 or equivalent as approved by the instructor.
(ZOO 4735 sections must have a neurosciences aspect, consult your advisor for help selecting appropriate sections).

ZOO4340 - Developmental Biology and Embryology

Credits: 4
Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.
When Offered (Normally offered spring semester)
Prerequisite: one year of life sciences, one year of chemistry.

ZOO4295 - Neurodevelopment

Credits: 3
Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed NEUR 4295.
Dual Listed ZOO 5295.
Prerequisite: ZOO 4280.

ZOO5685 - Neurophysiology

Credits: 3
Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms are covered in addition to the basic neurophysiology of nerve cells. The laboratory complements the lecture sequence.

Cross Listed NEUR 5685.
Prerequisite: one course in physiology, chemistry, physics.

ZOO5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed NEUR 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5887 - Molecular Neuropharmacology

Credits: 3

Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

PSYC4040 - Cognitive Neuroscience

Credits: 4

Examines the underlying neural bases of higher cognitive functions in humans, including attentions, language, motor control, navigation, emotions, and memory, as well as neuroanatomy fundamentals and neuroscience methods such as fMRI and ERP. Lecture and lab components.

Prerequisite: A grade of C or better in PSYC 2080 or PSYC 3120 or ZOO 4280.

Wildlife Fisheries Biology Management Minor

Course include theory and techniques involved in the management, conservation, and captive propagation of wildlife and fish populations. Includes both classroom and field experiences in a Rocky Mountain setting.

Wildlife Fisheries Biology Management minor - requirements

Requirements for the minor in wildlife fisheries biology management (WFBM) include a minimum of 18 credit hours. Courses counted towards one minor may not be counted towards another. A grade of C or better is required in all courses.

Required Courses

9 or 11 credit hours required from the following:

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

ZOO2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed Crosslisted with ENR 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

One (1) Course From:

ZOO4300 - Wildlife Ecology and Management

Credits: 5

Integrates concepts of vertebrate ecology with the art of wildlife management, stressing approaches to deal with the inherent uncertainty of managing populations. Strategies to increase or decrease populations of target species, tools used to determine population status (e. g. , viability analysis, monitoring, habitat assessment), and ecosystem management approaches. Laboratory included.

Dual Listed ZOO 5300.

When Offered (Offered fall semester)

Former Course Number [4720]

Prerequisite: LIFE 3400, STAT 2050 or STAT 2070, and ZOO 2450.

OR

ZOO4310 - Fisheries Management

Credits: 3

Acquaints students with theory and techniques of inland fisheries management. Includes methods of evaluating growth and production, rates of mortality and recruitment and use of yield models in fisheries biology. Includes laboratory and field exercises.

Dual Listed ZOO 5310.

When Offered (Normally offered fall semester)

Former Course Number [4730]

Prerequisite: ZOO 4330.

Elective Courses

Select three (3) of the following courses, one of which must have a laboratory component:

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes. Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.

When Offered (Offered fall semester)

Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.

Prerequisite: LIFE 2022.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

ZOO4415 - Behavioral Ecology

Credits: 3

Applies empirical and theoretical approaches to ecological and evolutionary underpinnings for behaviors ranging from foraging and predation to social grouping and mating systems. Emphasizes comparative analyses (what phylogenetic patterns exist across diverse species?) as well as genetic/fitness benefits (how do individuals benefit from apparently puzzling behaviors?).

Dual Listed ZOO 5415.

When Offered (Offered fall semester)

Prerequisite: ZOO 3600 or LIFE 3400 or permission of the instructor.

ZOO4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ENR 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.

When Offered (Offered fall semester)

Prerequisite: LIFE 2022.

Zoology Minor

Explore form, function, behavior, ecology, evolution and conservation of animals and hone analytical, writing, and research skills.

Zoology Minor - requirements

Requirements for the minor in zoology (ZOOL) include a minimum of 17 credit hours. Courses counted towards one minor may not be counted towards another. A grade of C or better is required in all courses.

Required Course

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

Elective Courses

Select four (4) of the following courses, one of which must have a laboratory component:

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3500 - Evolutionary Biology

Credits: 3

Presents modern evolutionary theory. Examines evolution and evolutionary mechanisms from several viewpoints, with particular attention given to genetic mechanisms underlying processes of evolution and speciation.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3500]

Prerequisite: completion of LIFE 1010 and LIFE 3050 with a grade of C or higher in each.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO3600 - Principles of Animal Behavior

Credits: 3

Intensively introduces scientific study of animal behavior. Utilizes evolutionary, ecological and physiological approach.

When Offered (Normally offered spring semester)

Prerequisite: introductory course in zoology, biology or psychology.

ZOO4190 - Comparative Environmental Physiology

Credits: 4

Studies and interprets principles of physiology which adapt animals to various environmental constraints. Introduces discipline which has risen between traditional fields of physiology and ecology and provides understanding of animal distribution and survival. Fulfills degree requirements in physiology subsection for the zoology major.

Dual Listed ZOO 5190.

When Offered (Offered spring semester)

Former Course Number [4230]

Prerequisite: LIFE 2022 or LIFE 2023 and CHEM 1030 or CHEM 1060.

ZOO4235 - Marine Biology

Credits: 3

This course explore major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed BOT 4235.

Dual Listed ZOO 5235.

Prerequisite: LIFE 3400 with a grade of C or better.

ZOO4330 - Ichthyology

Credits: 3

Anatomy, physiology and classification of fishes, emphasizing classification and identification of Wyoming fishes.

Includes laboratory.

Dual Listed ZOO 5330.

When Offered (Normally offered spring semester)

Former Course Number [4750]

Prerequisite: LIFE 2022.

ZOO4340 - Developmental Biology and Embryology

Credits: 4

Introduces study of vertebrate embryology and cellular differentiation. Includes gametogenesis, fertilization, blastulation and organogenesis, growth and differentiation, teratology, metamorphosis, regeneration and asexual reproduction. Emphasizes mechanisms that create form and regulate cellular differentiation.

Dual Listed ZOO 5340.

When Offered (Normally offered spring semester)

Prerequisite: one year of life sciences, one year of chemistry.

ZOO4350 - Ornithology

Credits: 3

Acquaints students with classification, identification, morphology, distribution, natural history and ecology of the birds of North America. Includes laboratory.

Dual Listed ZOO 5350.

When Offered (Offered spring semester)

Former Course Number [4780]

Prerequisite: LIFE 2022.

ZOO4370 - Mammalogy

Credits: 3

Studies mammals of the world, emphasizing natural history, distribution, taxonomy, ecology and morphology of mammalian species. Includes laboratory.

Dual Listed ZOO 5370.
When Offered (Offered fall semester)
Former Course Number [4790]

Prerequisite: LIFE 2022.

ZOO4380 - Herpetology

Credits: 3

Introduces the ecology, behavior, morphology, evolution, systematics and conservation of reptiles and amphibians.

Dual Listed ZOO 5380.
Prerequisite: LIFE 2022.

ZOO4540 - Invertebrate Zoology

Credits: 4

Studies major invertebrate phyla of the animal kingdom. Studies each phylum with respect to morphological and taxonomic characteristics; functional and evolutionary relationships; environmental adaptations; life cycles of representative types. Includes laboratory.

Dual Listed ZOO 5540.
When Offered (Offered fall semester)
Prerequisite: LIFE 2022.

BOT4235 - Marine Biology

Credits: 3

This course explores major topics of physical oceanography, marine biodiversity and ecology, and human impacts on the ocean. Emphasis is placed on reading, evaluating, and synthesizing primary literature.

Cross Listed ZOO 4235.
Dual Listed BOT 5235.
Prerequisite: LIFE 3400 with a grade of C or better.

Graduate

Zoology and Physiology, M.S.

Advanced-degree students in Zoo/Phys experience collaborative, interdisciplinary approaches to basic and applied questions. Work spans molecules to ecosystems, with training in fields including physiology, ecology, evolution, fisheries, and wildlife.

Plan A (Thesis)

Includes 26 hours of coursework and 4 hours of thesis research.

Applicants should have at least 20 semester hours of undergraduate work in zoology, physiology, or other areas of the biosciences and have completed introductory courses in mathematics, chemistry, and in at least one other natural or physical science. Early in the second semester the student must file a program of study with the university and have a graduate committee appointed. Plan A candidates shall orally defend the thesis before the graduate committee.

All M.S. candidates will be required to complete credit in two graduate seminars. A student may enroll in more than one of these required seminars during one semester or academic year.

After two semesters in the department, a Plan A master's candidate may request permission from the department's graduate advisory board to proceed directly to the Ph.D. degree; however, such a bypass is granted only by the department head after considering recommendations from the graduate advisory board.

Zoology and physiology may be used as a field by a candidate working for the interdisciplinary master of science in natural science in the College of Arts and Sciences and the College of Education.

Plan B (Non-Thesis)

Includes 30 hours of coursework.

The program for the Plan B is established by the student and a faculty adviser and must be approved by the department head during the student's second semester or summer session.

The graduate committee will require the candidate to take a written examination. An oral examination may also be required. The final examination is comprehensive, covering all areas of zoology, but emphasizing one major area.

Zoology and Physiology, Ph.D.

Advanced-degree students in Zoo/Phys experience collaborative, interdisciplinary approaches to basic and applied questions. Work spans molecules to ecosystems, with training in fields including physiology, ecology, evolution, fisheries, and wildlife.

Additional Information

This is a 72 hour program.

A Ph.D. applicant must have 20 hours of undergraduate work in zoology, physiology, or other areas of biology and also have completed substantial undergraduate work in other sciences. Under exceptional circumstances, a student with an undergraduate major in a scientific discipline other than biology may be admitted. After the Ph.D. student has completed two semesters of graduate work, s/he must be approved for continued work toward the doctorate by the graduate advisory board. This board can reconsider a candidate thereafter if it so desires.

A graduate committee shall be appointed for the individual student no later than the third semester. After consultation with the student, this committee will prescribe special requirements (courses, minors, research tools, etc.) that must be fulfilled. At this time, the graduate committee shall consult with the candidate on the proposed research and shall identify the subject matter areas to be included in the preliminary examination. The preliminary examination will consist of a written research proposal, its oral defense, and a written and oral preliminary examination. When training outside zoology and physiology is specified by the committee, certification of satisfactory completion of the requirement will be made by the appropriate department.

In addition to the general university requirements for the Ph.D. degree, the department requires the following:

The coursework program should include work in a discipline outside the department, generally in the sense of a minor, to be identified in consultation with the graduate committee.

The preliminary examination consisting of written and oral portions should be taken no later than midterm of the fourth semester in residence. The graduate committee will certify satisfactory performance for the preliminary examination.

The dissertation must be received by each member of the graduate committee three weeks before the final dissertation seminar. As oral defense of the dissertation, the candidate will deliver a formal 50 minute seminar on original research from the dissertation. The seminar will be followed by an examination by the graduate committee.

Some time during their degree program, all Ph.D. candidates will be required to complete credit in three graduate seminars. A student may enroll in more than one of these required seminars during one semester or academic year.

All candidates for the Ph.D. degree shall be required to teach for one semester during their program.

The dissertation may be written in a format suitable for publication in a journal and the usual extensive literature review, description of study sites, technical details, raw data, supporting figures, charts, and photographs should be included in a well-organized appendix. (See also format requirements by the university.)

College of Business

College of Business

310 Business Building

Website: <http://business.uwyo.edu>

Rob Godby, Interim Dean

Phone: (307)766-4194 **FAX:** (307)766-4028

Peter M. and Paula Green Johnson Student Success Center (307) 766-8249

The College of Business prepares students for careers by providing quality education in business disciplines, creating and disseminating knowledge, and assisting in Wyoming's economic development. The College of Business expects the highest level of integrity from our administration, faculty, staff, students, and alumni.

The College of Business grew from roots established in 1899 when the UW School of Commerce was founded. While the programs offered have changed over the years, the college remains firmly committed to academic excellence and positive student experiences.

The college has three academic departments: accounting and finance; economics; and management and marketing. The college also houses the College of Business Peter M. and Paula Green Johnson Student Success Center which is instrumental in maintaining the college's link with the business world.

These units are committed to preparing all College of Business students to enter our rapidly-changing world. Successful graduates are fully prepared to compete in their chosen professions or in graduate school. More importantly, they are well-educated individuals prepared to live fulfilling lives, and to meet the challenges presented by the complex ethical, moral and cultural contexts of our times.

College of Business Learning Outcomes

The College of Business expects that its graduates:

1. Will be competent in their field of study
2. Will be effective problem solvers
3. Will be ethical
4. Will be professional

5. Will be effective communicators

AACSB Accreditation

The business degree programs offered by the College of Business are accredited by AACSB-International. AACSB standards ensure that College of Business students are provided comprehensive, high-quality, well-rounded degree programs. The "Common Body of Knowledge" and the "Advanced Business Standing" (ABS) as described on the following pages have been developed to meet the AACSB accreditation standards.

A minimum of 50% of COB courses required for the major must be taken from the degree-awarding institution.

Programs of Study

Undergraduate Degrees

BSB - Bachelors of Science in Business

BSE - Bachelors of Science in Economics

The Majors are as follows:

- Accounting, B.S. (BSB-ACCT)
- Business Economics, B.S. (BSB - CBEC)
- Entrepreneurship, B.S. (BSB - ENTR)
- Finance, B.S. (BSB - FIN)
- Management, B.S. (BSB - MGT)
- Marketing, B.S. (BSB - MKT)
- Professional Sales, B.S. (BSB - SELL)
- Economics, B.S. (BSE - ECON)

The Minors are as follows:

- Banking and Financial Services Minor
- Blockchain Minor
- Data Analytics Minor
- Economics Minor
- Entrepreneurship Minor (for nonbusiness students only)
- Hospitality Business Management Minor
- Leadership Minor
- Professional and Technical Selling Minor
- Real Estate Minor

Graduate Degrees

Master of Science

Accounting, M.S.

Economics, M.S.

Finance, M.S.

Business Administration, M.B.A.

Business Administration, Online, M.B.A.

Doctor of Philosophy

Economics, Ph.D.

Marketing, Ph.D.

Certificate Programs

Certified Financial Planning Certificate (Graduate)

Energy Business Certificate (Graduate)

Student Services

Academic Advising

All College of Business undergraduate students are advised by professional academic advisers in the College of Business Peter M. and Paula Green Johnson Student Success Center. Advising can be reached by e-mail (success@uwyo.edu) or by phone (307-766-8249).

Career Services

The Career Services unit connects students and employers in ways that lead to meaningful experiences and job opportunities. Business students are encouraged to explore career options and grow their career readiness by completing the Pokes Professionalism Badge and engaging in multiple internships. Students also have the option to apply for local, national, and international internships starting their first year and may be able to receive credit for their work. Networking with employers is highly encouraged and offered through a series of fairs, events, and in-class projects. One-on-one assistance and workshops are also available to students for things such as: internship or job searching; resume creation, review, or targeting; and career coaching or counseling. Individual appointments may be scheduled by email (success@uwyo.edu) or by phone, (307) 766-8249.

Student Responsibilities

College of Business students are responsible for knowing and meeting requirements for graduation. In addition to degree requirements, all College of Business students must complete the advanced business standing requirements prior to enrollment in most upper-division (3000/4000-level) College of Business courses (see Advanced Business Standing (ABS) Prerequisites section).

All students must have already completed any prerequisites listed (in addition to ABS for COB students), including having the appropriate class standing. Students not meeting the prerequisites are identified and administratively dropped from those courses each semester.

Requirements for the Bachelor of Science Degree

Candidates for the Bachelor of Science degree in the College of Business must meet university, college, and departmental requirements. Degree candidates for the B.S. degree in the College of Business also must have a minimum 2.500 cumulative University of Wyoming (UW) grade point average and a 2.500 grade point average in College of Business courses at the time of graduation. In addition, economics majors also must hold a minimum 2.500 grade point average for all economics courses. College of Business degree candidates must earn a minimum of 120 semester hours depending on major including:

I. University Studies Requirements:

All first year students who enter the University of Wyoming (UW) and students who enter a Wyoming Community College (CC) are required to meet the USP 2015 requirements for graduation. Wyoming CC students transferring to UW with an Associate of Arts or Associate of Science degree will have course work evaluated per the General Education Articulation Agreement between the University of Wyoming and Wyoming Community Colleges. Non-resident transfer students and Wyoming CC transfer students without an associate's degree will have course work evaluated on a course-by-course basis, based on all approved USP courses. Academic advisers will help students select the appropriate courses to satisfy university studies requirements. Some College of Business requirements also meet university studies requirements.

A. Basic skills (USP 2015) Hrs.

1. First-year seminar (FYS) Choose from list of approved courses, Credits: 3
2. Writing
 - a. USP Communication 1 course, Credits: 3
 - b. USP Communication 2 course- Mid-level communication or 2000-4000-level communication intensive course- Choose from list of approved courses, Credits: 3
 - c. USP Communication 3 course- Upper-level communication or 3000-4000-level communication intensive course, Credits: 3
3. Physical and Natural World (PN) (Two courses required-choose from list of approved courses), Credits: 6
4. Human Culture (H) (Two courses required-choose from list of approved courses), Credits: 6
5. U.S. and Wyoming Constitutions (V), Credits: 3
6. Quantitative Reasoning (Q), Credits: 3

II. Electives

The number of hours of elective credit and upper-division (3000-/4000-level) credit varies by department. Economics majors will take 48-51 hours of free electives. A maximum of 6 credit hours each at the freshman/sophomore and junior/senior-level military science courses may be applied to degrees in the College of Business.

A. Non-Business electives Hrs

1. Non-Business electives. May include MATH 1400, Credits: 3-9

B. Free electives Hrs.

1. Free electives from any college. May require upper-division (3000/4000-level) courses, with the total number of credits needed dependent on major.

Students **may not** take courses for S/U (satisfactory/unsatisfactory) credit to satisfy university studies or college requirements, course requirements in the major, or courses outside the college required by the major department curriculum.

III. Advanced Business Standing: (excludes Economics majors)

College of Business majors must satisfy the following advanced business prerequisites prior to enrolling in most upper-division (3000- /4000- level) College of Business courses:

1. Achieve junior standing by completing a minimum of 60 earned semester hours;
2. Complete 10 specific courses with a grade of C (not C-) or better in each. These ten courses are: ECON 1010 and 1020, USP Communication 1 and 2 courses, ACCT 2010 and 2020, IMGT 2400, MATH 2200 and 2205 or MATH 2350 and 2355 and STAT 2050 or 2070.
3. Achieve a cumulative UW institution grade point average or transfer grade point average of at least 2.500. Note: Transfer grades are not counted in the UW GPA (see UW Catalog http://www.uwyo.edu/registrar/university_catalog/grade.html for additional information). Transfer students who have not attended the University of Wyoming, and therefore do not have an established UW institutional/cumulative GPA, and who have completed the required ten (10) courses with a C or better, have 60 earned credit hours, and have a 2.500 cumulative TRANSFER GPA will be awarded ABS.

IV. Common Body of Knowledge: (excludes Economics majors)

College of Business majors take a common set of courses that expose them to the basic concepts, processes and technical skills necessary to complete a well-rounded high quality business education. The common body of knowledge includes ACCT 2010, ACCT 2020, DSCI 2100, ECON 1010, ECON 1020, FIN 2100, IMGT 2400, MGT 2010, MGT 2100, MKT 2100, and MGT 4800. Grades of C (not C-) or above required.

V. Minimum requirements:

Achieve a cumulative College of Business and UW institution grade point average of at least 2.500. Complete 50% of the business credit hours from UW. Earn grades of C or above in common body of knowledge and major specific core courses. Earn a passing score on the Senior Exit Exam required for all College of Business majors.

Requirements for Non-College of Business Majors

Students in non-College of Business majors who wish to enroll in College of Business upper-division courses need not meet the advanced business standing prerequisites. However, they are required to meet individual course prerequisites listed in the University Catalog, including class standing.

Acceptance of Transfer Credit

The College of Business complies with UW policies regarding transfer credit discussed in the front section of this bulletin. The college has special course transfer arrangements with Wyoming community colleges that allow some courses taken at community colleges at the lower-division (freshman-sophomore) level to transfer for upper-division (junior) credit. Wyoming community college transfer students should contact the GJSSC for details.

Students transferring from other AACSB accredited colleges and universities will have their courses reviewed for transfer on a course-by-course basis.

The College of Business does not accept transfer credits for COB courses with equivalents at UW when the grade earned was less than a C.

Where appropriate, College of Business course equivalency will be granted for transfer courses at the 3000 and 4000 level if such coursework was completed at an AACSB or EQUIS institution only. Any coursework completed at an institution that does not meet that qualification will not be considered for upper division equivalency.

The UW College of Business is AACSB accredited and therefore follows AACSB's current guidelines* to maintain accreditation.

The primary goal of this transfer policy is to ensure coursework accepted from other institutions is comparable to coursework required by our college's degree programs and ensure that the majority of learning is completed at the institution awarding the degree while simultaneously allowing measured flexibility in acceptance of transfer credits as allowed by AACSB accreditation in support of student progress and degree completion.** For example, at the time of this policy's creation, the number of business credit hours for the College of Business's undergraduate majors is fifty-four (54) credit hours (this includes the business common body of knowledge courses). Therefore, to align with AACSB standards, a minimum of twenty-seven (27) credit hours of business coursework in the major must be earned in residence at the University of Wyoming.

In addition to the transfer policies defined in the University of Wyoming catalog, the College of Business has established the following policies in support of AACSB Standards governing the transfer of credit for equivalent business courses. Courses will be considered for transfer according to the additional criteria below. Students may transfer up to a total of twenty-seven (27) hours of business credits, either solely lower division courses or a mix of lower division and upper division courses, as follows:

- Students may transfer up to twenty-seven (27) lower division (1000/2000 level) business credits to the Common Body of Knowledge.
 - Lower division courses from regionally accredited institutions will be evaluated for equivalency and approved by the UW Office of the Registrar on an annual basis.
- Students may transfer up to nine (9) upper division (3000/4000 level) business credits according to the following guidelines:
 - Transferring upper division business credits to be included in the twenty-seven (27) credits reduces the number of lower division credits a student is able to transfer.
 - Courses from AACSB/EQUIS accredited institutions will be evaluated for equivalency and approved by the College of Business.
 - Courses from regionally accredited, non-AACSB/EQUIS institutions will be accepted as upper division elective credit in accordance with the transfer policies defined in the University of Wyoming catalog.
 - The College of Business has collaborative provisions (detailed in separate articulation agreements) that allow students from Wyoming's community colleges to transfer up to nine (9) credit hours of 2000 level coursework to satisfy up to nine (9) credit hours of 3000 level coursework that has been evaluated by the College of Business. These courses will be evaluated annually for equivalency***.

* A requirement of the accreditation process (as reflected in Standard 6 of the 2020 Business Standards) is for accredited colleges to have clear policies regarding transfer coursework.

** As noted by AACSB: "transfer credit related to business disciplines is normally limited to no more than half of the program requirements" (2020 AACSB Standards, p. 13).

*** Per college-specific articulation agreements, students may be able to transfer coursework satisfying completion of the following courses: ACCT 3070, ACCT 3230, ACCT 3240 or ACCT 3430.

Accounting, Management, and Marketing Online Programs

The College of Business offers the opportunity to pursue online degree programs in the areas of accounting, management, and/or marketing accredited by AACSB and delivered through distance education. These online delivery programs are designed to help students maximize their flexibility in the business world.

The online accounting, management, and marketing degrees are offered almost in their entirety through the University of Wyoming, with the exception that students must have taken MATH 2350/2200 and MATH 2355/2205 through another institution as they are not offered online consistently through UW. The University of Wyoming College of Business works closely with our Wyoming community college partners to assist students in taking and transferring these math courses and other courses that align with our curriculum. Students are able to take a variety of transferable 1000 and 2000 level courses from Wyoming Community Colleges, in consultation with academic advisors, and then complete their upper division coursework from the University of Wyoming.

Students will be required to apply to UW and meet UW admissions criteria prior to enrolling in any College of Business program. Students must also attain a 2.500 GPA for graduation for both College of Business and UW courses, complete and submit an anticipated graduation date form, and must pass the Senior Exit Exam (BUSN 4990) to graduate.

To ensure you the availability of required courses in this program, enrollment into courses is managed and approved by the College of Business Peter M. and Paula Green Johnson Student Success Center.

College of Business Minors

Minors are available to on-campus students through the College of Business in the areas of banking and financial services, blockchain, data analytics, economics, entrepreneurship (not available to College of Business majors), hospitality business management, leadership, professional and technical selling, and real estate. Minors requirements may often be met by simply focusing the elective credits available in a student's major.

The minors program consists of course requirements of 15 hours of study. A minimum grade of C must be earned in each course. Certification of a successful minor program completion occurs as part of the DegreeWorks progress report, and the Office of the Registrar notes the completion of the minor on student transcripts. Minors must be approved by the Peter M. and Paula Green Johnson Student Success Center.

Students must have a minimum 2.500 cumulative UW GPA. Students must maintain a cumulative 2.500 GPA in the required College of Business courses for the minor to be awarded. Non-College of Business students must meet the individual course prerequisites listed in the catalog, although they need not meet the advanced business standing requirements. A minimum of 50% of COB courses must be taken from the degree-awarding institution.

Cooperative Undergraduate Programs

The Concentration in Environment and Natural Resources

College of Business majors may earn a cross major in Environment and Natural Resources (ENR) in cooperation with the UW School of Environment and Natural Resources. The appropriate use of natural resources and awareness of environmental consequences of decisions have become major issues for business. Exposure to ideas, skills and sensibilities in these areas is critical to future business people. Students majoring in economics may elect an environment and natural resources concentration in which an economics approach to problem solving is stressed. For more information call the ENR office at (307) 766-5089.

Graduate Study

The College of Business is comprised of three academic departments: accounting and finance, economics, and management and marketing. The faculty of these departments cooperate in the presentation of graduate work leading to the following degrees:

Master of Business Administration

Master of Science in Accounting

Master of Science in Economics

Master of Science in Finance

Doctor of Philosophy in Economics

Doctor of Philosophy in Marketing

The College of Business faculty is firmly committed to the excellence of its graduate programs. The graduate programs in the College of Business are accredited by AACSB International. The three academic departments coordinate course offerings to support all of the graduate degree programs; the M.B.A. program in particular is a college-wide effort.

Cooperative Graduate Programs

The Concentration in Environment and Natural Resources

College of Business graduate students may earn an interdisciplinary minor in environment and natural resources (ENR) in cooperation with the UW School of Environment and Natural Resources. The appropriate use of natural resources and awareness of environmental consequences of decisions have become major issues for all areas of business and economics. The School of Environment and Natural Resources is designed to move beyond the strictly disciplinary design and management of their long-term solutions. The school seeks to attract outstanding graduate students from a variety of disciplines, who are eager to pursue careers that engage other professionals, policymakers, and the public in finding innovative ways to resolve complex environmental and natural resource issues. To pursue a minor in ENR, students must first be admitted to another master's or doctoral degree program offered at the University of Wyoming. For more information call the ENR office at (307) 766-5080.

Department of Accounting and Finance

252 East Business Building,

(307) 766-3807

FAX: (307) 766-3802

Web site: www.uwyo.edu/acct-fin

Department Chair: Mitchell Oler

Professor:

ERIC N. JOHNSON, B.A. Whittier College 1978; M.B.A. Arizona State University 1982; Ph.D. 1989; Clara R. Toppan Professor of Accounting 2011; Professor of Accounting 2013, 2011. MS Accounting Graduate Director.

ALI NEJADMALAYERI, B.Sc. University of Tehran 1993; M.B.A. Texas A&M University-Kingsville 1997; Ph.D. University of Arizona 2001; John A. Guthrie Endowed Chair in Banking and Financial Services; Professor of Finance 2018.

Associate Professors:

NICOLE CHOI, B.A. Chungbuk National University 2002; M.B.A. Washington State University 2004; Ph.D. 2009; Associate Professor of Finance 2015, 2009. MS Finance Graduate Director.

MITCHELL OLER, Bachelors of Commerce, University of Alberta 1997; M.S. Brigham Young University 1998; Ph.D. University of Washington 2006. Associate Professor of Accounting 2019, 2015.

KENNETH ZHENG, B.A. Southwestern University of Finance and Economics, China; M.S. University of Texas at Dallas 2007; Ph.D. University of Texas at Dallas, 2011; Associate Professor of Accounting 2021, 2015.

Assistant Professors:

TA-TUNG (STEPHANIE) CHENG, B.S. National Chengchi University 2010; M.S. Michigan State University 2013; Ph.D. Georgia State University 2020; Assistant Professor of Accounting 2020.

MACKENZIE FESTA, B.S. West Virginia University 2010; M.P.A. 2013; Ph.D. 2017; Assistant Professor of Accounting 2017.

AARON ROSENBLUM, B.A. University of Central Florida 2010; M.S. Florida State University 2013; Ph.D. 2018; Assistant Professor of Finance 2018.

PATRICK WITZ, B.B.A. University of Massachusetts at Amherst 2012; Ph.D. Cornell University 2020; Assistant Professor of Accounting 2020.

TENG (TIM) ZHANG, B.S. Shandong University 2010; M.S. University of North Carolina at Chapel Hill 2012; Ph.D. Georgia Institute of Technology 2015; Assistant Professor of Finance 2018.

Academic Professionals:

EVEN BRANDE, B.S. University of Wyoming 1991; M.B.A. 1993.

JENN KOZA, B.S. Chadron State College 2004; M.S. 2007; D.B.A. Walden University 2016; Assistant Lecturer of Finance 2019.

JAMES GUNDERSON, B.A. University of Nebraska 1977; Ph.D. University of Minnesota 2004; Assistant Lecturer of Finance 2014.

JENNIFER A. KREISER, B.S. University of Alabama 2001; M.S. 2002; Senior Lecturer of Accounting 2019.

ANDREW MCKAMEY, B.S. Colorado State University; M.S. Colorado State University; Assistant Lecturer of Accounting 2020.

AMBER MERCIL, B.S. University of Wyoming 2004; M.S. University of Oregon 2006; Associate Lecturer of Accounting 2021, 2014.

PHILIP W. TREICK, B.S. University of South Florida 1987; Assistant Lecturer of Finance 2016.

Emeriti:

Penne L. Ainsworth
Richard G. Elmendorf
George R. McGrail
Suzanne S. Roe

Frederic P. Sterbenz
Kenton B. Walker
Stuart K. Webster

Accounting Major

The basic objectives of the accounting program are twofold: to provide students who do not intend to major in accounting with the basis for understanding the role accounting plays in business today and to provide those students who desire to major in accounting with the educational background necessary for lifelong learning and a rewarding career in the accounting profession. The curriculum offered by the department attempts to blend the conceptual with the practical. Exposure to the underlying conceptual framework of accounting provides a basis for dealing with emerging accounting issues, while examination of technical pronouncements enables students to gain insight into practical issues encountered in an accounting environment.

Accounting majors may enter the professional world of accounting from a variety of directions. Choices available in the form of elective courses enable students to chart a course that leads them toward public accounting, private accounting, governmental or not-for-profit accounting, as well as other specialties that rely on a strong accounting background. Those students seeking professional certification, such as the CPA, CMA or CIA, are able to satisfy requirements to sit for these professional examinations by completing the undergraduate accounting degree.

All accounting majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All accounting courses for the major require a minimum grade of C.

A complete curriculum sheet is available from the College of Business Peter M. and Paula Green Johnson Student Success Center in the College of Business Building.

Please Note:

Students who anticipate taking the CPA examination should be aware of the Wyoming statute governing eligibility to sit for the exam. Please see the state board's web site for information: cpaboard.state.wy.us. The current combined curricula (B.S. and M.S.) enable students to satisfy the educational requirements to sit for the CPA exam in Wyoming and other jurisdictions.

Graduate Study

Accounting is an integral part of the College of Business degree programs. The department offers courses in support of college graduate degree programs, as well as a master of science in accounting (MS in Accounting) degree. The MS in Accounting degree was developed in response to emerging needs of the accounting profession. Those students who wish to become professional accountants, whether that be in a corporate setting, a not-for-profit setting, or public accounting, will find the MS in Accounting degree to be one that enables them to develop both the personal and professional skills needed to enjoy a productive career.

The MS in Accounting program satisfies the Wyoming requirements for individuals to take the Certified Public Accountant (CPA) exam and it further develops students' professional skills. The MS in Accounting program focuses on the two main areas of development: 1) advanced accounting and business education, and 2) professional skills development-including written, oral, interpersonal communication, computer applications, critical thinking, and adaptability.

The MS in Accounting degree is designed for students who have completed an undergraduate degree in accounting in the United States. However, it is possible to be admitted to the program once deficiency courses are successfully completed. Those holding a bachelor's degree from within the U.S., but not in accounting, and international applicants

can still apply for admission once the deficiency courses are successfully completed. We do not provisionally or conditionally admit students to our program.

Program Specific Admission Requirements

Admission to the Master of Science in Accounting program generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U. S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.0 scale. If you do not meet this minimum preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.
- GRE or GMAT optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.).
- Official transcripts of all undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Office of Admissions at 1000 E. University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the department Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.

Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.

•Interview.

You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor,

mentor, faculty member, program director, etc.)

letter(s) of recommendation provided directly by the
reference via the UW Graduate Admissions

Application.

•Interview.

You will be contacted by our program

office to participate in a virtual interview that can be

completed at your convenience. • Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

NOTE: These are the minimum requirements and do not guarantee admission or funding. The University of Wyoming MS in Accounting program does not personally or conditionally admit students.

*Please refer to the AICPA Site (www.aicpa.org) to check on the requirements you will need to fulfill in your state if you plan to sit for the CPA Exam.

Additional requirements for International Applicants:

• Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 540 on the paper-based test (TOEFL PBT) or a score of 76 on the internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 6.5. An applicant whose native language is English and is a citizen of one of the following countries or who has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency. Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.

• On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions). (not applicable for distance education students).

• Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university may be exempt from providing proof of English proficiency.

Additionally, to be admitted to the Master of Science in Accounting program, a student demonstrate competency in the following subject matters/courses:

- ACCT 3230 Intermediate I & ACCT 3430 Intermediate II (External Financial Reporting)
- ACCT 3240 Cost I (Advanced Managerial Accounting)
- ACCT 3070 Tax I (Tax Accounting, must cover US income taxation for individuals)
- ACCT 4060 Audit I (must cover US Generally Accepted Auditing Standards and/or International Standards on Auditing)

*These courses may be completed through any regionally accredited university or college. A minimum grade of B (a 3.0 on a 4.0 scale) is considered evidence of proficiency.

*Evidence of proficiency in these areas can also be demonstrated by relevant professional experience on a case-by-case basis. Please contact the program office for additional information.

Each candidate who applies to the University of Wyoming Master of Science in Accounting or Finance program is evaluated individually by our faculty and program directors. We consider each part of the application in a holistic assessment, including the candidate's reasons for pursuing the degree, interview responses, prior academic performance, work experience, and letters of recommendation.

Students are admitted on a rolling basis with applications evaluated as soon as they are completed. It typically takes no more than two weeks to receive an admission decision.

Application Deadlines

Fall Admission

- Block 1 Final Deadline: June 30
- Block 2 Final Deadline: October 1
- Priority Deadline: May 1

Spring Admission

- Block 1 Final Deadline: December 1
- Block 2 Final Deadline: February 1
- Priority Deadline: October 1

Summer Admission

- Final Deadline: April 1
- Priority Deadline: February 1

International applicants: Please be advised that there are additional university requirements that may take additional processing time - you are encouraged to apply prior to the application deadline if possible to ensure that if admitted, all required documentation can be provided prior to the term of entry.

Program Specific Degree Requirements

Master of Science in Accounting

The objectives of the master of science in accounting degree program are:

- To provide students with an advanced understanding of the field of accounting,
- To provide students with specific advanced knowledge of the sub-topics within accounting,
- To provide students with professional skills that will enable them to enjoy productive and rewarding careers in accounting and other accounting-related areas.

The program consists of a minimum of 30 semester hours of graduate coursework. Students must complete coursework in accounting and elective business and/or non-business areas. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level non-accounting courses (approximately six hours). Non-accounting courses should be selected in consultation with the student's graduate adviser. Non-accounting courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director, prior to the first day of such classes.

Students must take these 5 core accounting courses (minimum 15 credit hours):

ACCT 5030. Advanced Financial Accounting

ACCT 5040. Seminar in Managerial Accounting

ACCT 5060. Auditing II

ACCT 5070 Tax II Accounting Elective

ACCT 5065 Fraud Examination or ACCT 5066 Seminar on Mangement Fraud

A maximum of six hours may come from 4000- level courses offered in the College of Business or in other colleges at the University of Wyoming.

NOTE: ACCT 4010, 4020, 4050, 4060, 4100, 4600, 4900, and 5000 are not applicable for M.S. accounting students' programs of study.

The student must complete the required coursework (both graduate and prerequisite) with a minimum GPA of 3.000 (on a 4.000 scale).

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid dismissal.

Students must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student will be immediately dismissed from the program.

Finance Major

Modern business is characterized by its emphasis upon finance. The application of sound financial management principles often will be the difference between success and failure in business.

Courses prescribed for those who wish to major in finance are designed to provide a background for financial management of business concerns and, if students desire, to specialize in bank management, corporation finances and investment management. Since financial policies of business enterprises are subject to economic principles which make all businesses financially interdependent and sensitive to disturbances in the economic structure, students in this field should study the economic, as well as the technical, administrative aspects of finance and accounting. Prescribed work in this area attempts to emphasize all three phases of the subject.

All finance majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All finance courses for the major require a minimum grade of C.

A complete curriculum sheet is available from the Academic Advising unit of the GJSSC of the College of Business Building.

Graduate Study

The Master of Finance program will allow students to obtain advanced training built on the foundations of principles and practices of modern finance. The MS in Finance is a rigorous, yet practical program that encompasses the fundamentals as well as cutting-edge topics in investment analysis, portfolio management, financial modeling, risk management, and fixed income securities. The MS in Finance program aims to make you well prepared to evaluate and react to change with confidence and to develop effective solutions to meet the needs of markets and industries.

The objectives of the master of science in finance are:

To provide students with an advanced understanding of the field of finance.

To provide students with specific advanced knowledge of the subtopics within finance.

To provide students with professional skills that will enable them to enjoy productive and rewarding careers in finance and other finance-related areas.

Program Specific Admission Requirements

Admission to the Master of Science in Finance program generally requires:

- Completed University of Wyoming Graduate Admissions Application and nonrefundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.000 scale.
- GRE/GMAT Optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.).
- Official transcripts of all undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Office of Admissions Office of Admissions Office at 1000 E.University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Note: These are the minimum requirements and do not guarantee admission or funding. The University of Wyoming MS in Finance program does not provisionally or conditionally admit students.

Additional Requirements for International Applicants:

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 540 on the paper-based test (TOEFL PBT) or a score of 76 on the internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 6.5. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions). (not applicable for distance education students)
- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university may be exempt from providing proof of English proficiency.

Prerequisites

No prerequisite courses will be required if you have completed a business or STEM bachelors or masters degree from a regionally accredited college or university with the minimum preferred 3.0 GPA (based on a 4.0 scale).

Applicants without a business or STEM related undergraduate or graduate degree with a minimum 3.0 GPA must provide evidence of proficiency in the following areas:

Business Math and Statistics

Financial Management

Application Deadlines

Each candidate who applies to the University of Wyoming Master of Science in Accounting or Finance program is evaluated individually by our faculty and program directors. We consider each part of the application in a holistic assessment, including the candidate's reasons for pursuing the degree, interview responses, prior academic performance, work experience, and letters of recommendation.

Students are admitted on a rolling basis with applications evaluated as soon as they are completed. It typically takes no more than two weeks to receive an admission decision.

Fall Admission

- Block 1 Final Deadline: June 30
- Block 2 Final Deadline: October 1
- Priority Deadline: May 1

Spring Admission

- Block 1 Final Deadline: December 1
- Block 2 Final Deadline: February 1
- Priority Deadline: October 1

Summer Admission

- Final Deadline: April 1
- Priority Deadline: February 1

International Applicants: Please be advised that there are additional university requirements that may take additional processing time - you are encouraged to apply prior to the application deadline if possible to ensure that if admitted, all required documentation can be provided prior to the term of entry.

Program Specific Degree Requirements

Master of Science in Finance

The program consists of a minimum of 30 semester hours of graduate coursework. Students must complete coursework in finance and elective business and/or non-business areas. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level non-finance courses (approximately six hours). Non-finance courses should be selected in consultation with the student's graduate advisor. Non-finance courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director, prior to the first day of such class.

General Finance Track

- FIN 5310: Investment Management (3)
- FIN 5400: Financial Modeling (3)
- 15 credit hours Finance electives + 9 credit hours other business electives (maximum 6 credit hours can be 4000 level).

MS in Finance (CFP Track) Core - Required Courses

- FIN 5310: Investment Management (3)

- FIN 5070: Tax Planning for Financial Planners (3)
- FIN 5720: Retirement/ Insurance Planning (3)
- FIN 5750: Fundamentals of Financial Planning (3)
- FIN 5780: Estate Planning (3)
- FIN 5800: CFP Capstone (3)
- FIN 5400: Financial Modeling (3)
- Finance Electives (9ch) (maximum 6 credit hours can be 4000 level).

The student must complete the required coursework with a minimum GPA of 3.000 (on a 4.000 scale).

Student must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, student will be immediately dismissed from the program.

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid dismissal.

Major

Accounting, B.S.

The Accounting major prepares students for a career within the profession by providing them with the skills to create, interpret and analyze economic and financial information while focusing on assurance, financial and tax services.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on

developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 30

Accounting Core: 21 Credits

ACCT3070 - Tax I

Credits: 3

This class covers a broad range of the tax concepts applicable to the taxation of individual taxpayers. Special emphasis will be placed on the role of taxation of the individual and the related decision-making process.

Prerequisite: ACCT 2010 and ACCT 2020, Advance Business Standing.

ACCT3230 - Intermediate Accounting I

Credits: 3

First of two courses studying financial reporting. Topics include recording and reporting events in the expenditure and revenue cycles.

Former Course Number [2230]

Prerequisite: ACCT 2010 , ACCT 2020 and MATH 1400 with grades of C or better in each; sophomore class standing.

ACCT3240 - Cost Accounting I

Credits: 3

Organizational uses of information to plan, make decisions, and evaluate performance. Specific topics include job order and process costing, cost estimation and CVP analysis, budgeting and variance analysis.

Former Course Number [2240]

Prerequisite: ACCT 2010, ACCT 2020 and MATH 1400 with grades of C or better in each; sophomore class standing.

ACCT3430 - Intermediate Accounting II

Credits: 4

Second of two courses studying financial reporting. Topics include debt, equity, revenue recognition, and special issues in expense and liability recognition.

Prerequisite: ACCT 3230 with grade of C or better; advanced business standing, or special permission of Department Head.

ACCT3610 - Accounting Information Systems

Credits: 3

Provides an understanding of accounting information systems and internal controls. Emphasis on the use of current accounting technology, accounting software and internal control systems.

Former Course Number [2040, 3010]

Prerequisite: ACCT 3230 with a grade of C or better; advanced business standing.

- ACCT 3900 - Accounting Professional Skills

ACCT4060 - Auditing I

Credits: 3

A study of the scope, activities, and responsibilities of professional auditors. Topics include assurance services by public accountants and the methods and techniques used to provide these services, with a focus on the audits of financial statements and internal controls performed by external auditors.

Prerequisite: ACCT 3230 with a grade of C or better; ACCT 3610 with a grade of C or better (or concurrent enrollment)

Accounting Elective: 3 Credits

Choose 1 of the Following:

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

ACCT4960 - Volunteer Income Tax Assistance

Credits: 1-3

Max Credit 3

The Volunteer Income Tax Assistance (VITA) program is an IRS-sanctioned program designed to help low-income individuals and families file their federal and state taxes through trained volunteers. This course trains students to assist taxpayers in filing tax returns through the VITA program.

Prerequisite: ACCT 3070 (or concurrent).

Advanced Business Electives: 6 Credits

Any business courses at a 3000+ level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 18 Credits

Courses from any college at any level that have not been used to meet any other primary major requirements.

A complete curriculum sheet is available from the College of Business Peter M. and Paula Green Johnson Student Success Center in the College of Business Building.

Please Note:

All accounting courses for the major require a minimum grade of C. In addition to university and college requirements cited previously, requirements for accounting majors are listed above.

Students who anticipate preparing themselves for the CPA examination following completion of their degree should be aware of the Wyoming statute governing eligibility to sit for the exam. Please see the state board's web site for information: cpaboard.state.wy.us. The current combined curricula (B.S. and M.S.) enable students to satisfy the educational requirements to sit for the CPA exam in Wyoming and other jurisdictions.

Finance, B.S.

The Finance major provides the principal concepts for students to understand financial management of business concerns and, if students desire, to specialize in bank management, corporation finances and investment management.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

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Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Finance Core: 12 Credits

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

FIN4400 - Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 5400.

Prerequisite: FIN 2100, FIN 3310, IMGT 2400, advanced business standing.

FIN3310 - Investment Management

Credits: 3

Fundamental principles of investments and practical implications of financial theory. Students acquire a framework for understanding returns on financial assets, risk and return, fundamentals of portfolio theory, efficient market hypothesis, and asset pricing models. Other topics include financial statement analysis, behavioral finance, and introduction to options and futures.

Former Course Number [4310]

Prerequisite: FIN 2100 and advanced business standing.

FIN4250 - Advanced Corporate Finance

Credits: 3

Give students a better appreciation of the techniques and theories of corporate finance and investments that may have been introduced in introductory finance courses.

USP 2015 Code U5C3

Prerequisite: FIN 2100.

Finance Electives: 3 Credits

Choose 1 of the Following:

FIN3520 - Financial Markets

Credits: 3

Portfolio and capital market theory and the analysis of risk are introduced. Integrates theory into practical aspects of financial markets.

Former Course Number [4520]

Prerequisite: FIN 2100, STAT 2010 or STAT 2050/STAT 2070, and advanced business standing.

FIN4340 - Portfolio Management I

Credits: 3

Manage, monitor and invest real money provided by the State of Wyoming and the University of Wyoming Foundation. Students should obtain from the course the ability to construct investment portfolios from scratch, to learn the signals from which to obtain sell and buy data and the ability to act on this information.

Prerequisite: FIN 3310 and advanced business standing.

FIN4350 - Portfolio Management II

Credits: 3

Manage, monitor and invest real money provided by the State of Wyoming and the University of Wyoming Foundation. Students should obtain from the course the ability to construct investment portfolios from scratch, to learn the signals from which to obtain sell and buy data and the ability to act on this information.

Prerequisite: FIN 3310 and advanced business standing.

FIN4360 - Options and Futures

Credits: 3

Provides an introduction to financial futures such as currency futures and interest rate futures. Explores the markets on which they are traded. Also analyzes pricing of options and other derivative securities. Includes the leverage and risk aspects of options.

Prerequisite: FIN 2100, FIN 3310.

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

FIN4530 - Fixed Income Securities

Credits: 3

Provides an overview of the fixed income securities markets, pricing and risk management. In so doing, the course follows the CFA institute learning objectives of the CFA exam. We first introduce the major forms of fixed income securities. We then delve into valuation of these securities using a myriad of pricing techniques. We then embark on credit risk analysis, followed by fixed income portfolio management. Ultimately, the course aims at preparing students

for most challenging and yet active fixed income markets: corporate bonds and mortgage securities.

Dual Listed FIN 5530.

Prerequisite: FIN 2100, advanced business standing.

FIN4540 - Banking Policy

Credits: 3

Intended to be taken either with or after FIN 4510, Bank Management, and will cover similar topics but in greater depth and breadth. Integrated application of these topics will take place in a selection of case studies, some of which will be analyzed in teams.

Prerequisite: FIN 4510 or concurrent enrollment in FIN 4510.

FIN4710 - Risk Management

Credits: 3

Analyzes the risk management and insurance problem in the business enterprise with emphasis on methodology for risk analysis; techniques for risk and loss control; and models for risk management decision-making.

Dual Listed FIN 5710.

Prerequisite: FIN 2100

Advanced Business Electives: 6 Credits

Any business courses at a 3000+ level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 27 Credits

- Courses from any college at any level - Credits: 21
- Courses from any college at a 3000+ level - Credits: 6

Minor

Banking and Financial Services Minor

The Banking and Financial Services minor introduces the student to the field and provides them with a greater understanding of how the banking system functions to provide service and value to the economy.

Finance Requirement

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics

covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

FIN4540 - Banking Policy

Credits: 3

Intended to be taken either with or after FIN 4510, Bank Management, and will cover similar topics but in greater depth and breadth. Integrated application of these topics will take place in a selection of case studies, some of which will be analyzed in teams.

Prerequisite: FIN 4510 or concurrent enrollment in FIN 4510.

FIN4530 - Fixed Income Securities

Credits: 3

Provides an overview of the fixed income securities markets, pricing and risk management. In so doing, the course follows the CFA institute learning objectives of the CFA exam. We first introduce the major forms of fixed income securities. We then delve into valuation of these securities using a myriad of pricing techniques. We then embark on credit risk analysis, followed by fixed income portfolio management. Ultimately, the course aims at preparing students for most challenging and yet active fixed income markets: corporate bonds and mortgage securities.

Dual Listed FIN 5530.

Prerequisite: FIN 2100, advanced business standing.

Advanced Business Electives

- Any Business Course (3000-level or higher) Credits: 3
- Any Business Course (3000-level or higher) Credits: 3

Minor Total Credits: 15

Blockchain Minor

This minor lays the foundation for gaining a competitive advantage in the blockchain ecosystem by providing an understanding of the implications and business opportunities associated with blockchain and digital assets and how they affect global industries.

Blockchain Core - Credits: 9

BKCH3021 - Fundamentals of Blockchain

Credits: 3

The purpose of this course is to provide a fundamental understanding of blockchain technologies and their implications. Topics will focus on understanding how blockchain may change the way we think about money, disrupt traditional financial institutions and eliminate costly intermediaries.

Prerequisite: Requires Junior Class Standing.

BKCH4021 - Business Applications of Blockchain

Credits: 3

This course provides advanced concepts underpinning the applications of global blockchain technologies for business and their use cases. Students will learn about the underlying technologies to be well-prepared to develop blockchain applications in the business world.

Prerequisite: BKCH 3021.

BKCH4121 - Case Studies in Block Chain

Credits: 3

This experiential learning focused course is targeted toward understanding the creation and development of blockchain ventures. Besides course lecture materials, students will study and support new blockchain ventures in a real-world setting.

Prerequisite: BKCH 3021.

Blockchain Electives - Credits: 6

Choose two from the following:

FIN4910 - Topics in Finance

Credits: 1-6
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT2030 - Principle-Based Ethics

Credits: 3
Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ES4920 - Entrepreneurship for Engineers

Credits: 3

Traditional engineering education does not prepare graduates for work in entrepreneurial ventures. The goal of this course is to have students demonstrate skills in developing business ideas, performing preliminary market research, estimating cash flow, and launching a business.

Prerequisite: 9 hours within an engineering discipline and junior standing.

COSC4010 - Special Topics in Computer Science

Credits: 1-3

Individual or small group pursuit of interdisciplinary problems in the use of computers or study of advanced topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: COSC 3020 concurrently and consent of instructor.

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

Total for Minor: 15 Credits

Data Analytics Minor

The Data Analytics minor is designed to provide the student with the skills necessary to gather, process and interpret the large amounts of data available in today's fast paced business environment.

Required Core

DSCI4240 - Computer Applications in Decision Sciences

Credits: 3

A study of decision science topics such as mathematical programming, Monte Carlo simulation, forecasting, project management and decision theory. The applications of computer techniques is emphasized.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, and junior class standing.

IMGT4500 - Business Analytics

Credits: 3

This class prepares students to understand, manage, and visualize data. Students will learn how to apply the appropriate analytic tools, and communicate the findings and their relevance. Topics covered include data wrangling, descriptive analytics, predictive analytics, and prescriptive analytics.

Prerequisite: IMGT 1400, STAT 2050 or equivalent

ECON4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGE 4230.

Dual Listed ECON 5230.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

OR

ECON4530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 5530.

Prerequisite: ECON 3020, and one of STAT 2010, STAT 2050, STAT 2070, or STAT 2110.

Advanced Business Electives

- Any Business Course (3000-level or higher) Credits: 3
- Any Business Course (3000-level or higher) Credits: 3

Minor Total Credits: 15

Real Estate Minor

The Real Estate minor enables students to gain broad understanding of this important market and as a result compete for jobs in many real estate related careers such as real estate management, investment, development, brokerage, appraisal and more.

Real Estate Requirement

FIN3100 - Real Estate Development

Credits: 3

This course presents the basic principles involved in real estate development. Topics include: land acquisition and appraisal, site improvements, market feasibility analysis, development financing, real estate government approval and regulations, real estate engineering and construction issues, real estate marketing and property operations and performances.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: ACCT 2010.

FIN4800 - Real Estate Finance

Credits: 3

Exposes students to the fundamentals of real estate finance such as mortgage financing, commercial leases, pro-forma analysis, financial modeling, tax implications, leveraged real estate and valuation of income producing properties. While the theory of each topic will be presented, the focus is on the applications of the material.

Prerequisite: FIN 2100 and advanced business standing.

FIN4810 - Real Estate Investment

Credits: 3

Covers advance real estate investment topics such as investments risk and valuation sensitivity analysis, futures and real options, liquid real estate investments, analysis of development projects, and commercial mortgage backed securities. While the theory the topics will be presented, the course focus is on the application of the material.

Prerequisite: FIN 2100 and advanced business standing

Real Estate Electives

Complete a minimum of 6 credits with courses from the below list:

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

FIN3310 - Investment Management

Credits: 3

Fundamental principles of investments and practical implications of financial theory. Students acquire a framework for understanding returns on financial assets, risk and return, fundamentals of portfolio theory, efficient market hypothesis, and asset pricing models. Other topics include financial statement analysis, behavioral finance, and introduction to options and futures.

Former Course Number [4310]

Prerequisite: FIN 2100 and advanced business standing.

FIN3520 - Financial Markets

Credits: 3

Portfolio and capital market theory and the analysis of risk are introduced. Integrates theory into practical aspects of financial markets.

Former Course Number [4520]

Prerequisite: FIN 2100, STAT 2010 or STAT 2050/STAT 2070, and advanced business standing.

FIN4510 - Bank Management

Credits: 3

Deals with financial decision-making in financial institutions, particularly emphasizing commercial banks. Topics covered include managing financial assets, deposit acquisition and capital management.

Prerequisite: FIN 2100 and advanced business standing.

FIN4540 - Banking Policy

Credits: 3

Intended to be taken either with or after FIN 4510, Bank Management, and will cover similar topics but in greater depth and breadth. Integrated application of these topics will take place in a selection of case studies, some of which will be analyzed in teams.

Prerequisite: FIN 4510 or concurrent enrollment in FIN 4510.

FIN4710 - Risk Management

Credits: 3

Analyzes the risk management and insurance problem in the business enterprise with emphasis on methodology for risk analysis; techniques for risk and loss control; and models for risk management decision-making.

Dual Listed FIN 5710.

Prerequisite: FIN 2100

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

BUSN4600 - Advanced Internship in Business

Credits: 3

Max Credit 6

Provides students with practical business knowledge, policy, procedure, and decision making. Students work as interns in operating organizations.

Prerequisite: MKT 2100, MGT 2100, FIN 2100, advanced business standing, approved internship application through the Peter M. & Paula Green Johnson Student Success Center.

Additional options for electives may be available. Consult your advisor for more options.

ERS4100 - Property I

Credits: 3

Property I addresses the nature of property ownership and the rights associated with property as well as the acquisition and transfer of ownership rights in property and the sharing of ownership rights over time, including estates, future interest, and concurrent estates.

ERS4105 - Property II

Credits: 3

Property II covers rights inherent to the ownership of property and public limitations on those rights.

Prerequisite: ERS 4100.

ERS4110 - Law of Contracts

Credits: 3

The Law of Contracts addresses the formation of a contract and the meaning of agreements and the justification of non-performance and breach.

Prerequisite: MGT 1040 and WB/C

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4130 - Oil and Gas Law

Credits: 3

Focuses on the basic legal rules and principles governing the ownership and development of oil and gas, derived from a combination of property, contract, administrative, tort, and constitutional law.

ERS4135 - Advanced Energy Law

Credits: 3

Covers oil, gas and other energy development and financing arrangements including assignments, leases, farmouts, joint operating agreements, purchase and sale agreements, service agreements and marketing agreements. Covers oil, gas and other energy development regulation, including, oil and gas conservation commission and state and federal environmental regulation. Introduces other forms of energy development, including, but not limited to, renewables, nuclear, CCUS, hydrogen, and the various agreement and regulatory nuances of such energy development. Covers ethical issues that may arise in energy development.

USP 2015 Code U5C3

Prerequisite: ERS 4130.

ERS2010 - Introduction to Land Management

Credits: 3

Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

Minor Total Credits: 15

Graduate

Accounting, M.S.

Students who wish to become professional accountants will find the online MS in Accounting degree to be one that enables them to develop both the personal and professional skills needed to enjoy a productive career.

Additional Requirements

The objectives of the master of science in accounting are:

- To provide students with an advanced understanding of the field of accounting,
- To provide students with specific advanced knowledge in selected sub-topics within accounting,
- To provide students with professional skills that will enable them to enjoy productive and rewarding careers in accounting and accounting-related areas.

The program consists of a minimum of 30 semester credit hours of graduate coursework. Students must complete coursework in accounting and elective business and/or non-business courses as approved by program leadership. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level accounting or non-accounting courses (approximately six total credit hours). Non-accounting courses should be selected in consultation with the student's graduate adviser. Non-accounting courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director prior to the first day of such classes. Courses reserved for graduate credit may also not be counted towards the undergraduate degree requirements. Approved reservation of courses for graduate credit does not guarantee admission to the graduate program.

Core Accounting Courses

Students must take these 4 core accounting courses (minimum 12 credit hours):

ACCT5030 - Advanced Financial Accounting

Credits: 3

Advanced topics in financial reporting for students planning careers as professional accountants. Topics may include: business combinations, consolidated financial reporting, segment and interim reporting, SEC reporting, multinational accounting and reporting, and other emerging topics.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5040 - Seminar in Managerial Accounting

Credits: 3

Organizational development of financial and nonfinancial budgets, interaction between performance measurement systems and human behavior, and advanced topics in uses of information for decision making.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5060 - Auditing II

Credits: 3

An in-depth study of the financial statement audit and the professional responsibilities of public accountants. The role of professional judgment and skepticism is emphasized in case studies and research involving current auditing issues, including financial statement fraud.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5070 - Tax II

Credits: 3

Choice of entity and special tax subjects. Emphasis will be placed on the importance of ethical considerations, competent tax research, and thoughtful tax planning.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

Required Accounting Elective

Students must take one of the following courses:

ACCT5065 - Fraud Examination

Credits: 3

The study of fraud against organizations and individuals. Includes consideration of how and why fraud is committed, the basics of fraud investigation, and fraud prevention. Coverage may also include an in-depth study of specific fraud cases based on the above elements.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

ACCT5066 - Seminar on Management Fraud

Credits: 3

An in-depth study and analysis of the causes, methods, and consequences of financial statements fraud committed by top management in the organization. The course covers psychological and criminological theories of management fraud, as well as detailed analysis of high-profile managements frauds. Seminar format.

Restricted MS-ACCT

Prerequisite: Admission to the MS in Accounting Program or department approval.

Note(s):

NOTE: ACCT 4060, ACCT 4900, ACCT 5000, and ACCT 5940 are not applicable to M.S. accounting students' programs of study.

The student must complete the required coursework with a minimum GPA of 3.000 on a 4.000 scale.

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid suspension. If a 3.000 GPA is not attained in the subsequent semester, the student will be suspended from the MS Accounting program and the University of Wyoming.

Students must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Finance, M.S.

The MS in Finance program is a rigorous, yet practical program built on the foundations of principles and practices in modern finance, with an optional CFP (Certified Financial Planner) track.

Additional Requirements

The program consists of a minimum of 30 semester hours of graduate coursework. Students must complete coursework in finance and elective business and/or non-business areas as approved by program leadership. Eighty percent of the student's total coursework must consist of 5000-level courses; the remaining 20 percent may be 4000-level finance or non-finance courses (approximately six hours). Non-finance courses should be selected in consultation with the student's graduate advisor. Non-finance courses at the 4000-level may be taken during the senior year of undergraduate study and applied to the master's program, but they must be reserved for graduate credit and approved by the graduate program director prior to the first day of such classes. Courses reserved for graduate credit may also not be counted towards the undergraduate degree requirements. Approved reservation of courses for graduate credit does not guarantee admission to the graduate program.

The student must complete the required coursework with a minimum GPA of 3.000 on a 4.000 scale.

Any student falling below a cumulative GPA of 3.000 is automatically placed on probation for the following semester and must raise their GPA to 3.000 to avoid suspension. If the 3.000 GPA is not attained in the subsequent semester, the student will be suspended from the MS in Finance program and the University of Wyoming.

Student must maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, student may be immediately dismissed from the program

General Finance Track

FIN5310 - Advanced Investment Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5250 - Cases in Corporate Finance

Credits: 3

Max Credit 3

The goal of this course is to enhance students' understanding of major corporate decisions, and to explore the role such decisions play in value creation within a corporation. Some issues covered in the course will include analyzing companies' historical performance, forecasting future performance, estimating hurdle rates, and analyzing resource allocation choices.

Restricted MS Finance and/or CFP Certificate

Prerequisite: Admission to MS Finance and/or CFP Certificate Program, or department approval

FIN5400 - Advanced Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 4400.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

- 21 credit hours of 4000 or 5000 level College of Business electives.
- Maximum of 6 credit hours can be taken at the 4000 level.

CFP Track

FIN5070 - Tax Planning for Financial Planners

Credits: 3

Focuses on principles, current law, and practice of income taxation and its impact on financial planning for individuals, couples, and families in their role as investors, employees, and business owners.

Dual Listed FIN 4070.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5250 - Cases in Corporate Finance

Credits: 3

Max Credit 3

The goal of this course is to enhance students' understanding of major corporate decisions, and to explore the role such decisions play in value creation within a corporation. Some issues covered in the course will include analyzing companies' historical performance, forecasting future performance, estimating hurdle rates, and analyzing resource allocation choices.

Restricted MS Finance and/or CFP Certificate

Prerequisite: Admission to MS Finance and/or CFP Certificate Program, or department approval

FIN5310 - Advanced Investment Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5400 - Advanced Financial Modeling

Credits: 3

Involves the application of basic econometric methods to the analysis of financial data. Focus is on utilizing spreadsheets and other softwares to facilitate financial decision making.

Dual Listed FIN 4400.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5720 - Insurance and Retirement Planning

Credits: 3

This class is designed to help graduate students understand various topics in retirement and insurance planning for individuals and families.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5750 - Fundamentals of Financial Planning

Credits: 3

This is a survey course for financial planning and wealth management. The topics include insurance planning, tax planning, investment planning, retirement planning, estate planning, and professional conduct. The course will focus on acquiring a framework for understanding the major components of financial planning and developing a coordinated financial plan.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5780 - Estate Planning

Credits: 3

This course will cover general reliability modeling and evaluation; probability and stochastic processes; system modeling; methods of reliability assessment (state space, frequency balancing, cut-set and tie-set analysis, decomposition, Monte Carlo simulation); and reliability modeling and analysis of electric power systems: bulk power systems, distribution systems, and industrial systems.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5800 - CFP Capstone

Credits: 3

This course will be organized around the four major areas of financial planning, as outlined by the College of Financial Planning curriculum. These four key areas are as follow: retirement planning; income tax planning; investment planning; and estate tax planning.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to the MS program or permission of the Department Head.

- 6 credit hours of 4000 or 5000 level College of Business electives.
- Maximum of 6 credit hours can be taken at the 4000 level.

Certificate

Certified Financial Planning Certificate (Graduate)

The certificate is composed of 18-credits of masters-level graduate coursework with the primary goal of providing students with the education, training, and skills necessary to be able to sit for the Certified Financial Planner (CFP) examination.

Additional Requirements

The curriculum is aligned with the CFP® Board's Principal Knowledge Topics and covers principles and practices of essential areas of financial planning, including:

- Wealth Management
- Investment Management
- Tax Planning
- Estate Planning
- Insurance and Retirement Planning

CFP Certificate Requirements

FIN5070 - Tax Planning for Financial Planners

Credits: 3

Focuses on principles, current law, and practice of income taxation and its impact on financial planning for individuals, couples, and families in their role as investors, employees, and business owners.

Dual Listed FIN 4070.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5310 - Advanced Investment Analysis

Credits: 3

The theory of investment management and security values, portfolio management including the analysis of investment policies and objectives, the analysis and use of investment information, and the development and application of the tools for determining values.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5720 - Insurance and Retirement Planning

Credits: 3

This class is designed to help graduate students understand various topics in retirement and insurance planning for individuals and families.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5750 - Fundamentals of Financial Planning

Credits: 3

This is a survey course for financial planning and wealth management. The topics include insurance planning, tax planning, investment planning, retirement planning, estate planning, and professional conduct. The course will focus on acquiring a framework for understanding the major components of financial planning and developing a coordinated financial plan.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5780 - Estate Planning

Credits: 3

This course will cover general reliability modeling and evaluation; probability and stochastic processes; system modeling; methods of reliability assessment (state space, frequency balancing, cut-set and tie-set analysis, decomposition, Monte Carlo simulation); and reliability modeling and analysis of electric power systems: bulk power systems, distribution systems, and industrial systems.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to MS in Finance and/or CFP Certificate Program or department approval.

FIN5800 - CFP Capstone

Credits: 3

This course will be organized around the four major areas of financial planning, as outlined by the College of Financial Planning curriculum. These four key areas are as follow: retirement planning; income tax planning; investment planning; and estate tax planning.

Restricted MS-FIN and/or CERT-CFP

Prerequisite: Admission to the MS program or permission of the Department Head.

- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Department of Economics

260W Business Building, (307) 766-2175

Web site: www.uwyo.edu/economics

Department Chairman: David Aadland

Wyoming Excellence Chair in Conservation Economics:

H. JO ALBERS, B.S. Duke University 1985; M.E.S. Yale University 1987; Ph.D. University of California at Berkeley 1993; Professor of Economics 2014.

Wyoming Excellence Chair in Economics and McMurry Fellow:

DAVID C. FINNOFF, B.S. University of Wyoming 1994; Ph.D. 2001; Professor of Economics 2018, 2004.

H.A. (Dave) True, Jr. Chair in Petroleum and Natural Gas Economics:

CHARLES F. MASON, A.B. University of California 1977; Ph.D. 1983; Professor of Economics 1994, 1982.

Stroock Chair of Natural Resource and Environmental Economics:

JASON F. SHOGREN, B.A. University of Minnesota-Duluth 1980; Ph.D. University of Wyoming 1986; Professor of Economics 1995.

John S. Bugas Chair in Economics:

TODD CHERRY, B.S.B.A. Appalachian State University 1992; M.A. University of North Carolina Greensboro 1995; Ph.D. University of Wyoming, 1999. Professor of Economics, Graduate Director.

Professors:

TIMOTHY J. CONSIDINE, B.A. Loyola University 1975; M.S. Purdue University 1977; Ph.D. Cornell University 1981; Professor of Economics 2008.

Associate Professors:

DAVID M. AADLAND, B.A. Augustana College 1991; M.S. University of Oregon 1996; Ph.D. 1997; Department Chairman, 2018; Associate Professor of Economics 2005, 2003.

ROBERT GODBY, B.S. Trent University 1990; M.A. University of Guelph 1992; Ph.D. McMaster University 1997; Center for Energy Economics and Public Policy Director, and Associate Professor of Economics 2003, 1997.

THORSTEN M. JANUS, B.A. University of Copenhagen 2000; M.A. University of California at Santa Cruz 2003; Ph.D. 2006; Associate Professor of Economics 2012.

STEPHEN NEWBOLD, B.S. University of California, Davis 1995; M.S. 2002; Ph.D. 2002; Associate Professor of Economics 2018.

ALEXANDRE SKIBA, Specialist Diploma Rivne State Technical University 1999; M.S. Purdue University 2001; Ph.D. 2003; Associate Professor of Economics 2019, 2012.

LINDA THUNSTROM, M.S. Umea University, Sweden 1999; Ph.D. Umea University Sweden 2008; Associate Professor of Economics 2013.

KLAAS T. VAN 'T VELD, B.Sc. University of London 1992; M.S. University of California Berkeley 1993; Ph.D. 1997; Associate Professor of Economics 2010, 2004.

Assistant Professors:

BENJAMIN COOK, B.S. University of Wyoming 2003; Ph.D. 2011; Visiting Assistant Professor/Enhanced Oil Recovery Institute 2012.

FELIX NASCHOLD, B.S. University of London 1994; M.S. 1995; Ph.D. Cornell University 2008; Assistant Professor of Economics 2014.

Academic Professionals:

TYLER KJORSTAD, B.A. College of St. Scholastica 2009; M.S. University of Minnesota Duluth 2012; M.S. University of Wyoming 2014, Director of Undergraduate Studies in Economics.

Professors Emeriti:

Thomas D. Crocker, Owen R. Phillips, Sherrill Shaffer

Business Economics Major

The science of efficient allocation, economics has much to offer students in the way of general and specialized preparation for positions in business, as well as government and the academic profession.

All Business Economics majors must comply with requirements of the advanced business standing prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

A complete curriculum guide is available from the Peter M. & Paula Green Johnson Student Success Center in the College of Business.

Economics and Business Economics majors must hold a 2.500 cumulative grade point average in all economics courses at graduation, as well as a minimum 2.500 cumulative UW grade point average and a minimum 2.500 grade point average in all College of Business courses.

With approval of the department chair, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of 4000-level economics courses.

Students who intend to continue on to graduate work are urged to give special attention to courses in economics theory, statistics and mathematics. Those planning a career in econometrics or mathematical economics should consult the department head as to mathematics and statistics requirements in these fields of study.

Economics Undergraduate Major

This program is designed to meet the requirements of AACSB International (the Association to Advance Collegiate Schools of Business), the University of Wyoming, and the College of Business.

Minimum requirements include:

Minimum of 42 semester hours of 3000+ level courses. 30 of the 42 hours must be earned from UW.

2.50 grade point average in all College of Business courses, Economics courses, and all institution (UW) courses.

50% of the business credit hours must be from the University of Wyoming.

Grade of C or above required for University Studies Program: FY, CI, C2, and C3.

Grade of C or above required for common body of knowledge and major specific core courses.

A maximum of 6 hours at the 1/2000 level and 3/4000 level military science may be applied to degrees in the College of Business.

A complete curriculum guide is available from the Peter M. & Paula Green Johnson Student Success Center in the College of Business.

With approval of the department chair, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of the 4000-level economics electives.

This program allows considerable flexibility for the student to specialize in interdisciplinary study. For example, the student can be advised on selecting upper level division courses for pre-law study, political economy, environmental and natural resources, women's studies, and international studies.

Students who intend to continue in graduate work should give special attention to courses in economic theory, statistics and mathematics. Those planning a career in mathematical economics or econometrics should consult the department head regarding the mathematics and statistics requirements in these fields of study.

Graduate Study

The Department of Economics offers programs leading to a master of science degree in economics and the doctor of philosophy degree in economics.

Program Specific Admission Requirements

Economics Program

Admission to the economics graduate programs is granted to students who show high promise of success. Candidates of high promise generally have a cumulative grade point average of 3.000 or better (A=4.000) and score above 300 (for MS) and 310 (for PhD) combined on the verbal and quantitative sections of the GRE, with particular emphasis on strong quantitative and analytical scores. Such scores and grades do not guarantee admission.

The TOEFL is required for international students in accordance with University rules.

The Department of Economics requires that students have completed courses in intermediate micro and macro theory (ECON 3010, ECON 3020 or equivalent), statistics, and 6 hours of introductory calculus (MATH 2200, MATH 2205 or equivalent) for the MS program. A course in linear algebra (MATH 2050) is required for the PhD program.

Program Specific Degree Requirements

Master of Science in Economics

A minimum of 18 hours in economics is required; at least 15 of these must be at the 5000 level. A basic core sequence of ECON 5010 (macro), 5390 (math micro), 5530 (computational), 5230 (econometrics), and 5300 (game theory) is required, which completes 15 hours of 5000-level courses, which is required.

The student must complete 26 hours of coursework and 4 hours of ECON 5960 Thesis Research for the Plan A option. The student must complete 30 hours of coursework and a project for the Plan B option.

Students may take 4000-level courses for graduate credit up to 6 hours.

A maximum of 6 semester hours of graduate coursework not used toward any other degree from another institution may be applied to the M.S. economics program subject to regulations regarding transfer of credit listed in this bulletin and with the approval of the director of graduate studies.

At the beginning of the third semester, the student selects a major professor who directs the Plan A thesis or Plan B project. A graduate committee, nominated by the major professor, the student, and the department chair, conducts an oral examination of the student on the project or thesis and area he/she has studied in the program. A favorable report by the committee and approval by the Office of the Registrar complete the degree requirements.

The majority of students complete the M.S. degree within two years.

QuickStart Master of Science in Economics

UW undergraduates can complete the M.S. degree in just one year after completing their B.S. degree if they apply to the QuickStart M.S. program in their junior year. To be eligible, students must have (and maintain) a cumulative GPA of 3.200 or better as well as an Economics GPA of 3.200 or better. They are also required to take the GRE by the fall of their senior year and score above 300 combined on the verbal and quantitative sections combined. The GRE requirement can be waived by the Graduate Director or Director of Undergraduate Studies. Two letters of recommendation from UW economics faculty members are also required. Admission to the QuickStart program allows students to double-count 6 credits of courses taken as an undergraduate towards both the B.S. and M.S. degrees, and reserve an additional 6 credits of courses taken as an undergraduate towards the M.S. degree alone. This then leaves only 18 credits to be taken after completion of the B.S. degree, which is feasible in just one year.

Doctoral Program

Doctor of Philosophy in Economics

The doctor of philosophy degree in the field of economics at the University of Wyoming requires a minimum of 42 hours of coursework. All coursework must be at the graduate (5000) level.

The program is designed to give the student a strong foundation in economic theory and the basic quantitative tools necessary for professional research. If students receive a grade lower than an **A** during their first year, they must take a comprehensive exam in that field (microeconomics and/or econometrics) during the summer to continue to the second year of the PhD program. The program's qualifying exam takes the form of a research paper written during the second summer and defended to, and approved by, a faculty committee by early in the third year, with revisions and resubmission required by December. Students who pass the qualifying paper requirement receive an MS degree and move on in the PhD program, while students who fail this requirement receive the MS degree and fail out of the PhD program.

During the third year, or no later than the first few weeks of the fourth year, a graduate committee nominated by the student's major professor and the director of graduate studies conducts an oral examination of the student. The purpose of the oral examination is to determine whether the student has formulated a workable dissertation project and has the necessary skills to complete it.

Following successful completion of the dissertation, and completion of a departmental requirement of 30 hours of dissertation research, the student presents an oral defense to the graduate committee. The doctor of philosophy degree is granted on recommendation of the committee and approval by the Office of the Registrar, providing all other requirements have been satisfactorily fulfilled.

Major

Business Economics, B.S.

Economics is the science of decision making and how to create value through trade. An business economics degree will provide you the tools to work on challenging policy issues and employ data analytics to address those issues.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on

developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Common Body of Knowledge - Credits: 33

College of Business Common Body of Knowledge Courses

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Economics Core: 9 Credits

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON4240 - Evolution of Economic Ideas

Credits: 3

Focuses on the most influential economists who have shaped the evolution of economic thinking throughout history. Emphasis is on tracing the evolution of economic thought into the modern intellectual foundation of economics. Traces changing economic thought from mercantilism through modern paradigms.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Restricted Restricted to Seniors in Economics, Business Economics, or a concurrent major with Economics.

Prerequisite: Senior standing and ECON 3010 and ECON 3020, or permission of instructor.

Economics Electives: 6 Credits

Any Economics Courses at a 4000+ level that have not been used to meet any other primary major requirements.

Advanced Business Electives: 6 Credits

Any business courses at a 3000+ level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 27 Credits

- Courses from any college at any level - Credits: 21
- Courses from any college at a 3000+ level - Credits: 6

Additional Requirements

All Business Economics majors must comply with requirements of the advanced business standing prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

A complete curriculum sheet is available from the Academic Advising unit of the GJSSC in the College of Business Building.

Business Economics majors must hold a 2.500 cumulative grade point average in all economics courses at graduation, as well as a minimum 2.500 cumulative UW grade point average and a minimum 2.500 grade point average in all College of Business courses.

With approval of the department chair or director of undergraduate studies, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of 4000-level economics courses.

Students who intend to continue on to graduate work are urged to give special attention to courses in economics theory, statistics and mathematics. Those planning a career in econometrics or mathematical economics should consult the department head as to mathematics and statistics requirements in these fields of study.

Economics, B.S.

Economics is the science of decision making and how to create value through trade. An economics degree will provide you with the tools to work on challenging policy issues and employ data analytics to address those issues.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Requirements - Total Credits: 120

Major Specific Courses - Credits: 48

Economics Core: 15 Credits

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON4240 - Evolution of Economic Ideas

Credits: 3

Focuses on the most influential economists who have shaped the evolution of economic thinking throughout history. Emphasis is on tracing the evolution of economic thought into the modern intellectual foundation of economics. Traces changing economic thought from mercantilism through modern paradigms.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Restricted Restricted to Seniors in Economics, Business Economics, or a concurrent major with Economics.

Prerequisite: Senior standing and ECON 3010 and ECON 3020, or permission of instructor.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Economics Electives: 12 Credits

Any Economics courses at a 4000+ level that have not been used to meet any other primary major requirements.

Optional Quantitative Concentration: 21 Credits

ECON4230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGEC 4230.

Dual Listed ECON 5230.

When Offered (Normally offered spring semester)

Former Course Number [4340]

Prerequisite: ECON 3020, STAT 2050 or STAT 2070, and MATH 2350.

ECON4530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 5530.

Prerequisite: ECON 3020, and one of STAT 2010, STAT 2050, STAT 2070, or STAT 2110.

Students must take one of the following courses:

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

Students will need Free Electives from any college at a 3000 + level - Credits: 15

Free Electives from Any College: 33 Credits

Courses from any college at any level - Credits: 33

Additional Requirements

The Economics major in the College of Business must complete 30 semester hours in economics courses.

All Economics majors must comply with course specific prerequisites for enrollment in upper-division courses and must complete all university studies courses as listed above previously. Students must earn a minimum grade of C (not C-) in all Economics courses.

This program is designed to meet the requirements of AACSB International (the Association to Advance Collegiate Schools of Business), the University of Wyoming, and the College of Business.

Minimum requirements include:

Minimum of 42 semester hours of 3000+ level courses. 30 of the 42 hours must be earned from UW.

2.50 grade point average in all College of Business courses, Economics courses, and all institution (UW) courses.

50% of the business credit hours must be from the University of Wyoming.

Grade of C (C- not acceptable) or above required for University Studies Program: FY, CI, C2, and C3.

Grade of C (C- not acceptable) or above required for common body of knowledge and major specific core courses.

A maximum of 6 hours at the 1/2000 level and 3/4000 level military science may be applied to degrees in the College of Business.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

With approval of the department chair, students may substitute work in certain areas of accounting, agricultural economics, business administration, history, political science, finance, mathematics, statistics or law for 6 hours of the 4000-level economics electives.

This program allows considerable flexibility for the student to specialize in interdisciplinary study. For example, the student can be advised on selecting upper level division courses for pre-law study, political economy, environmental and natural resources, women's studies, and international studies.

Students who intend to continue in graduate work should give special attention to courses in economic theory, statistics and mathematics. Those planning a career in mathematical economics or econometrics should consult the department head regarding the mathematics and statistics requirements in these fields of study.

Minor

Economics Minor

Economics is the science of decision making and how to create value through trade. An economics degree will provide you the tools to work on challenging policy issues and employ data analytics to address those issues.

Economics Requirement

ECON3010 - Intermediate Macroeconomics

Credits: 3

A presentation and study of national income aggregates and accounting; equilibrium analysis of output, employment and the price level; general equilibrium analysis; and an introduction to economic dynamics.

Former Course Number [2010, 4010]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

ECON3020 - Intermediate Microeconomics

Credits: 3

Key problems of environmental degradation and natural resource scarcity are identified. Main underlying causes of misuse and overuse are explained from an economics perspective. Policy options for improved management are presented. These economic concepts and tools are then applied to current real world environment and natural resource issues.

Former Course Number [2020, 4020]

Prerequisite: ECON 1010, ECON 1020, MATH 2200 (or MATH 2350), STAT 2050 or STAT 2070 strongly recommended, and sophomore class standing.

Advanced Economics Electives

- Any ECON Course Credits: 3 (excl. ECON 3010, ECON 3020)
- Any ECON Course (4000-level) Credits: 6

Minor Total Credits: 15

Graduate

Economics, M.S.

Economics is the science of decision making and how to create value through trade. An economics degree will provide you with the tools to work on challenging policy issues and employ data analytics to address those issues.

Requirements - Total Credits: 30

Required Economics Courses - Credits: 15

ECON5010 - Advanced Macroeconomic Analysis

Credits: 3

An advanced application of economic theory to complex macroeconomics problems facing the economy of the state and nation, such as inflation, unemployment, and fiscal and monetary policies.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5230 - Intermediate Econometric Theory

Credits: 3

Covers simple and multiple regression models, problems of estimation, hypothesis and diagnostic testing, dummy variable, autoregressive and distributed lag models, and time-series analysis. The objective is to understand the underlying theory of econometric modeling and obtain operational ability to construct, estimate, and test econometric models.

Cross Listed AGECE 5230.

Dual Listed ECON 4230.

Prerequisite: admission to the Master's Program in Economics.

ECON5300 - Game Theory

Credits: 3

Discusses a variety of important concepts from game theory - the study of how individuals interact strategically. The course focuses on the development of students' ability to think strategically. To that end the course covers basic concepts in game theory.

Restricted Course is restricted to MS ECON

Prerequisite: admission to the graduate program in Economics and Finance.

ECON5390 - Math Microeconomics

Credits: 3

This course provides a broad set of practical tools that allow an analysis of important economic problems. The mathematical tools analyze human behavior and predict the response of economic systems to changes in circumstances and alternative policies, for applications such as investment project evaluation, capacity expansion, production decisions, or demand for various goods.

Dual Listed ECON 4390.

Prerequisite: ECON 3010, ECON 3020, MATH 2205 or MATH 2355.

ECON5530 - Computational Economics

Credits: 3

An introduction to computational tools used to analyze economic data and policies. Provides operational knowledge of how to formulate numerical economic models to conduct analyses of consumer behavior, markets, trade, and state and local fiscal administration. Special emphasis on applications to Wyoming problems.

Dual Listed ECON 4530.

Prerequisite: admission to the Master's program in Economics.

Graduate Elective Courses

Plan A - 12 hours of Graduate electives required plus 4 credits of Thesis Research credit

Plan B - 15 hours of Graduate electives.

A maximum of 6 hours can be taken at the 4000 level.

Additional Requirements

Program Specific Degree Requirements

A minimum of 18 hours in economics is required; at least 15 of these must be at the 5000 level. A basic core sequence of ECON 5010 (macro), ECON 5390 (math micro), ECON 5530 (computational), ECON 5230 (econometrics), and ECON 5300 (game theory) is required, which completes 15 hours of 5000-level courses, which is required.

The student must complete 26 hours of coursework and 4 hours of ECON5960 - Thesis Research for the Plan A option. The student must complete 30 hours of coursework and a project for the Plan B option.

Students may take 4000-level courses for graduate credit up to 6 hours.

A maximum of 6 semester hours of graduate coursework not used toward any other degree from another institution may be applied to the M.S. economics program subject to regulations regarding transfer of credit listed in this bulletin and with the approval of the director of graduate studies.

At the beginning of the third semester, the student selects a major professor who directs the Plan A thesis or Plan B project. A graduate committee, nominated by the major professor, the student, and the department chair, conducts an oral examination of the student on the project or thesis and area he/she has studied in the program. A favorable report by the committee and approval by the Office of the Registrar complete the degree requirements.

The majority of students complete the M.S. degree within two years.

QuickStart Master of Science in Economics

UW undergraduates can complete the M.S. degree in just one year after completing their B.S. degree if they apply to the QuickStart M.S. program in their junior year. To be eligible, students must have (and maintain) a cumulative GPA of 3.200 or better as well as an Economics GPA of 3.200 or better. They are also required to take the GRE by the fall of their senior year and score above 300 combined on the verbal and quantitative sections combined. The GRE

requirement can be waived with letters of recommendation from two UW faculty members. Admission to the QuickStart program allows students to double-count 6 credits of courses taken as an undergraduate towards both the B.S. and M.S. degrees, and reserve an additional 6 credits of courses taken as an undergraduate towards the M.S. degree alone. This then leaves only 18 credits to be taken after completion of the B.S. degree, which is feasible in just one year.

Economics, Ph.D.

Economics is the science of decision making and how to create value through trade. An economics degree will provide you with the tools to work on challenging policy issues and employ data analytics to address those issues.

Requirements - Total Credit Hours: 72

Required Economics Courses - Credits: 30

ECON5010 - Advanced Macroeconomic Analysis

Credits: 3

An advanced application of economic theory to complex macroeconomics problems facing the economy of the state and nation, such as inflation, unemployment, and fiscal and monetary policies.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5020 - Advanced Microeconomic Analysis

Credits: 3

A rigorous course in the analysis of demand and the theory of consumer behavior, supply and the theory of the firm, market equilibrium and stability, and income distribution.

Prerequisite: ECON 3010, ECON 3020, or equivalent.

ECON5120 - Advanced Analysis II-Microeconomics

Credits: 3

Part of a sequence with ECON 5020. It is advanced microeconomic analysis covering general equilibrium and welfare economics, and advanced topics in consumption and production theory.

Prerequisite: ECON 5010, ECON 5020.

ECON5130 - Dynamic Optimization

Credits: 3

Covers methods for obtaining the optimal choice for economic variables that change over time, including calculus of variations and optimal control. These methods are applied to various dynamic economic problems, including optimal resource extraction, optimal capital allocation, and optimal growth.

Prerequisite: ECON 5020, ECON 5370.

ECON5310 - Research Methods

Credits: 3

A variety of topics of importance to the advanced student who is preparing to write his or her dissertation are discussed.

Restricted Economics Graduate Students

Prerequisite: Admission to the graduate program in Economics

ECON5330 - Advanced Mathematical Economics

Credits: 3

Study of the principal mathematic techniques used in economic theory and modeling. Taught jointly with ECON 5020.

Prerequisite: graduate standing.

ECON5350 - Advanced Econometrics Theory I

Credits: 3

Review topics in probability theory and mathematical statistics. Also provides an introduction to the classical linear regression model, estimation, hypothesis testing, and prediction.

Prerequisite: Calculus and Basic Statistics.

ECON5360 - Advanced Econometrics Theory II

Credits: 3

Continue the analysis in ECON 5350 and cover topics such as panel data, limited-dependent variables, simultaneous systems, nonlinear models, Bayesian analysis, and time series methods.

Prerequisite: ECON 5350.

ECON5400 - Advanced Resource and Environmental Economics

Credits: 3

This course examines how we use economics to sharpen natural resource use and environmental policy. We focus on the behavioral and institutional underpinnings of market success and failures, choice under risk, time, space, conflict, cooperation, incentive design, non-market valuation, and prosperity.

Prerequisite: ECON 3020, ECON 4400 or consent of instructor.

ECON5410 - Seminar in Advanced Resource and Environmental Economics

Credits: 1-3
Max Credit (Max. 6)

This course explores the modern theory and empirics in environmental and natural resource economics. We focus on cost-benefit analysis, land use, energy, biodiversity protection, climate change, forestry, ecosystem services, fisheries, water, and sustainable development.

Prerequisite: ECON 4400 and ECON 5020.

Graduate Elective Courses - Credits: 12

Dissertation Research - Credits: 30

Additional Requirements

The doctor of philosophy degree in the field of economics at the University of Wyoming requires a minimum of 42 hours of coursework. All coursework must be at the graduate (5000) level.

The program is designed to give the student a strong foundation in economic theory and the basic quantitative tools necessary for professional research. If students receive a grade lower than a A during their first year, they must take a comprehensive exam in that field (microeconomics and/or econometrics) during the summer to continue to the second year of the PhD program. The program's qualifying exam takes the form of a research paper written during the second summer and defended to, and approved by, a faculty committee by early in the third year, with revisions and resubmission required by December. Students who pass the qualifying paper requirement receive an MS degree and move on in the PhD program, while students who fail this requirement receive the MS degree and fail out of the PhD program.

During the third year, or no later than the first few weeks of the fourth year, a graduate committee nominated by the student's major professor and the director of graduate studies conducts an oral examination of the student. The purpose of the oral examination is to determine whether the student has formulated a workable dissertation project and has the necessary skills to complete it.

Following successful completion of the dissertation, and completion of a departmental requirement of 30 hours of dissertation research, the student presents an oral defense to the graduate committee. The doctor of philosophy degree is granted on recommendation of the committee and approval by the Office of the Registrar, providing all other requirements have been satisfactorily fulfilled.

Department of Management and Marketing

College of Business 354, (307) 766-3124

FAX: (307) 766-3488

Web site: business.uwyo.edu/mgmtmkt

Department Chairman: Andrew Arnette

Professors:

PATRICK M. KREISER, B.A. John Carroll University 1997; M.B.A. University of Alabama 1999; Ph.D. 2004; Professor of Management and Rile Chair of Entrepreneurship and Leadership 2021, 2018.

MARK LEACH, B.S. University of Arizona 1991; Ph.D. Georgia State University 1998; Professor of Marketing 2016.

RICHARD C. MCGINITY, A.B. Princeton University 1966; M.B.A. Harvard Business School 1973; D.B.A. 1980; Bill Daniels Chair of Business Ethics 2007; Professor of Management and Marketing 2009.

C. MARK PETERSON, B.A. University of Virginia 1978; M.S. Georgia Institute of Technology 1989; Ph.D. 1994; Professor of Marketing 2014, 2007.

LINDA PRICE, B.A. University of Wyoming; M.B.A. University of Wyoming; Ph.D. University of Texas Austin; Professor of Marketing 2020.

ROBERT D. SPRAGUE, B.S.B.A. University of Denver 1980; J.D. 1985; M.B.A. University of Southern California 1999; Professor of Legal Studies in Business 2016, 2004.

Associate Professors:

ANDREW ARNETTE, B.S. Virginia Polytechnic Institute & State University 2000; M.B.A. Virginia Polytechnic Institute & State University 2002; Ph.D. Virginia Polytechnic Institute & State University 2010; Associate Professor of Decision Science 2018, 2012.

GRANT L. LINDSTROM, B.S. Utah State University 1981; M.B.A. University of Utah 1986; Ph.D. 1989; Associate Professor of Management 1996, 1990.

ELIZABETH A. MINTON, B.S. University of Alaska Southeast 2008; M.B.A. Idaho State University 2010; Ph.D. University of Oregon 2014; Associate Professor of Marketing 2018, 2014.

STEPHANIE A. ONETO, B.S. University of Nebraska-Lincoln 1999; M.A. University of Houston 2001; Ph.D. 2007; Associate Professor of Marketing 2014, 2007.

RONN J. SMITH, B.S. Montana State University 1999; M.A. Montana State University 2000; Ph.D. Washington State University 2004; Associate Professor of Marketing 2020.

CHASE THIEL, B.S. Idaho State University 2009; M.S. University of Oklahoma 2009; Ph.D. 2012; Associate Professor of Management 2019, 2016.

Assistant Professors:

MOLLY R. BURCHETT, B.A. Transylvania University 2009; M.A. University of Kentucky 2014; Ph.D. University of Kentucky 2020.

MATTHEW FOX, B.A. Colorado College 2000; M.B.A. University of Nevada 2007; Ph.D. Duke University 2015; Assistant Professor of Entrepreneurship 2018.

JACOB HOLWERDA, B.A. Cornell University 2006; M.S. Cornell University 2009; Ph.D. Cornell University 2014; Assistant Professor of Management 2020.

NICHOLAS PRINCE, B.S. Kansas State University 2004; M.B.A. Brigham Young University 2009; Ph.D. University of Illinois Urbana-Champaign 2015; Assistant Professor of Management 2016.

Academic Professionals:

R. CLIFFORD ASAY, B.S. Brigham Young University 1991; M.B.A. Portland State University 1998; Senior Lecturer 2011, 2006.

COREY A. BILLINGTON, B.S. Stanford University 1981; M.S. 1981; Ph.D. 1987; Professor of Practice 2015.

CASEY FROME, B.S. University of Wyoming 2009; M.P.A. 2014; J.D. 2014; Assistant Lecturer 2018.

ERIC J. KRSZJZANIEK, B.A. University of Wisconsin-Stevens Point 2005; M.A. University of Wyoming 2014; Ph.D. 2018; Assistant Lecturer 2018.

GREG C. LIVINGSTON, B.A. University of Wyoming 1996; M.A. 2018; Assistant Lecturer 2018.

Professors Emeriti:

Robert E. Allen, John H. Jackson, Anthony F. McGann, J. Brooks Mitchell, Terri L. Rittenburg, Robert G. Roe, Philip E. Varca, Larry R. Weatherford

The Department of Management and Marketing offers programs of study leading to the Bachelor of Science in Business degrees in (1) Management, (2) Marketing, (3) Entrepreneurship, and (4) Professional Sales. The departmental requirements for each of these degree programs are listed below.

All majors in the Department of Management and Marketing must meet requirements of the advanced business standing, complete the common body of knowledge, major courses, and MGT 4800 with a minimum grade of C (not C-).

Non-business majors may take business courses, and are not held to advanced business standing.

College of Business 3000- and 4000- level courses are reserved for those with junior or senior level standing whether majors or non-majors unless otherwise noted.

Decision Sciences

The decision sciences courses are a supplement for students with a variety of majors. The curriculum provides analytic skills based in both numerical data and behavioral evidence to facilitate problem solving, planning/project management, and decision making within organizations and across supply chains.

Entrepreneurship

The Entrepreneurship major is designed to assist students who wish to start their own businesses by providing them with exposure to the development and testing of business concepts. Analyzing the potential success of their concepts using a variety of tools and techniques, being flexible in developing new businesses and innovative ideas, and formulating and implementing business plans that will assist in the establishment and growth of these new ventures. The major provides students with exposure to issues involving family firms such as governance, succession and interpersonal relationships as well as innovation and change in existing organizations. Thus, the major focuses on entrepreneurship in both new ventures and established firms and prepares students to 1) start new businesses, 2) innovate in their own family firms, and/or 3) be entrepreneurial in an existing business.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Management

The Management major focuses on using resources to achieve goals in organizations. It studies the activities and operations that bring together human, financial, material, and information resources. Management majors should graduate with an understanding of the business world and a set of tools to manage successfully parts or all of an organization's operations. The Management degree allows students the ability to customize their degree within one of two tracks:

1) Human Resources Track - An experiential-learning focused program designed to prepare students to develop and manage the human capital of an organization. Students will be prepared to develop and implement policies and practices for recruitment, socialization, training, development, compensation, performance management, career planning, and employee relations. As more organizations move away from viewing employees as a commodity, toward an understanding that employees are a resource that can be developed into a distinct competitive advantage to ensure organizational success, sustainability, and reputation in the human resource function in the workplace will become increasingly important. This track will help employees understand the core functions of the area of human resource management are to a) recognize the potential of individuals for and within an organization and b) structure a positive, supportive, constructive work environment that will enable employees to work at their optimal capacity and achieve organizational goals.

2) General Management Track - A multi-faceted program designed to prepare students to manage multiple business functions across a variety of organizational types. A particular emphasis is to help develop interpersonal and problem-solving skills so they are capable of resolving a broad spectrum of problems for large or small organizations, or consult with organizations about these issues. This track is designed to provide students with a large degree of flexibility when considering different career paths, because students will be prepared to systematically think through the processes that organizations use to create and maintain sustainable competitive advantage. The track prepares students to work in for-profit businesses, non-profit organizations, entrepreneurial ventures, or in government organizations

The Management major, including both tracks, is available to students as an online degree completion program.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Marketing

Marketing is a societal process and a set of organizational functions for creating, communicating, and delivering value to customers and for managing relationships in ways to benefit local and global stakeholders. Marketing majors are employed in a wide variety of industries and governmental agencies where understanding and managing customer relationships are critical. Students find jobs in market research, advertising, public relations, professional selling, non-profit marketing, product management, retailing, digital marketing and brand management.

The Marketing Major is available to students as an online degree completion program.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Professional Sales

The Professional Sales major prepares students to manage business clients of for-profit and nonprofit organizations. Specifically, this major provides business students with coursework and opportunities to equip themselves with essential knowledge and skills required to begin professional careers in sales. Careers in sales offer independence,

ample financial reward, personal growth and opportunities for rapid advancement within organizations. Students that pursue a degree in professional sales will be challenged with industry engagement opportunities such as internships, and sales competitions. Students experience rigorous classroom experiences designed to develop the knowledge and practical skills needed to succeed during the first years of their sales careers including: oral and written communication skills, selling techniques and networking, the use of sales technology and customer information, and sales pipeline management.

All professional sales majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All professional selling courses for the major require a minimum grade of C.

A complete curriculum sheet is available from the College of Business Peter M. & Paula Green Johnson Student Success Center.

Graduate Study

The Department of Management and Marketing offers a Ph.D. in Marketing. Some 4000- and 5000-level classes may be counted as graduate classes in other programs.

Doctoral Program

Doctor of Philosophy in Marketing

The Department of Management and Marketing offers a program leading to a Doctor of Philosophy in Marketing. The program of study draws from extant marketing theory, primarily in consumer behavior, combined with studies in the basic sciences (e.g., anthropology, psychology, sociology) and other applied sciences (e.g., environmental sciences) to create a base of knowledge acceptable for marketing scholarship in higher education, and a depth of knowledge conducive to a stream of publishable research in a specific topic area. Theoretical development is supplemented with course work in the gathering and analysis of qualitative and quantitative data, which prepares the student for rigorous exploration of marketing phenomena. Students are required to complete 72 semester hours and a scholarly dissertation that contributes to the knowledge foundations in marketing and contributes to the basic sciences that informed the inquiry. Semester hours will include core marketing classes, outside elective courses in statistics, basic social sciences, and/or interdisciplinary studies in environmental and natural resources, and dissertation work. First and second year research projects are also required, aimed at the student having published articles in respected marketing and social science journals before program completion. Comprehensive exam is completed at the end of the second semester.

All doctoral students are expected to teach while enrolled in the program. The program is designed to give students a strong research background and intensive teaching experience.

Application Deadlines

We begin accepting applications in October for the following fall semester. All completed applications must be submitted by February 1st.

Admission Requirements

- A bachelor's degree and working toward or completion of a master's degree from an accredited institution, preferably in business or a core social science discipline
- Completed application (i.e., all required materials submitted) on the UW Graduate Programs Applications system

- \$50 application fee paid to University Admissions
- Copies of **all** undergraduate and graduate program transcripts scanned and uploaded to the UW system, and official transcripts from each post-secondary institution attended submitted to the UW admissions office
- A valid GRE or GMAT score. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be requested from the testing organization and sent to UW
- Three strong letters of recommendation, including one or more from an academic. The letters must be uploaded by the recommenders to the UW system in MS Word or .pdf format
- A personal statement summarizing your interest in pursuing doctoral studies and speaking to questions or issues you wish to research. This document must be uploaded to the UW system as an MS Word or .pdf document
- For international students, Test of Foreign Language (TOEFL) scores are required. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be submitted to UW from the testing organization. A minimum TOEFL score of 76 (online) or 540 (paper) is required for admission.

Major

Entrepreneurship, B.S.

For students who wish to start their own businesses, provides exposure to the development and testing of business concepts, and formulating and implementing business plans that will assist in the establishment and growth of these new ventures.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior,

design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Entrepreneurship Core: 12 Credits

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

ENTR4700 - Business Model Creation and Launch

Credits: 3

Students build on previous learning to develop a complete business model including sales and marketing strategies, operations, financial forecasts, and partners. Deliverables include a pitch to start-up investors as part of a real-world entrepreneurship experience (for example, an entrepreneurship competition). Students learn primarily through hands-on application of concepts.

Prerequisite: ENTR 3700.

ENTR4750 - Theories of Entrepreneurship

Credits: 3

A broad examination of historical, literary, and business perspectives on entrepreneurship. Students explore the role of individuals, new ventures, and established organizations in the discovery, evaluation, and exploitation of opportunities. Emphasis is on the evolution of entrepreneurship theories over time, and current trends related to the application of these theories.

Prerequisite: ENTR 3700.

Entrepreneurship Elective: 3 Credits

Choose 1 from the following:

ENTR4910 - Topics in Entrepreneurship

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Prerequisite: Junior class standing, consent of instructor

ENTR4900 - Independent Study in Entrepreneurship

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study on an individual basis, any aspect of Entrepreneurship not included in other structure Entrepreneurship courses

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

Advanced Business Electives: 6 Credits

Any business course at a 3000 - 4000 level that has not been used to meet any other primary major requirements.

Free Electives from Any College - Credits: 27

21 (or 24*) of the 27 required hours must be 3000 - 4000 level which have not been used to meet any other requirement.

- Courses from any college at any level - Credits: 6 (or 3*)
- Courses from any college at 3000 - 4000 level - Credits: 21 (or 24*)

* If *MGT 2030* is selected as the *Entrepreneurship Elective*

Additional Requirements

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Studies the activities and operations that bring together human, financial, material, and information resources to achieve goals in organizations. Students can customize their degree within one of two tracks: Human Resources or General Management.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

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Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

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Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

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Credits: 3
Provides a basic understanding of the financial accounting information role in business and society. Focuses on the

recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Management Core - Credits: 15

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

- Choose any 3 Approved Elective Courses within the same track area Credits: 9

Human Resources Track

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT4220 - Talent Acquisition

Credits: 3

In Human Resource Management one core function is recruiting and selecting the best talent to drive organizational success. Students will learn how to analyze jobs and develop recruitment plans to find qualified individuals, how to conduct professional and valid interviews, and how to successfully onboard employees into the organization.

Prerequisite: MGT 3410

MGT4240 - Performance and Compensation

Credits: 3

In Human Resource Management the management of employee performance and compensation are key functions that drive organizational success. This course helps students become familiar with total compensation systems, including intrinsic and extrinsic rewards, base and variable pay, and benefits, and their relationship with employee performance and satisfaction.

Prerequisite: MGT 3410

MGT4260 - Training and Development

Credits: 3

In Human Resource Management training employees in the latest technical and managerial skills and helping them gain developmental experiences helps drive organizational success. Students will learn how to recognize training and developmental needs, how to develop employee training systems, and how to implement these training systems. Additionally, students will learn about career and leader development.

Prerequisite: MGT 3410

MGT4470 - Negotiations and Conflict Resolution

Credits: 3
Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4900 - Independent Study in Management

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

General Management Track

MGT2030 - Principle-Based Ethics

Credits: 3
Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4900 - Independent Study in Management

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

DSCI4240 - Computer Applications in Decision Sciences

Credits: 3

A study of decision science topics such as mathematical programming, Monte Carlo simulation, forecasting, project management and decision theory. The applications of computer techniques is emphasized.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, and junior class standing.

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Advanced Business Electives: 6 Credits

Any business courses at a 3000 - 4000 level that have not been used to meet any other primary major requirements.

Free Electives from Any College: 27 Credits

18 (or 21 or 24*) of the 27 required hours must be 3000 - 4000 level which have not been used to meet any other requirement.

- Courses from any college at any level - Credits: 9 (or 6 or 3*)
- Courses from any college at 3000 - 4000 level - Credits: 18 (or 21 or 24*)

** 21 hours if MGT 2030 or ENTR 2700 are selected as one of the courses within either track; 24 hours if both courses are selected.*

Additional Requirements

The Management major focuses on using resources to achieve goals in organizations. It studies the activities and operations that bring together human, financial, material, and information resources. Management majors should graduate with an understanding of the business world and a set of tools to manage successfully parts or all of an organization's operations. The Management degree allows students the ability to customize their degree within one of two tracks:

1) Human Resources Track - An experiential-learning focused program designed to prepare students to develop and manage the human capital of an organization. Students will be prepared to develop and implement policies and practices for recruitment, socialization, training, development, compensation, performance management, career planning, and employee relations. As more organizations move away from viewing employees as a commodity, toward an understanding that employees are a resource that can be developed into a distinct competitive advantage to ensure organizational success, sustainability, and reputation in the human resource function in the workplace will become increasingly important. This track will help employees understand the core functions of the area of human resource management are to a) recognize the potential of individuals for and within an organization and b) structure a positive, supportive, constructive work environment that will enable employees to work at their optimal capacity and achieve organizational goals.

2) General Management Track - A multi-faceted program designed to prepare students to manage multiple business functions across a variety of organizational types. A particular emphasis is to help develop interpersonal and problem-solving skills so they are capable of resolving a broad spectrum of problems for large or small organizations, or consult with organizations about these issues. This track is designed to provide students with a large degree of flexibility when considering different career paths, because students will be prepared to systematically think through the processes that organizations use to create and maintain sustainable competitive advantage. The track prepares students to work in for-profit businesses, non-profit organizations, entrepreneurial ventures, or in government organizations.

The Management major, including both tracks, is available to students as an online degree completion program.

All management majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

All management courses for the major require a minimum grade of C (not C-).

Marketing, B.S.

Marketing is a societal process and a set of organizational functions for creating, communicating, and delivering value to customers, and for managing relationships in ways to benefit local and global stakeholders.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Marketing Core - Credits: 9

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4450 - Advanced Marketing Management

Credits: 3

This course is designed to integrate prior marketing classes. Primary focus is on utilizing marketing concepts and tools in a strategic marketing decision-making context.

USP 2015 Code U5C3

Prerequisite: MKT 2100 , MKT 4520, junior class standing.

MKT4520 - Marketing Research and Analysis

Credits: 3

Investigation of the systematic procedures and tools of research available to the marketing researcher, including a survey of contemporary practices.

Prerequisite: MKT 2100, junior class standing.

Marketing Electives - Credits: 6

Choose 2 of the following:

MKT4230 - Integrated Marketing Communication

Credits: 3

Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4250 - Digital Marketing

Credits: 3

This is an investigation of the digital marketing discipline with an emphasis on e-commerce models, online advertising, digital consumer behavior, privacy considerations, website structure, search engine optimization and social media marketing.

Prerequisite: MKT 2100

MKT4440 - Services Marketing

Credits: 3

This course is designed for students who may be interested in working in service industries and will address the distinct needs and problems of service firms in the area of marketing.

Prerequisite: HOSP 2000 or MKT 2100 .

MKT4540 - International Marketing

Credits: 3

Approaches the topic of international marketing from a managerial perspective. Exposure to world environmental

characteristics and interdependencies, as well as objectives, strategies and tactics of marketing goods and services to various countries and cultures.

Cross Listed INST 4540.

Prerequisite: MKT 2100 and junior class standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

MKT4900 - Independent Study in Marketing

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Marketing not included in other structured marketing courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT4910 - Topics in Marketing

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused

opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Advanced Business Electives: 6 Credits

Any business courses at a 3000 - 4000 level that have not been used to meet any other primary major requirements.

Free Electives from Any College - Credits: 27

- Courses from any college at any level - Credits: 9
- Courses from any college at a 3000 - 4000 level - Credits: 18

Additional Requirements

Marketing is a societal process and a set of organizational functions for creating, communicating, and delivering value to customers, and for managing relationships in ways to benefit local and global stakeholders. Marketing majors are employed in a wide variety of industries and governmental agencies where understanding and managing customer relationships are critical. Students find jobs in market research, advertising, public relations, professional selling, non-profit marketing, product management, retailing, digital marketing, and brand management.

The Marketing major is available to students as an online degree completion program.

Professional Sales, B.S.

Prepares students to manage business clients of for-profit and nonprofit organizations. Rigorous classroom experiences and industry opportunities equip students with essential knowledge and skills required to begin professional careers in sales.

Requirements - Total Credits: 120

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Common Body of Knowledge - Credits: 33

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGECE 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

BUSN4990 - Senior Exit Exam

Credits: 0

The Senior Exit Exam test content encompasses the core COB curriculum: accounting, economics, finance, ethics, legal and social environment, management, marketing, and quantitative business analysis (decision science). The purpose of this test is to assess students' mastery of core business/economic concepts. This course is taken during the same semester as the students capstone course (MGT 4800/ECON 4240).

Major Specific Courses - Credits: 21

Professional Sales Core - Credits: 12

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

SELL4310 - Advanced Selling

Credits: 3

This course provides students in-depth study of advanced sales concepts including relationship management, problem solving, negotiation, and proposal writing. It also explores the use of data-based decision making and the use of selling technologies. Students will learn how to use data to sell to both resellers and manufacturers.

Prerequisite: SELL 3310 and junior class standing.

SELL4320 - Sales Force Strategies

Credits: 3

This class will examine the linkages among management of the sales function, personal selling activities, and the marketing area. Students will gain an understanding of the role of the sales force in achieving of the firm's marketing, customer relationship, and revenue objectives.

Prerequisite: SELL 3310 and junior class standing.

SELL4330 - Sales Seminar

Credits: 3

This course provides students in-depth study of advanced, and cutting edge sales and sales management concepts presenting by top talent in industry. While topic can vary, this seminar teams students with industry experts to explore state-of-the-art thinking in technical sales, sales management, sales training, compensation, and team selling.

Prerequisite: SELL 3310 and junior class standing.

Professional Sales Electives - Credits: 3

Choose 1 from the following list:

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

DSCI4280 - Supply Chain Management

Credits: 3

Explores the links between overall business strategy and supply chain strategy, with a focus on strategic design and effective operation of supply chains to improve the organizations' productivity and competitiveness. Examines impact of technologies transforming global supply chains such as blockchain, machine learning, analytics, robotics, and other advancements.

Prerequisite: DSCI 2100, junior class standing, advanced business standing.

FIN4250 - Advanced Corporate Finance

Credits: 3

Give students a better appreciation of the techniques and theories of corporate finance and investments that may have been introduced in introductory finance courses.

USP 2015 Code U5C3

Prerequisite: FIN 2100.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

BUSN4600 - Advanced Internship in Business

Credits: 3
Max Credit 6

Provides students with practical business knowledge, policy, procedure, and decision making. Students work as interns in operating organizations.

Prerequisite: MKT 2100, MGT 2100, FIN 2100, advanced business standing, approved internship application through the Peter M. & Paula Green Johnson Student Success Center.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3
Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

SELL4900 - Independent Study in Professional Selling

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Professional Selling not included in other structured Professional Selling courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

SELL4910 - Topics in Professional Selling

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

Advanced Business Electives - Credits: 6

Any business courses at a 3000 - 4000 level that have not been used to meet any other primary major requirements.

Free Electives from Any College - Credits: 27

- Courses from any college at any level - Credits: 9
- Courses from any college at a 3000 - 4000 level - Credits: 18

Additional Requirements

The Professional Sales major prepares students to manage business clients of for-profit and nonprofit organizations. Specifically, this major provides business students with coursework and opportunities to equip themselves with essential knowledge and skills required to begin professional careers in sales. Careers in sales offer independence, ample financial reward, personal growth and opportunities for rapid advancement within organizations. Students that pursue a degree in professional sales will be challenged with industry engagement opportunities such as internships, and sales competitions. Students experience rigorous classroom experiences designed to develop the knowledge and practical skills needed to succeed during the first years of their sales careers including: oral and written communication skills, selling techniques and networking, the use of sales technology and customer information, and sales pipeline management.

All professional sales majors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously.

All professional selling courses for the major require a minimum grade of C.

Minor

Entrepreneurship Minor

A minor in entrepreneurship features business courses likely to be important to the creator of a new venture and/or someone seeking to bring innovation and creativity to an existing enterprise. **For non-College of Business majors only.**

Entrepreneurship Minor Requirements - Credits: 9

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

ENTR3700 - Innovation, Ideation, and Value Proposition

Credits: 3

This course explores opportunity recognition, innovation, and building value propositions based on customer discovery

through interviews, surveys, and other methods. Students learn to develop a lean start-up and build customer focused value propositions. The focus is on rapid hypothesis testing and developing minimum viable products.

Prerequisite: ENTR 2700.

ENTR4700 - Business Model Creation and Launch

Credits: 3

Students build on previous learning to develop a complete business model including sales and marketing strategies, operations, financial forecasts, and partners. Deliverables include a pitch to start-up investors as part of a real-world entrepreneurship experience (for example, an entrepreneurship competition). Students learn primarily through hands-on application of concepts.

Prerequisite: ENTR 3700.

- *Combination of courses from the Approved Electives for the Entrepreneurship Minor list totaling 6 credit hours.*

Approved Electives for the Entrepreneurship Minor - Credits: 6

ACCT3100 - Financial Statement Analysis

Credits: 3

Advanced study of financial statements and how to analyze those statements from both an internal and external perspective.

Former Course Number [4100, 2000, 3000]

Prerequisite: ACCT 2010 ,ACCT 2020 , FIN 2100 (or equivalent), sophomore class standing.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

OR

ENR4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and

cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGEC 4450.

Dual Listed ENR 5450.

Prerequisite: completion of USP O requirement; junior standing.

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGEC 2020, or AGEC 4500, or AGEC 4060, or FIN 2100.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

DSCI4230 - Purchasing and Supply Management

Credits: 3

Examines how to manage supply function. Topics include organization, planning procedures, category management, supplier selection, quality, inventory decisions, ethical and profession standards, costing, and price determination.

Prerequisite: DSCI 2100, junior class standing, advanced business standing.

ENTR3020 - Comparison of Entrepreneurial Ecosystems

Credits: 3

The goal of this course is to expose students to different entrepreneurial ecosystems and let them think about how the environment, legal, technical, cultural, and economic, could impact their entrepreneurial endeavors. The class will accomplish this by visiting a developed country and a developing country to learn about the ecosystems and talk with entrepreneurs to see how the forces impacted their startups.

Cross Listed ES 3020.

ENTR4750 - Theories of Entrepreneurship

Credits: 3

A broad examination of historical, literary, and business perspectives on entrepreneurship. Students explore the role of individuals, new ventures, and established organizations in the discovery, evaluation, and exploitation of opportunities. Emphasis is on the evolution of entrepreneurship theories over time, and current trends related to the application of these theories.

Prerequisite: ENTR 3700.

ES4920 - Entrepreneurship for Engineers

Credits: 3

Traditional engineering education does not prepare graduates for work in entrepreneurial ventures. The goal of this course is to have students demonstrate skills in developing business ideas, performing preliminary market research, estimating cash flow, and launching a business.

Prerequisite: 9 hours within an engineering discipline and junior standing.

FCSC3160 - Merchandise Retailing and Buying

Credits: 3

Provides students with the knowledge involved in the buying function of the merchandising and retailing process, including merchandise planning and retail math. Gives students the necessary skills to pursue a career in retail buying.

Prerequisite: FCSC 2185 and MATH 1000 or MATH 1400.

FCSC4181 - Global Trade and Sourcing for Textile Products

Credits: 3

Discusses global textile industry, how the U. S. fits into the global industry, textiles and apparel trade policy, as well as balancing conflicting interests in the world marketplace.

Dual Listed FCSC 5181.

When Offered (Offered spring semester odd years)

USP 2003-2014 Code U3G

Prerequisite: FCSC 1185.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MKT4590 - Sustainable Business Practices

Credits: 3

A close look at what is happening in business practice today through the lens of sustainability. Business models and systems will be discussed and a framework proposed for assessing the ways in which principles of sustainability may be embedded within corporate strategy.

Cross Listed INST 4590.

Dual Listed MKT 5590.

Prerequisite: advanced business standing.

MUSC4000 - Careers in Music

Credits: 2

Expands the student's understanding of the range of careers in the professional music world. Covers the concepts of marketing, performance, teaching, recording, technology, venue management, and fundraising.

Prerequisite: MUSC 1000 or MUSC 1003.

MUSC4001 - Music Entrepreneurship Seminar

Credits: 2

Further crystalizes successful business enterprise development introduced in ENTR 2700. Student will hone entrepreneurial skills in idea creation, business incubation, development, research, and commercialization.

MUSC4005 - Internship in Music Business

Credits: 1

Offers an evaluated and professional work experience in public or private organizations on assignments relating to student's career goals, allowing students to explore the relationship between theory and practice in their major.

ORTM4900 - Outdoor Recreation and Tourism Management Business Strategies

Credits: 3

Application of the successful delivery of hospitality, tourism, and outdoor recreation enterprises. Business activities covered include tourism- specific marketing, market-based research and analytics, regional challenges and opportunities, business plan components, financial risk analysis, and law and policy.

Restricted Restricted to ORTM majors only.

Prerequisite: Senior standing, ORTM 3050.

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

SELL4310 - Advanced Selling

Credits: 3

This course provides students in-depth study of advanced sales concepts including relationship management, problem solving, negotiation, and proposal writing. It also explores the use of data-based decision making and the use of selling technologies. Students will learn how to use data to sell to both resellers and manufacturers.

Prerequisite: SELL 3310 and junior class standing.

Additional Requirements

A minor in entrepreneurship features business courses likely to be important to the creator of a new venture and/or someone seeking to bring innovation and creativity to an existing enterprise. The minor includes exposure to various elements of the entrepreneurial process, including creativity, ideation, innovation, value proposition, and business model creation.

15 credit hours (9 credits of required courses, 6 credits from the Approved Elective for the Entrepreneurship Minor courses list)

(For non-College of Business majors only)

Hospitality Business Management Minor

The Hospitality Business Minor provides students an understanding of the operations of multiple domains of the hospitality industry including food and beverage, tourism and lodging, and entrepreneurship and consumer relations.

Minor Total Credits: 15

Required Courses - Credits: 9

HOSP2000 - Foundations of Customer Service & Hospitality

Credits: 3

This course examines critical elements of excellent customer service in the hospitality industry.

HOSP3000 - Managing Profitability in Hospitality

Credits: 3

This course examines the complexities of profitability in the hospitality industry, driven by issues of pricing and cost management. Areas explored can include restaurants, hotels, and other hospitality ventures.

Prerequisite: ACCT 2010

HOSP4800 - Hospitality Operations Management

Credits: 3

This course provides a broad-reaching, applications-based understanding of hospitality operations and management. It provides a managerial perspective on the operations of each component of hospitality management and operations, including the financial aspect.

Prerequisite: HOSP 2000

- Any Approved Elective Courses within one core area (see approved elective courses cores) Credits: 6

Approved Elective Courses - Credits 6

(choose any courses totaling 6 credits from one of three focal cores: Food & Beverage, Tourism & Lodging, or Management & Marketing)

Food & Beverage Core

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

FCSC1150 - Scientific Study of Food

Credits: 3

Comprehensive introduction to the study of food. Food science theories relative to composition are applied through the laboratory experiences.

- FCSC 4900 - Food Safety Credits: 3
The following HOSP courses are offered through Casper College via distance education
- HOSP 2320 - Food & Beverage Management Credits:3
- HOSP 2330 - Food & Beverage Services Credits:3
- HOSP 2535 - Planning and Control for Food & Beverage Operations Credits: 3
- HOSP 2540 - Bar & Beverage Management Credits: 3
The following FSHM courses are acceptable transferrable electives only offered in-person at Sheridan College in Sheridan, WY.
- FSHM 2540 - Bar & Beverage Management Credits: 2
- FSHM 2600 - Dining Room Management Credits: 2
- FSHM 2700 - Food & Beverage Services Credits: 3
The following HRM courses are acceptable transferrable electives only offered in-person at Central Wyoming College in Jackson, WY.
- HRM 1505 - Sanitation, Health, & Safety in the Hospitality Industry Credits: 3
- HRM 1510 - Dining Room Management & Food Delivery Systems Credits: 3
- HRM 1515 - Planning and Control for Food & Beverage Operations Credits: 3
- HRM 2500 - Quality Food Purchasing Credits: 3
- HRM 2525 - Wine Production, Service, & Appreciation Credits: 3
- HRM 2530 - Beverage Management Credits: 3

Tourism & Lodging Core

ORTM1000 - Foundations of Recreation and Tourism

Credits: 3

Introduces the conceptual foundations, array of services, and management with recreation and tourism. Primary focal points for this course include historical and psychological underpinnings, market trends, types of resources and services, cultural, economic, political, and legal considerations, and career opportunities. Emphasizes the relationship to resource stewardship.

ORTM3000 - Tourism Theory and Practice

Credits: 3

Tourism is a dynamic system of global interconnection that impacts human and natural environments in myriad ways. This course examines the behavioral, social, economic, political, and environmental issues implicated in and affected by tourism and its industries. Students will develop a critical understanding of the implications on the practice of tourism today.

Prerequisite: junior standing.

HOSP4910 - Topics in Hospitality

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

The following HOSP courses are offered through Casper College via distance education

- HOSP 1540 - Hotel Operations Management Credits: 3
- HOSP 2525 - Recreation & Tourism Planning & Development Credits: 3
- HOSP 2530 - Tourism Management Credits: 3

The following FSHM course is an acceptable transferrable elective only offered in-person at Sheridan College in Sheridan, WY.

- FSHM 2610 - Banquet Management Credits: 2

The following HRM course is an acceptable transferrable elective only offered in-person at Central Wyoming College in Jackson, WY.

- HRM 1501 - Lodging Management/Front Office Procedures Credits: 3

Management & Marketing Core

ENTR2700 - Entrepreneurial Mindset

Credits: 3

This course introduces students to entrepreneurial mindsets and concepts essential to success in startups or within

established firms. Provides a basic overview of creativity and innovation, and students experience the process of identifying and evaluating ideas and developing them into business opportunities.

Prerequisite: COM1, sophomore class standing.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MKT4230 - Integrated Marketing Communication

Credits: 3

Introduction to integrated marketing communication, the coordination of an organization's advertising and promotional efforts. Emphasis on how marketing communication is used by organizations to further their marketing objectives. Among the tools available to the integration process are advertising, sales promotion, personal selling, sponsorship marketing, and public relations.

Prerequisite: MKT 2100, advanced business standing.

MKT4240 - Consumer Behavior

Credits: 3

A study of the dimensions of the consumer market and decision-making processes of consumers through analyzing economic, personal, social and situational influences on the consumer market and on buying behavior.

Prerequisite: MKT 2100, junior class standing.

MKT4440 - Services Marketing

Credits: 3

This course is designed for students who may be interested in working in service industries and will address the distinct needs and problems of service firms in the area of marketing.

Prerequisite: HOSP 2000 or MKT 2100 .

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused

opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

The following HOSP course is offered through Casper College via distance education

- HOSP 1560 - Convention Sales & Management Credits: 3

The following FSHM course is an acceptable transferrable elective only offered in-person at Sheridan College in Sheridan, WY.

- FSHM 2520 - Security & Loss Prevention Management Credits: 3

Additional Requirements

The Hospitality Business Minor provides students an understanding of the operations of multiple domains of the hospitality industry including food and beverage, tourism and lodging, and entrepreneurship and consumer relations. Knowledge in these areas is critical for anyone desiring to work in the hospitality industry or for a business that services the hospitality industry.

Leadership Minor

A unique experience that prepares students to be principle-based leaders in every facet of their lives. Students develop leadership competencies and their own personal leadership style, and are prepared to make decisions in principle-based ways.

Minor Total Credits: 15

Required Courses - Credits: 9

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

LEAD4110 - Leadership in Practice

Credits: 3

The culminating leadership experience of the university's leadership program. Students draw upon their prior learning to lead an experiential project, benefiting a UW stakeholder. Students continue to learn about effective leadership through the lens of practitioner-oriented literature and apply their learning in advanced casework. The instructor acts as a leadership coach who helps students refine their leadership competencies and enhance leadership potential.

Prerequisite: LEAD 3610 , MGT 2030

Leadership Electives - Credits: 6

Complete a minimum of 6 credits with courses from the below list

ACES3000 - Peer Advising

Credits: 3

This course is designed to help you develop the skills, understanding, competencies, and dispositions needed to be an effective peer advisor at UW. Course content will cover student development theory, interpersonal skills, Ethics of working with college students, UW policies/procedures, UW academic requirements, and advising approaches.

When Offered (Offered Spring Semester Only)

Prerequisite: Sophomore standing and completion of USP15-C2

AGRI4600 - Developing Organizational Leadership

Credits: 3

A senior capstone experience for Bachelor of Applied Science students, bringing together reading, research, writing, and communication skills to focus on a major project. Leadership skills and approaches to organizational problem-solving are deepened using the structural, human resource, political, and symbolic frames to change and improve leadership and organizational culture.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, AGRI 3000, and senior status.

AGRI4700 - Elements of Leadership

Credits: 3

Focuses on a basic understanding of theory and practice. Will develop self-awareness and provide a foundation for continued development of leadership skill in the workplace, the community and the home.

Dual Listed AGRI 5700.

Prerequisite: Restricted enrollment. Prior approval required.

AIR2010 - Team and Leadership Fundamentals I

Credits: 1-0.5

Focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate.

Prerequisite: AIR 1010 and AIR 1020 or consent of instructor.

AIR2020 - Team and Leadership Fundamentals II

Credits: 1-0.5
Continues AIR 2010.

Prerequisite: AIR 1010, AIR 1020, and AIR 2010 or consent of instructor.

AIR3010 - Leading People/Effective Communication I

Credits: 3
Teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.

USP 2015 Code U5C2
Former Course Number [4010]

Prerequisite: AIR 1010, AIR 1020, AIR 2010, and AIR 2020 or consent of instructor.

AIR3020 - Leading People/Effective Communication II

Credits: 3
Continues AIR 3010.

USP 2003-2014 Code U3CS
Former Course Number [4020]

Prerequisite: AIR 1010, AIR 1020, AIR 2010, AIR 2020, AIR 3010 or consent of instructor.

ARMY2010 - Leadership Skills and Management

Credits: 2
Studies principles and theories of leadership and team dynamics. Develops student leadership potential through the study of the values and attributes of effective leaders. Students gain self-confidence through the application of principles and techniques of leadership in a military environment.

Former Course Number [2030]

Prerequisite: ARMY 1010, ARMY 1020 or consent of instructor.

ARMY2020 - Leadership Skills and Small Unit Management

Credits: 2

Studies principles in small-unit management, tactics, operations and leadership. Develops students' self-confidence in their leadership ability through progressive application of knowledge, decision making, communication and control.

Former Course Number [2040]

Prerequisite: ARMY 2010 or consent of instructor.

ARMY2060 - Competent and Confident Leadership

Credits: 2

Interdisciplinary course whose aim is to encourage assessment of our obligations, commitments, and roles in society by inquiring into the nature of leadership and the responsibilities of both leaders and followers. Examines leadership traits that transcend the military aspect of leadership.

ARMY3010 - Leadership and Tactics I

Credits: 3

Studies leadership techniques and tactical operations at the small-unit level. Instruction covers the decision-making process, troop leading procedures, land navigation and operation orders. In-depth analysis of team/squad tactical procedures and techniques. Numerous student oral presentations and practical exercises.

USP 2003-2014 Code U3O

Prerequisite: ARMY 2010, ARMY 2020, basic camp or consent of department head.

ARMY3020 - Leadership and Tactics II

Credits: 3

Studies platoon-level tactics and leadership techniques. Instruction covers the solving of complex tactical problems. Illustrates techniques for properly managing personnel, resources and time to accomplish organizational goals. Introduces Army staff functions and prepares students for successful completion of ARMY 3030.

Prerequisite: ARMY 3010.

ARMY4010 - Dynamics of the Military Organization I

Credits: 2

Studies and analyzes organization, resources and functions of military staff. Reviews formal staff problem-solving procedures, including student effective writing and briefing presentations. Introduces ethics and the military profession.

Former Course Number [4030]

Prerequisite: ARMY 3010, ARMY 3020 or consent of department head.

ARMY4020 - Dynamics of the Military Organization II

Credits: 2

Introduces military law; planning and management of personal affairs; Army transportation, logistics and personnel management systems. Studies officer/NCO relations. Includes student writing and briefing presentations on assigned topics.

Former Course Number [4040]

Prerequisite: ARMY 4010 or consent of department head.

CNSL2200 - Introduction to Student Leadership

Credits: 2

Acquaints student leaders with skills and competencies necessary for successful service in the university community.

When Offered (Normally offered each fall semester)

USP 2003-2014 Code U3CS, U3L

CNSL3010 - Student Leadership Strategies

Credits: 2

Develops skills and competencies requisite to effective leadership. Provides student leaders with skills they will profit from, both while enrolled at the university and later in their chosen careers.

When Offered (Normally offered each spring semester)

CRMJ4130 - Leadership and Management in the Criminal Justice System

Credits: 3

There is a clear need for managers and administrators to understand leadership and ethics. This course is designed to provide students with a foundation in the management and leadership discourse surrounding criminal justice agencies.

Prerequisite: CRMJ 1001, CRMJ 2210, CRMJ 2400/SOC 2400, and CRMJ 3490.

ENR2800 - Introduction to Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. Significant focus is on self-awareness, judgment, and decision-making. The specific skills and theories students learn throughout provide a foundation for other leadership endeavors.

Cross Listed ORTM 2800

Prerequisite: consent of instructor.

OR

ORTM2800 - Outdoor Leadership

Credits: 3

Designed to increase knowledge and competencies related to leading others in the outdoors. There is a significant focus on self-awareness, judgment, and decision-making. The specific skills and theories students learn in the class provide a foundation for other leadership endeavors.

Cross Listed ENR 2800

Prerequisite: COM 1

FCSC4117 - Understanding Community Leadership

Credits: 3

Understanding Community Leadership. Introduces students to the scope and functions of professionals working in rural communities as leaders. Students will explore community dynamics, leadership skills and managing change, and understand the complexities of leadership within communities. Understanding communities and leadership increases the likelihood of success for community based professionals.

Dual Listed FCSC 5117.

USP 2003-2014 Code U3CS

Prerequisite: senior standing and satisfactory completion of a WB/COM2 course.

HP4152 - Honors Seminar

Credits: 3

Max Credit (Max. 6)

Asks students to confront a complex social issue, examine it from several perspectives and take a stance on some aspect of the issue. Topics vary from year to year. Required of UW Honors students.

Former Course Number [4150]

Prerequisite: COM1, COM2

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

NURS4830 - Leadership in Healthcare Today

Credits: 2

Focuses on the role of nurse leader and manager through integration of leadership, management, and organizational concepts, models, and theories. Emphasis in on leadership, followership, management, advocacy, professional development and activism, and managing resources.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4835 - Leading Nursing Practice

Credits: 2

Focuses on nurse leaders making a difference using evidence-based nursing practice. Learners utilize and synthesize basic concepts of professional nursing practice. This course creates the opportunity for learners to lead nursing practice in a variety of settings.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

GWST1900 - Women and Leadership

Credits: 3

Students examine theoretical, historical and cultural aspects of leadership, values in leadership, gender differences in leadership styles, and practical applications of leadership skills through oral communication and information literacy. Individual and collaborative work is expected.

Cross Listed SOWK 1900.

USP 2003-2014 Code U3L, U3O

Former Course Number [4510]

UWYO3000 - Student Leadership in Supplemental Instruction

Credits: 2

Focuses on theoretical perspectives of group tutoring and peer leadership, best practices in supplemental instruction, and student reflection. Will strengthen leadership knowledge and skills and introduce effective methods for group facilitation and SI curriculum.

Prerequisite: closed to general enrollment.

(UWYO 3000 is a closed enrollment course. Students may only enroll if invited by LeaRN Program Director)

UWYO3010 - Student-Athlete Leadership Skills

Credits: 1

Designed for students to gain and apply leadership skills among other topics such as healthy relationships, nutrition, budgeting, and preparing for internships. This course builds on UWYO 1050 Student-Athlete Academic Success, and prepares the student for UWYO 3050 Student-Athlete Career Preparation.

Prerequisite: COM1.

Additional Requirements

The Leadership Minor is a unique interdisciplinary curricular, co-curricular, and extra-curricular experience that prepares students to be principle-based leaders in every facet of their lives. Through the Leadership Minor, students develop leadership competencies and their own personal leadership style, and are prepared to make decisions in principle-based ways.

All courses for the minor require a minimum grade of C (not C-).

Professional and Technical Selling Minor

Provides students with technical and/or liberal arts backgrounds with opportunities to pair these backgrounds with essential knowledge and skills required for careers in sales. Combines rigorous classroom experiences with industry opportunities.

Minor Total Credits: 15

Professional and Technical Selling Requirement - Credits: 3

SELL3310 - Professional and Technical Selling

Credits: 3

This Professional Selling class focuses on business-to-business selling. It examines Organizational Buying Behavior to develop students' understanding of customers. It also investigates the process salespeople go through when presenting solutions to customers. This course is for students from various disciplines wanting to explore sales-focused opportunities within their field.

USP 2015 Code U5C2

Prerequisite: COM1 and sophomore class standing.

Professional and Technical Selling Approved Elective Courses - Credits: 6

Choose 2 courses from the list below

SELL4310 - Advanced Selling

Credits: 3

This course provides students in-depth study of advanced sales concepts including relationship management, problem solving, negotiation, and proposal writing. It also explores the use of data-based decision making and the use of selling technologies. Students will learn how to use data to sell to both resellers and manufacturers.

Prerequisite: SELL 3310 and junior class standing.

SELL4320 - Sales Force Strategies

Credits: 3

This class will examine the linkages among management of the sales function, personal selling activities, and the marketing area. Students will gain an understanding of the role of the sales force in achieving of the firm's marketing, customer relationship, and revenue objectives.

Prerequisite: SELL 3310 and junior class standing.

SELL4330 - Sales Seminar

Credits: 3

This course provides students in-depth study of advanced, and cutting edge sales and sales management concepts presenting by top talent in industry. While topic can vary, this seminar teams students with industry experts to explore state-of-the-art thinking in technical sales, sales management, sales training, compensation, and team selling.

Prerequisite: SELL 3310 and junior class standing.

Advanced Business Electives - Credits: 6

- Any business courses at the 3000 - 4000 level - Credits: 6

Additional Requirements

The professional and technical selling minor prepares students to manage business clients. This minor provides students with technical and/or liberal arts backgrounds with opportunities to pair these backgrounds with essential knowledge and skills required for careers in sales. Careers in sales offer independence, ample financial reward, personal growth, and opportunities for rapid advancement within organizations. Students experience rigorous classroom experiences designed to develop important knowledge and practical selling skills including: oral and written communication skills, selling techniques and networking, and the use of sales technology and customer information.

All professional and technical selling minors must comply with requirements of the advanced business prerequisites for enrollment in upper-division courses and must complete the common body of knowledge courses as listed previously. All professional selling courses for the minor require a minimum grade of C.

15 credit hours (3 credits required course, 6 credits from the Approved Elective Courses for the Professional and Technical Selling Minor course list, 6 credits of Advanced Business Electives)

Graduate

Business Administration, M.B.A.

The UW MBA program offers a 1-Year Early Career MBA tailored to those looking to gain the needed experience and business insights required in today's competitive marketplace.

Additional Requirements

- Thirty-six (36) credit hours of graduate coursework, including participation in all MBA Program activities (orientation, Jackson Leadership Summit, MBA Executive Speaker Series, Professional Development,

- Experiential Leadership Program, etc.). Please note that students enrolled in any dual degree MBA program are required to complete all MBA participation activities and the core coursework.
- This is a cohort based program and while the course sequence is highly structured, there may be the opportunity to extend the duration of the one-year program. Course sequence is subject to change at the discretion of the MBA Director.
 - Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Course of Study

MBA Core Requirements (27 Credit Hours)

Required of all MBA students including all dual degree students.

MBAM5101 - MBA Foundations

Credits: 1

The purpose of this course is to prepare students for the academic rigors of the MBA program.

Restricted Enrollment in MBAM or MBAF degree program.

Prerequisite: Admission to full-time MBA program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

MBAM5107 - Decision Making I

Credits: 1

This course develops a systematic process for making decisions in complex business situations, by integrating six dimensions of business risk: competitive, financial, organizational, legal, social, and ethical. The process combines analytical and ethical reasoning methods that compensate for the flawed decision making common in business organizations.

Prerequisite: Admission to the MBAM program.

MBAM5209 - Decision Making II

Credits: 1

An experiential learning course that builds on MBAM 5107. Students apply systematic business decision making process to real-world business situations. Student teams work directly with owners and managers of Wyoming companies to address their strategic, competitive, operational, financial, and/or administrative challenges in real time.

Prerequisite: MBAM 5107.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MBA Elective Requirements

- MBA-MBA students, including dual degree students, must take an additional 9 credit hours of 4000 or 5000 level College of Business courses. Dual degree students (JD/PharmD/MS) may take 3 credit hours outside the College of Business following dual degree agreement guidelines. Please contact your advisor for additional information.

**Note: A maximum of 12 credit hours may be taken at the 4000 level for graduate credit.*

Business Administration, Online, M.B.A.

The Online MBA Program is specifically designed for business professionals interested in a fully AACSB accredited, 100% online program that fits their busy schedules and enhances their understanding of decision-making in the workplace.

Additional Requirements

- 30 credit hours of graduate credit as outlined in the Course of Study.
- Concentration Available: Energy (EMN)
- Optional Certificate Add-Ons: CFP (certified financial planning) or Energy Business. Adding on a certificate may increase required number of credit hours. Please contact us for additional information.
- This is a cohort based program that can be flexible in sequence depending on student needs. Course sequence is subject to change at the discretion of the MBA Director.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, student will be immediately dismissed from the program.

Prerequisite Courses

Prerequisite coursework may be requested based on experience and undergraduate coursework at the discretion of the MBA Program Director as part of the application process. Please contact the MBA & Professional Graduate Program Office for additional information.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 in the MBA Program to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program. Other requirements involving program dismissal include:

- A student who earns a grade lower than a "C" in any course may be immediately dismissed from the program.

Course of Study

MBA Core Requirements (21 Credit Hours)

Required of all MBAX students.

MBAX5104 - Organizational Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operation, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analysis including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamental principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval

MBAX5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval

MBAX5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5330 - The Global Business Environment

Credits: 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational

environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBAX5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations. #304.

Restricted MBA-MBAX

Prerequisite: Admission to the MBAX program or department approval.

MBA Elective/Concentration Requirements

- MBA-MBAX students must take an additional 9 credit hours of 5000 level College of Business courses.
- Energy Concentration students will complete the additional 9 credit hours of coursework as follows:
 - ACCT 5503 Fundamentals of Accounting in the Energy Industry. 3.
 - MGT 5504 Energy Industry Value Chain. 3.
 - FIN 5502 Energy Finance: Project Evaluation. 3.

Marketing, Ph.D.

The program of study draws from extant marketing theory, combined with studies in basic and other applied sciences to create a base of knowledge, which is supplemented with courses in the gathering and analysis of qualitative and quantitative data.

Additional Requirements

The Department of Management and Marketing offers a program leading to a Doctor of Philosophy in Marketing. The program of study draws from extant marketing theory, primarily in consumer behavior, combined with studies in the basic sciences (e.g., anthropology, psychology, sociology) and other applied sciences (e.g., environmental sciences) to create a base of knowledge acceptable for marketing scholarship in higher education, and a depth of knowledge conducive to a stream of publishable research in a specific topic area. Theoretical development is supplemented with course work in the gathering and analysis of qualitative and quantitative data, which prepares the student for rigorous exploration of marketing phenomena. Students are required to complete 72 semester hours and a scholarly dissertation that contributes to the knowledge foundations in marketing and contributes to the basic sciences that informed the inquiry. Semester hours will include core marketing classes, outside elective courses in statistics, basic social sciences, and/or interdisciplinary studies in environmental and natural resources, and dissertation work. First and second year

research projects are also required, aimed at the student having published articles in respected marketing and social science journals before program completion. Comprehensive exam is completed at the end of the second semester. All doctoral students are expected to teach while enrolled in the program. The program is designed to give students a strong research background and intensive teaching experience.

We begin accepting applications in October for the following fall semester. All completed applications must be submitted by February 1st. Admission requirements include:

- A Bachelor's Degree and work toward or completion of a master's degree from an accredited institution, preferably in business or a core social science discipline
- Completed application (i.e., all required materials submitted) on the UW Graduate Programs Applications system
- \$50 application fee paid to University Admissions
- Copies of all undergraduate and graduate program transcripts scanned and uploaded to the UW system, and official transcripts from each post-secondary institution attended submitted to the UW admissions office
- A valid GRE or GMAT score. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be requested from the testing organization and sent to UW
- Three strong letters of recommendation, with one or more being from an academic. The letters must be uploaded by the recommenders to the UW system in MS Word or .pdf format.
- A personal statement summarizing your interest in pursuing doctoral studies and speaking to questions or issues you wish to research. This document must be uploaded to the UW system as an MS Word or .pdf document
- For international students, Test of Foreign Language (TOEFL) scores are required. A scanned copy of the unofficial results must be uploaded to the UW system, and official scores must be submitted to UW from the testing organization. A minimum TOEFL score of 76 (online) or 540 (paper) is required for admission

Certificate

Energy Business Certificate (Graduate)

The online Energy Business Certificate is designed for professionals working in the energy industry who are interested in gaining knowledge related to real-world application within the highly competitive industry.

Additional Requirements

The Certificate in Energy Business is composed of 9-credits of masters-level graduate coursework in the College of Business, with the primary goal of achieving mastery and professional skills common to functional business roles within the energy industry. Specifically:

- Develop a working understanding of the concepts and practices of Supply Chain Management to make strategic support decisions within the energy industry.
- Acquire the foundation necessary to work in the energy industry as a financial statement analyst, manager, auditor, or accountant.
- Utilize core capital budgeting, techno-economic cashflow modeling and other finance concepts to evaluate energy industry project investments.
- Demonstrate effective problem solving, written, and oral communication skills in the context of the energy industry.

Certificate Requirements

FIN5502 - Energy Finance: Project Evaluation

Credits: 3

This course introduces students to the key methods used to evaluate investments in energy industry projects from the perspective of the developer as well as the lender and other stakeholders. Topics include project finance modeling, techno-economic considerations, business structures, regulatory and legal issues, risk analysis, and deal terms.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director.

ACCT5503 - Fundamentals of Accounting in the Energy Industry

Credits: 3

Introduces students to basic financial accounting and reporting issues related to energy producing activities. Specifically, the course will investigate current accounting practices of energy producing companies related to exploration, acquisition, development, and delivery of energy products. The course will also cover financial requirements of the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and the Securities and Exchange Commission (SEC).

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MGT5504 - Energy Industry Value Chain

Credits: 3

Examines the overall energy industry with detailed exploration of the major energy subsectors and supply chains. Students will develop knowledge of the energy industry value chain including coverage of market dynamics, prevalent strategies, finance, operations, externalities and network effects, environmental and ethical considerations, and associated policy issues.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director

- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Master of Business Administration (MBA)

Master of Business Administration (MBAM)

MBA & Professional Graduate Programs Office
1000 E. University Ave., Dept. 3275

Laramie, WY 82071

(307) 766-2482

Email: cobgradprograms@uwyo.edu

Web site: www.business.uwyo.edu/mba

MBA - General

Program Overview

The UW MBA Program delivers professional management education that connects principles, concepts, and intense case analysis with real world experience as tools for making business decisions. Students will develop leadership and managerial skills. UW MBAs will possess the education and training to compete in today's rapidly changing global business world.

Class sizes are small and diverse. Courses are taught by a select group of business faculty members. The total program experience (both inside and outside the classroom) is designed to provide experiential learning along with access to powerful networks.

Admission Requirements

A Faculty Admissions Committee, chaired by the Director of the MBA Program, will review all applicants. Application to the program is open to students who have a baccalaureate degree from an accredited university or college. Students with a baccalaureate degree in a business discipline or business administration are eligible for the program, but will not be allowed to waive any of the core course requirements. Please view the full list of admission requirements below.

Students whose native language is not English must submit TOEFL results (or another approved English proficiency exam). There are no exceptions for students from other UW colleges and schools seeking dual degrees. If an international applicant wishes to be considered for GA funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI) or an approved alternative to the OPI. Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please be advised that our program includes significant class discussion, substantial daily reading, many written assignments, and presentations.

Dual Degree Programs

The following dual degree programs are available:

- MS in Engineering / MBA
- Pharm. D. / MBA
- J.D. / MBA

Students will need to meet all MBA admission requirements and respective dual college/department requirements and be admitted to both degree programs in order to be considered for the dual degree program. The MBA core requirements are required of all students. After successful completion of all requirements, students in the dual degree program will graduate with two graduate level degrees.

Admission to the Master of Business Administration program generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.

- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.0 scale. If you do not meet this minimum preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.
- A GMAT or GRE score may be required as part of the application process as determined by the program director after reviewing the required application materials. Please reach out for additional information to cobgradprograms@uwoyo.edu or 307-766-2482.
- Professional resume.
- Official transcripts of **all** undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Admissions Office at 1000. E. University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Note: These are the minimum requirements and do not guarantee admission or funding.

Prerequisites: No specific prerequisite courses are required. However, evidence of technical proficiency and/or prior business experience from your work history and transcripts are considered in the admissions process. If admitted to the program, all MBA students are required to take our MBA Foundations course, which establishes a baseline level of knowledge in Accounting, Finance, Economics, and Statistics.

Additional International Student Admission Requirements:

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 600 on the Paper-based test (TOEFL PBT) or a score of 100 on the Internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 7. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries *may be* exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions).
- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university *may be* exempt from providing proof of English proficiency.

Degree Requirements

- Thirty-six (MBA-MBA) credit hours of graduate coursework, including participation in all MBA Program activities (orientation, Jackson Leadership Summit, MBA Executive Speaker Series, Professional Development, Experiential Leadership Program, etc.). Please note that students enrolled in any dual degree MBA program are required to complete all MBA participation activities and the core coursework.
- This is a cohort based program and while the course sequence is highly structured, there may be the opportunity to extend the duration of the one-year program. Course sequence is subject to change at the discretion of the MBA Director.

- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student may be immediately dismissed from the program.

Course of Study

Pre-Term: All admitted MBA students will complete a Foundations course prior to orientation, the experiential leadership program, and the Jackson Leadership Summit. Students may also receive pre-term assignments and/or pre-term prep course material.

MBA Core Requirements (27 credit hours) - Required of all MBA students as well as all Dual Degree MBA students.

- MBAM 5101 MBA Foundations. 1.
- MBAM 5202 Data and Decision Modeling. 3.
- MBAM 5104 Organizational Behavior and HRM. 3.
- MBAM 5208 Accounting for Managers. 3. OR MBAM 5208 Managerial Accounting. 3.
- MBAM 5204 Financial Management. 3.
- MBAM 5207 Marketing Management. 3.
- MBAM 5102 Operations Management. 3.
- MBAM 5330 Global Business Environment. 3.
- MBAM 5107 Decision Making I. 1.
- MBAM 5209 Decision Making II. 1.
- MBAM 5305 Strategic Management. 3. (includes international or domestic travel)

MBA Elective Requirements

- MBA-MBA students, including dual degree students, must take an additional 9 credit hours of 4000 or 5000 level College of Business courses. Dual degree students (JD/PharmD/MS) may take three (3) credit hours outside the College of Business following dual degree agreement guidelines. Please contact your advisor for additional information.

**Note: A maximum of 12 credit hours may be taken at the 4000 level for graduate credit.*

Application Deadlines

- **Fall Admission Only**
 - Final Deadline: June 1
 - Priority Deadline: November 1
 - Scholarship Deadline: March 1

**International Applicants: Please be advised that there are additional university requirements that may take additional processing time - you are highly encouraged to apply prior to the application deadline to ensure that if admitted, all required documentation can be provided prior to the beginning of the term of entry.*

Additional Information

Tuition & Fees

Tuition and fee charges will not include the cost of textbooks. Please refer to University of Wyoming cost of attendance for additional information.

MBA Executive Speaker Series

Students participate in weekly meetings (primarily on Fridays) with business leaders from a wide variety of industries (business, government, and non-profit entities). The program takes place mostly on campus, but does include some travel. This program supplements the class work, provides discussion and learnings of business challenges, opens the students' horizons on career opportunities, and provides long-term networking opportunities.

Experiential Leadership Program

Students focus on improving leadership competence and focus on teamwork outside of the typical business element. This experience has been tailored to represent an experiential case study on effective leaders and effective teams. Substitute experiences can be discussed on a case-by-case basis.

Jackson Leadership Summit

Exclusive leadership development event for MBA students to network with an astute panel of individuals with proven business success. Topics usually focus on the global economy and strategic planning.

Campus to Online MBA Program

Students enrolled in the campus MBA program may, on a case-by-case basis apply credits from the Online MBA program (courses with an MBAX prefix) to their degree, and vice versa. Must be approved by the Program Director.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 in the MBA Program to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program and suspension from the University of Wyoming. Other requirements involving program dismissal include:

- A student who earns a grade of "D" or lower in any one course may have the opportunity to retake the course (MBAX or MBAM).

Online Master of Business Administration (MBAX)

MBA & Professional Graduate Programs Office

1000 E. University Ave., Dept. 3275

Laramie, WY 82071

(307) 766-2482

Email: cobgradprograms@uwyo.edu

Web site: www.business.uwyo.edu/mba

MBA-MBAX - General

Program Overview

The University of Wyoming offers a flexible Online MBA (EMBA). The Online MBA Program is specifically designed for experienced business professionals interested in an AACSB accredited, 100% online program that fits their busy schedules. This program is typically completed in two years and is tailored for professionals interested in enhancing their understanding of business disciplines and applying them to decision-making. With starts each Fall, Spring, and Summer, the cohort-based program consists of a minimum 30 credit hours of required coursework.

Program Admission Requirements

A Faculty Admissions Committee, chaired by the Director of the MBA Program, will review all applicants. Application to the program is open to students who have a baccalaureate degree from an accredited university or college. Students with a baccalaureate degree in a business discipline or business administration are eligible for the program, but will not be allowed to waive any of the core course requirements. Please see full list of admission requirements below.

Students whose native language is not English must submit TOEFL results, or results of another approved English proficiency exam. There are no exceptions for students from other UW colleges and schools seeking dual degrees. If an international applicant wishes to be considered for GA funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI) or an approved alternative. Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please be advised that our program includes significant class discussion, substantial daily reading, many written assignments, and presentations.

Admission to the Online Master of Business Administration program generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred. Based on a 4.0 scale. If you do not meet this minimum preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.
- GRE or GMAT Optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.).
- Professional resume. A minimum 2 years' professional work experience is preferred.
- Official transcripts of **all** undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Admissions Office at 1000. E. University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience.

Note: These are the minimum requirements and do not guarantee admission or funding.

Prerequisites: Prerequisite courses may be required as determined by the MBA Director. Please reach out to our office at cobgradprograms@uwyo.edu or 307-766-2482 for additional information.

Additional International Student Admissions Requirements

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam, or another approved English proficiency exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 600 on the Paper-based test (TOEFL PBT) or a score of 100 on the Internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 7. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries *may be* exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia

- Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions).
 - Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university *may be* exempt from providing proof of English proficiency.

Degree Requirements

- Thirty (30) credit hours of graduate credit as outlined in the Course of Study section.
- This is a cohort based program and while the course sequence is structured, there is a lot of opportunity for flexibility. This program can be completed in one or two years most commonly, but longer completion timelines can be discussed. Course sequence is subject to change at the discretion of the MBA Director.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F.

Course of Study

MBA Core Requirements (21 credit hours) - Required of all MBAX students.

- MBAX 5204 Financial Management. 3.
- MBAX 5207 Marketing Management. 3. or MBAX 5235 Marketing Analysis & Strategy. 3.
- MBAX 5202 Data and Decision Modeling. 3.
- MBAX 5104 Organizational Behavior & HRM. 3.
- MBAX 5330 The Global Business Environment. 3.
- MBAX 5208 Accounting for Managers. 3. or MBAX 5208 Managerial Accounting. 3.
- MBAX 5305 Strategic Management. 3.

MBA Elective/Concentration Requirements

- MBA-MBAX students must take an additional 9 credit hours of 5000 level College of Business courses.
- Energy Concentration students will complete the additional 9 credit hours of coursework as follows:
 - ACCT 5503 Fundamentals of Accounting in the Energy Industry. 3.
 - MGT 5504 Energy Industry Value Chain. 3.
 - FIN 5502 Energy Finance: Project Evaluation. 3.

Application Deadlines

- **Fall Admission**
 - Block 1 Final Deadline: June 30
 - Block 2 Final Deadline: October 1
 - Priority Deadline: May 1
- **Spring Admission**
 - Block 1 Final Deadline: December 1
 - Block 2 Final Deadline: February 1
 - Priority Deadline: October 1
- **Summer Admission**
 - Final Deadline: April 1
 - Priority Deadline: February 1

**International Applicants: Please be advised that there are additional university requirements that may take additional processing time - you are highly encouraged to apply prior to the application deadline to ensure that if admitted, all required documentation can be provided prior to the beginning of the term of entry.*

Additional Information

Tuition and Fees

Tuition and fee charges will not include the cost of textbooks. Please refer to University of Wyoming cost of attendance for additional information.

Online to Campus MBA Program

Students enrolled in the online MBA program may, on a case-by-case basis apply credits from the campus MBA program (courses with an MBAM prefix) to their degree, and vice versa. Must be approved by the Program Director.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 in the MBA Program to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program and suspension from the University of Wyoming.

- Maintain good academic standing at the program and university level and receive no letter grade of D or F.

College of Business Graduate Certificate Programs

MBA & Professional Graduate Programs Office

1000 E. University Ave., Dept. 3275

Laramie, WY 82071

(307) 766-2482

Email: cobgradprograms@uwyo.edu

Web site: www.business.uwyo.edu/mba

CERT-MBAE - Energy Business

CERT-CFP - Certified Financial Planning

Program Overview, Energy Business Certificate

The Certificate in Energy Business is composed of 9-credits of masters-level graduate coursework in the College of Business, with the primary goal of achieving mastery and professional skills common to functional business roles within the energy industry. Specifically:

- Develop a working understanding of the concepts and practices of Supply Chain Management to make strategic support decisions within the energy industry.

- Acquire the foundation necessary to work in the energy industry as a financial statement analyst, manager, auditor, or accountant.
- Utilize core capital budgeting, techno-economic cashflow modeling and other finance concepts to evaluate energy industry project investments.
- Demonstrate effective problem solving, written, and oral communication skills in the context of the energy industry.

Program Overview, CFP Certificate

The Certificate in Certified Financial Planning is composed of 18-credits of masters-level graduate coursework in the College of Business, with the primary goal of providing students with the education, training, and skills necessary to be able to sit for the Certified Financial Planner (CFP) examination. The curriculum is aligned with the CFP® Board's Principal Knowledge Topics and covers principles and practices of essential areas of financial planning, including:

- Wealth Management
- Investment Management
- Tax Planning
- Estate Planning
- Insurance and Retirement Planning

Program Admission Requirements

Admission to the graduate certificate programs generally requires:

- Completed University of Wyoming Graduate Admissions Application and non-refundable application fee.
- Bachelor's degree from a regionally accredited university or college. For more information on accredited institutions, please visit the U.S. Department of Education site.
- A cumulative undergraduate GPA of 3.0 or a 3.0 GPA in the last 60 credit hours of college or university coursework, preferred (based on a 4.0 scale). If you do not meet the preferred GPA, professional work experience in a related field may be considered on a case-by-case basis.
- GRE or GMAT Optional. A strong GRE or GMAT score may be considered to offset deficiencies in other areas of your application (such as a GPA below 3.0, limited work experience, etc.), but is not required.
- Professional resume. A minimum 2 years of professional work experience is preferred.
- Official transcripts of **all** undergraduate and graduate coursework (post-secondary) must be sent directly from the issuing institution to the University of Wyoming Admissions Office at 1000. E. University Ave., Laramie, WY 82071-2000. Official University of Wyoming transcripts do not need to be sent to the Office of Admissions, but copies of all transcripts must also be uploaded into the UW Graduate Admissions Application.
- Letters of recommendation (min. of 1, max. of 3). Professional (i.e. supervisor, employer, team lead, etc.) or education-related (i.e. advisor, mentor, faculty member, program director, etc.) letter(s) of recommendation provided directly by the reference via the UW Graduate Admissions Application.
- Interview. You will be contacted by our program office to participate in a virtual interview that can be completed at your convenience (no need to schedule a meeting).

Note: These are the minimum requirements and do not guarantee admission or funding. The University of Wyoming College of Business Graduate Certificate programs do not admit students provisionally or conditionally.

CERT-MBAE Prerequisites: Applicants must provide evidence of proficiency in the following areas:

Managerial Accounting

Finance

CERT-CFP Prerequisites: Applicants must provide evidence of proficiency in the following areas:

Business Math and Statistics

Financial Management

*Evidence of proficiency in these areas is considered on a case-by-case basis but is commonly pursued through supplemental courses and/or relevant professional experience. Please contact the program office for additional information.

Additional International Student Admissions Requirements

- Provide proof of satisfactory English ability if native language is not English by completing the TOEFL or IELTS exam. The minimum acceptable TOEFL (Test of English as a Foreign Language) score is 600 on the Paper-based test (TOEFL PBT) or a score of 100 on the Internet-based test (TOEFL iBT). The minimum acceptable IELTS score is 7. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries *may be* exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, and the United Kingdom.
- On-Campus Education Only: International students must also prove sufficient financial resources as established by the University of Wyoming (Graduate International Student Admissions).
- Distance Education Only: An applicant whose native language is English or who has earned a university level degree from an English speaking university *may be* exempt from providing proof of English proficiency.

Degree Requirements, Energy Business Certificate

- 9 total credit hours of coursework to include:
 - FIN 5502 - Energy Finance: Project Evaluation. 3.
 - ACCT 5503 - Fundamentals of Accounting in the Energy Industry. 3.
 - MGT 5504 - Energy Industry Value Chain. 3.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student will be immediately dismissed from the program.

Degree Requirements, CFP Certificate

- 18 total credit hours of coursework to include:
 - FIN 5070 Tax Planning for Financial Planners. 3.
 - FIN 5310 Investment Management. 3.
 - FIN 5720 Insurance and Retirement Planning. 3.
 - FIN 5750 Fundamentals of Financial Planning. 3.
 - FIN 5780 Estate Planning. 3.
 - FIN 5800 CFP Capstone. 3.
- Maintain good academic standing at the program and university level and receive no letter grade of D or F. If a letter grade of D or F is received, the student will be immediately dismissed from the program.

Academic Requirements

Students must maintain a cumulative GPA of 3.000 to remain in "good standing". If a student's GPA falls below 3.000, he or she is automatically placed on academic probation; the student must raise their cumulative GPA to 3.000 the following semester to avoid dismissal from the program and suspension from the University of Wyoming. Other requirements involving program dismissal include:

- A student who earns a grade lower than a "C" in any course must retake the course, or withdraw from the program.

College of Education

College of Education

6 Education

Scott Thomas, John P. "Jack" Ellbogen Dean

Andrea C. Burrows: Associate Dean for Undergraduate Programs

Jenna M. Shim: Associate Dean for Graduate Programs

(307)766-6668 FAX: (307)766-3145 Building Phone:

Web site: www.uwyo.edu/education

The College of Education prepares teachers, counselors, administrators and other service personnel for positions in public education in Wyoming, throughout the nation, and the world. The teacher education program incorporates content area courses from the various colleges on campus with experiences in educational methodology. Programs are designed to provide students with a maximum amount of experience in the classroom.

Graduates of the College of Education are prepared to deal with youth growing up in a rapidly changing world. Programs are experiential, collaborative, outcomes based, and technologically supported. Emphasis is placed on professional ethics, a commitment to lifelong learning, and respect for all individuals in our culturally diverse society.

Organization of the College

The College of Education includes undergraduate teacher education and graduate studies in education. Schools offering undergraduate and graduate programs in the college include:

- **School of Teacher Education**

- **School of Counseling, Leadership, Advocacy, and Design**

Undergraduate and graduate education are supported by several units. The Teacher Preparation and Advising Office, McWhinnie Hall room 100, coordinates activities dealing with academic advising, field experiences, and teacher licensure.

The Wellspring Counseling Clinic provides counseling services to students, staff, faculty of the university, as well as the community at-large.

The College of Education, College of Arts and Sciences, Wyoming community colleges, many Wyoming districts, the Wyoming Professional Teaching Standards Board, and the Wyoming Department of Education are part of the Wyoming School-University Partnership, which grounds collaborative efforts across the state related to K-12 preservice and inservice education.

The Laboratory School, an Albany County School District entity, serves the college, the university, the school district, and the state as an educational center for research, development, instructional advancement, and inservice education. The school enrolls students in pre-school through eighth grade.

Computer laboratories in the college feature a wide range of capabilities including Internet access. The laboratory equipment is frequently updated to serve the needs of students, faculty and staff.

The Learning Resource Center is a branch of the university library system. Educational materials are available to serve the needs of K-12 students, university students, university faculty and public school faculty in Wyoming

Faculty in the College of Education

School of Counseling, Leadership, Advocacy, and Design

School Director: Peter Moran

Associate Professors:

KARA L. CARNES-HOLT, B.A. East Texas Baptist University 2000; M.S. Ed. Baylor University 2003; Ph.D. University of North Texas 2010; Associate Professor of Counselor Education 2016, 2010.

COURTNEY McKIM, B.S. Boise State University 2006; Ph.D. University of Nebraska 2011; Associate Professor of Educational Research 2020, 2011.

MICHAEL M. MORGAN, B.S. Brigham Young University 1993; M.S. Auburn University 1995; Ph.D. Purdue University 2003; Associate Professor of Counselor Education 2011, 2003.

LINDSEY NICHOLS, B.S. University of Connecticut 2002; M.A. University of Connecticut 2003; M.Ed. University of North Carolina at Chapel Hill 2006; Ph.D. Pennsylvania State University 2012; Associate Professor 2019.

W. REED SCULL, B.S. St. Louis University 1983; M.A. University of Nevada-Reno 1989; Ed.D. University of Arizona 1994; Associate Professor 2019.

Assistant Professors:

WILLIAM CAIN, B.A. University of Texas 1994; Ph.D. Michigan State University 2018; Assistant Professor 2018.

JONTHAN CARRIER, B.S. East Tennessee State University 1999; M.S.E. Portland State University 2002; Ph.D. University of the Cumberlands 2017; Assistant Professor of Higher Education Administration, 2020.

RICHARD CARTER, B.S. Western Carolina University 2010; M.S.E. 2012; Ph.D. University of Kansas 2016; Assistant Professor of Special Education 2017.

AMANDA DeDIEGO, B.S. University of North Georgia 2009; M.S. 2012; Ph.D. University of Tennessee 2016; Assistant Professor of Counselor Education 2016.

BARBARA HICKMAN, B.A. University of Minnesota 1985; B.S. University of Minnesota 1986; M.A. Saint Mary's College 1997; Ed.D. Northern Arizona University 2017; Assistant Professor 2019.

JIHYUN LEE, B.A. Daegu University 2006; M.Ed. Korea National University 2012; M.S. University of Wisconsin-Madison 2014; Ph.D. University of Texas-Austin 2018; Assistant Professor 2019.

ROBERT MADDOX, B.S. Missouri State University 2005; M.A. Southeast Missouri State University 2009; Ed.S. Southeast Missouri State University 2011; Ph.D. University of Wyoming 2015; Assistant Professor 2019.

LAY-NAH BLUE MORRIS-HOWE, B.S. University of Wyoming 2004; M.S. 2007; Ph.D. 2011; Assistant Professor of Counselor Education 2015.

MARK PERKINS, B.A. Ft. Lewis College 2001; M.A. University of Colorado-Denver 2009; Ph.D. Colorado State University 2014; Assistant Professor of Educational Research, 2020.

MIA WILLIAMS, B.S. Northern Arizona University 1995; M.Ed., 1999 Ph.D 2008 Arizona State University Assistant Professor 2020.

Associate Professional Lecturer:

TIFFANY HUNT, B.S. University of Wyoming 2001; M.S. University of Northern Colorado 2006, Ph.D. 2017; Assistant Professional Lecturer of Special Education 2014.

Professors Emeritus

Martin Agran, Mary Alice Bruce, John Cochenour, Ace Cossairt, Kay Cowie, Michael Day, Deborah McGriff, Alan Moore, Kay Persichitte, Suzanne Young.

School of Teacher Education

School Director: Alan Buss

Professors:

STEVEN M. BIALOSTOK, B.A. University of the Pacific 1975; M.S.W. California State University - Sacramento 1986; Ph.D. University of Arizona 1999; Professor of Elementary and Early Childhood Education 2015, 2000.

CYNTHIA BROCK, B.S. Oregon State University 1981; MEd Washington State University 1985; Ph.D. Michigan State University 1997; Wyoming Excellence in Education Literacy Chair 2015.

ANDREA C. BURROWS, B.S. University of Central Florida 1992; M.S. Florida State University 1994; Ed.D. University of Cincinnati 2011; Professor of Secondary Education 2017, 2011. Associate Dean of Undergraduate Programs 2020.

ALAN R. BUSS, B.A. Brigham Young University 1989; M.A. 1993; Ph.D. University of Wyoming 1998; Professor of Elementary and Early Childhood Education 2019, 1997.

SCOTT A. CHAMBERLIN, B.A. Purdue University 1989 and 1993; M.Ed. University of Utah 1998; Ph.D. Purdue University 2002; Professor of Elementary and Early Childhood Education 2015, 2003.

LEIGH HALL, B.S. University of South Florida 1996; M.Ed. Peabody College of Vanderbilt University 1997; Ph.D. Michigan State University 2005; Professor of Secondary Education 2017. Wyoming Excellence in Education Literacy Chair, 2017.

JOHN KAMBUTU, B. A. University of Wyoming 1991; M. A. 1992; Ph.D. 1998; Professor of Educational Studies 2015, 1999.

RICHARD KITCHEN, B.A. University of Colorado-Denver 1984; M.A. University of Montana 1990; Ph.D. University of Wisconsin- Madison 1996; Professor of Secondary Education 2017. Wyoming Excellence in Education Mathematics Education Chair 2017.

PETER WILLIAM MORAN, B.A. University of Wyoming 1987; M.A. Kansas State University 1993; Ph.D. 2000; Professor of Elementary and Early Childhood Education 2017, 2001.

LYDIAH NGANGA, B.S. University of Wyoming 1998; M.S. 2000; Ph.D. 2005; Professor of Elementary and Early Childhood Education 2020, 2005.

LESLIE S. RUSH, B.S. Texas A&M-Commerce 1984; M.Ed. 1996; Ph.D. University of Georgia, 2002; Professor of Secondary Education 2014, 2002.

JENNA M. SHIM, B.A. California State University - Los Angeles 1994; M.M. Manhattan School of Music - New York 1996; M.S. State University of New York - Albany 2006; Ph.D. 2009; Professor of Educational Studies 2016, 2010.

TIMOTHY F. SLATER, B.S. Kansas State University 1989; B.S. Ed. 1989; M.S. Clemson University 1991; Ph.D. University of South Carolina 1993; Professor of Secondary Education 2008. Wyoming Excellence in Education Science Education Chair 2008.

ALLEN TRENT, B.A. Eastern Kentucky University 1986; M.S. University of Dayton 1992; Ph.D. The Ohio State University 2000; Professor of Elementary and Early Childhood Education 2012.

Associate Professors:

TAO HAN, B.A. Sungshin Women's University, Korea 1984; M.A. University of Arizona 1993; M.A. University of Nevada-Reno 2002; Ph.D. 2006; Associate Professor of Elementary and Early Childhood Education 2016, 2010.

ANA HOUSEAL, B.A. University of Iowa 1985; M.A. University of Northern Iowa 1998; Ph.D. University of Illinois 2010; Associate Professor of Elementary and Early Childhood Education 2017, 2011.

LINDA HUTCHISON, B.A. Humboldt State University 1978; M.A. Stanford University 1986; Ph.D. University of Washington 1992; Associate Professor of Secondary Education 2000, 1993.

TRICIA JOHNSON, B.S. Lehigh University 1991; M.Ed. 1993; Ed.S. George Washington University 1997; Ed.D. Columbia University 2004; Associate Professor of Elementary and Early Childhood Education 2012.

PATRICK MANYAK, B.A. Pepperdine University 1988; M.S. 1990; Ph.D. University of Southern California-Los Angeles 2001; Associate Professor of Elementary and Early Childhood Education 2007, 2001.

AMY ROBERTS, B.S. Indiana University 1986; M.A. Portland State University 1991; Ph.D. Indiana University 1996; Associate Professor of Elementary and Early Childhood Education 2004, 1998.

KATHERINE MUIR WELSH, B.A. University of California-Berkeley 1986; Single Subject Teaching Credential (Life Sciences) University of California-Santa Barbara 1990; Ph.D. University of California-Los Angeles 2002; Associate Professor of Elementary and Early Childhood Education 2008, 2002.

Assistant Professors:

ALI BICER, B.S. Celal Bayar University 2006; M.S. Texas A&M University 2012; Ph.D. 2016; Assistant Professor of Elementary and Early Childhood Education 2019.

TODD REYNOLDS, B.A. University of Northern Colorado 1998; M.A. 2004; Ed.S. 2008; Ph.D. University of Wyoming 2015; Assistant Professor of Secondary Education 2019.

ALISON MERCIER, B.S. North Carolina State University 2000; M.S. University of North Carolina 2020; Assistant Professor of Secondary Education 2020.

Senior Lecturers:

NIKKI BALDWIN, B.A. University of Wyoming 1994; M.A. 2005; Senior Lecturer of Elementary and Early Childhood Education 2020, 2009.

KIMBERLY GUSTAFSON, B.A. University of Wyoming 1998; M.A. 2003; Ed.D. 2010; Senior Lecturer of Elementary and Early Childhood Education 2019, 2007.

AMY SPIKER, B.A. University of Wyoming 1989; M.A. 2004; Senior Lecturer of Elementary and Early Childhood Education 2016, 2007.

Associate Lecturers:

JASON KATZMANN, B.S. Texas Women's University 1994; M.A. Colorado College 2000; Ph.D. University of Northern Colorado 2007; Assistant Professor of Educational Studies 2016, 2007.

ROD THOMPSON, B.A. University of Nebraska at Kearney 1991; M.A. University of Northern Iowa 1998; Associate Lecturer of Educational Studies 2019.

Assistant Lecturers:

LINDSEY FREEMAN, B.S. University of Wyoming 2011; M.A. 2018; Assistant Lecturer of Educational Studies 2019.

JENNIFER GERINGER, B.A. University of Texas - San Antonio 1991; M.S. University of Wyoming 1997; Ph.D. 2001; Assistant Lecturer of Elementary and Early Childhood Education 2015.

JANET LEAR, B.S. University of Wisconsin-Madison 1990; M.A. University of California, Berkeley 1998; Ph.D. University of Denver 2017; Assistant Lecturer of Educational Studies 2019.

ROCHELLE MCCOY, B.A. Western Governors University 2006; M.A. 2012; Assistant Lecturer of Elementary and Early Childhood Education 2019.

JOSEPH SCHROER, B.A. University of Cincinnati 2002; B.S. 2005; M.A. 2001; Ph.D. 2007; Assistant Lecturer of Educational Studies 2019.

Professors Emeritus:

Michelle Buchanan, Barbara A. Chatton, Margaret Cooney, Lydia Dambekalns, Judith Z. Ellsworth, Patricia McClurg, R. Timothy Rush

Accreditation

The College of Education, a member of the American Association of Colleges of Teacher Education, is currently accredited by the National Council for the Accreditation of Educator Preparation (CAEP) and is moving toward the Association for Advancing Quality in Educator Preparation (AAQEP) in 2023-2024. The Wyoming Professional Teaching Standards Board (PTSB) and the North Central Association of Colleges and Schools approve the college as an accredited teacher-preparing institution. The Counseling programs are fully accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP).

Academic Advising

Students are assigned an academic adviser who will assist in planning a program combining University Studies requirements, core content requirements, and professional education courses. Students are expected to consult with their adviser regularly. The Teacher Preparation and Advising Office coordinates advising and provides students and faculty with assistance in areas related to academic advising.

Further information on each program is available in:

Teacher Preparation and Advising Office
McWhinnie Hall room 100
Dept. 3374, 1000 E. University Ave.
Laramie, WY 82071

(307) 766-2230 edquest@uwyo.edu

College of Engineering and Applied Science

College of Engineering and Physical Sciences

2085 Engineering Building

Cameron Wright, Acting Dean

Phone: (307)766-4253 FAX: (307)766-4444

Web site: ceas.uwyo.edu

Engineering is a profession that truly makes a difference. Engineers constantly discover how to improve lives by creating new solutions to real world problems and needs. From small villages to large cities, engineers are involved in innovative improvements to all aspects of life from health care, to energy production, to protecting and rehabilitating the environment, to developing the newest technological device. The broad background of communication, mathematical, scientific, and problem solving skills provided at the University of Wyoming will prepare engineering graduates to pursue careers in engineering, construction, environmental policy, even medicine or law. The possibilities are endless! The creativity and innovative thinking developed in engineering enables students to lead rewarding lives, work with inspiring people, and give back to their communities. Computer science is a profession that is closely affiliated with engineering. At the University of Wyoming, degrees in computer science are awarded through the College of Engineering and Applied Science. The technology trends in this industry are also advancing at a tremendous

rate. This requires that computer science education be at the forefront of new computing technologies, software languages, and networking.

Mission

The University of Wyoming's College of Engineering and Applied Science will provide excellent education, research, and service in chosen fields of engineering and applied science. The College emphasizes connectivity with society, life-long learning, and the essential problem-solving and collaborative skills needed to address the frontier challenges facing Wyoming, the nation and the world.

Design Experiences

In direct support of the goals of the individual departments within the College of Engineering and Applied Science, the design process is consistently developed and integrated throughout the curriculum from the freshman year through the senior year. Within the engineering science program, design elements such as basic analysis skills, communication skills, experimental skills, computational skills, problem solving skills, and design methodology are taught. At the departmental level, these skills are developed further and the concepts of design methodology are reinforced. The design process culminates in a comprehensive design experience within the student's major.

Accreditation

The following undergraduate programs are accredited by the Engineering Accreditation Commission of ABET: architectural engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, energy systems engineering, mechanical engineering, and petroleum engineering.

Various options within different engineering programs are accredited as part of the primary major. That is, the electrical engineering/ bioengineering option is accredited as an electrical engineering degree, and the chemical engineering/petroleum option is accredited as a chemical engineering degree.

The Bachelor of Science in Computer Science is accredited by the Computer Accreditation Commission of ABET.

Programs of Study

Undergraduate Degrees

- Bachelor of Science in Architectural Engineering
- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Computer Science (Computers and Business Option)
- Bachelor of Science in Computer Science (Big Data Option)
- Bachelor of Science in Construction Management
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Electrical Engineering (Francis M. Long bioengineering option)
- Bachelor of Science in Energy Systems Engineering

Bachelor of Science in Mechanical Engineering
Bachelor of Science in Petroleum Engineering

Graduate Degrees

Master of Science

Architectural engineering
Atmospheric science
Chemical engineering
Civil engineering
Civil engineering/water resources
Computer science
Computer science professional
Electrical engineering
Environmental engineering
Mechanical engineering
Petroleum engineering

Doctor of Philosophy

Atmospheric science
Chemical engineering
Civil engineering
Computer science
Electrical engineering
Mechanical engineering
Petroleum engineering

Candidates for the various master's degrees in engineering are required to do a full year's work in residence either under Plan A or Plan B.

Students should understand that a strong background in mathematics is necessary to actively pursue an engineering curriculum. Credit toward an engineering degree is not allowed for algebra and trigonometry.

Coursework in all four-year curricula stresses the mastery of subjects fundamental to all fields of engineering. The balance of the program is divided between cultural context and courses applying to the particular field selected. The aim is to provide the student with such groundwork that the general principles acquired may be used successfully in any one of the several specialized fields he or she may follow after graduation.

Depending on the major, a minimum of 120 to 132 semester hours of credit is required for the bachelor's degree from the College of Engineering and Applied Science. All course work must be selected with prior approval. Detailed outlines of curricula are presented later under headings of the various departments of the college. Since most engineering programs are similar during the first year, students may change an engineering major during this time with little or no loss in credit.

Degree candidates must meet the academic requirements of the university and must have a grade point average of 2.000 (C) or above in all engineering courses attempted at this university.

Students may not take a course for S/U credit to satisfy any requirement for a degree from the College of Engineering and Applied Science, unless the course is offered for S/U credit only.

The College of Engineering and Applied Science adheres to prerequisite coursework being completed before moving forward to advanced coursework. If a student is found to be enrolled in a course without meeting the prerequisites, the student will be administratively dropped from the course.

All undergraduate engineering programs within the College of Engineering and Applied Science use the Fundamentals of Engineering Exam as one of their methods of outcomes assessment. As a graduation requirement, students must complete the exam, with a good faith effort, within one year prior to their expected graduation.

Preparation for the profession of engineering requires diligent work in the various curricula. The required credit hours can be completed in a four-year program, but because of the rigorous nature of some of the courses involved, some students may require additional time to complete degree requirements.

All engineering curricula are subject to minor program changes. The published curricula are general guides. Prospective students should consult the individual departments for current information.

International Engineering Minor

Students in the College of Engineering and Applied Science may earn a Minor in International Engineering. The Minor requires:

- a) a study abroad experience;
- b) 9 credits of lower-division coursework; and
- c) 9 credits of upper-division coursework.

More detailed requirements are available at: <http://www.uwyo.edu/ceas/academics/intleng.html>

Graduate Study

The College of Engineering and Applied Science offers coursework and research opportunities leading to the following master's degrees: master of science in atmospheric science, chemical engineering, civil engineering, computer science, electrical engineering, environmental engineering, mechanical engineering, and petroleum engineering. Candidates for the various master's degrees in engineering are required to do a full year's study in residence either under Plan A or Plan B.

Only graduates with satisfactory GPAs in programs accredited by ABET are granted full admission to graduate study. In addition, graduates with satisfactory GPAs in undergraduate disciplines of meteorology, physics, mathematics, or related fields can be granted full admission to graduate studies in atmospheric science. Other engineering graduates can be admitted on a provisional basis.

The College of Engineering and Applied Science offers coursework and research opportunities leading to the following doctoral degrees: doctorate in atmospheric science, chemical engineering, civil engineering, computer science, electrical engineering, mechanical engineering, and petroleum engineering. Interdisciplinary programs of study and research leading to one of the above disciplinary degrees can be developed.

Engineering Science

Program Director: David Mukai, Ph.D.
2076 Engineering Building,
(307) 766-6181
FAX: (307) 766-4444

Engineering Science offerings present the fundamental engineering concepts upon which most engineering analysis and design work is based. Faculty are drawn from all of the academic departments in the college. These core courses represent the majority of engineering offerings at the freshman and sophomore level.

Courses in engineering science have their roots in mathematics and physical science, extending knowledge toward creative application. Thus, students must take their courses in calculus, chemistry, physics, and engineering science in a timely manner. Details are given in the published curriculum for each program. **A grade of C or better must be earned in all courses that are prerequisite to any required engineering science course.**

Minor

International Engineering Minor

The International Engineering minor is an 18 credit hour program open to all engineering students. Cornerstones are a study abroad experience and coursework to help students gain understanding of perspectives and viewpoints from around the world.

Study Abroad Requirement

All students earning the International Engineering Minor must complete an educational experience outside of the United States. Examples are:

- Semester or year abroad at a college or university
- UW faculty-led study abroad program
- International service-learning experience (such as Engineers Without Borders, or Alternative Spring Break)
- Internship with a company outside the United States
- Research experience outside the United States

Coursework

The coursework is 18 total credits - these credits may also count toward major degree program. The coursework is intended to help students gain understanding of perspectives and viewpoints from around the world.

Lower Division Coursework

Select 9 credits from the following courses:

- Foreign language courses (except American Sign Language)
- 1000 or 2000 level Engineering courses completed during a Study Abroad program
- 1000 or 2000 level courses in International Studies (INST)
- Any of the courses listed below

ANTH2200 - World Culture

Credits: 3

Provides an understanding of cultural behavior of people in various geographical areas of the world. Students read ethnographies, cultural descriptions of societies, written by cultural anthropologists.

When Offered (Normally offered at least once a year)

USP 2003-2014 Code U3G, U3CS

A&S College Core 2015 ASG

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ECON1000 - Global Economic Issues

Credits: 3

Economics: creating value through trade, enhancing society through ideas, and protecting the environment by design. This introductory course will help you understand better on how people use both free markets and government regulations to create value, enhance society, and protect nature. You will explore how economic ideas and tools address big global issues like poverty and prosperity, inequality of wealth, capital and labor, sustainable development, free trade vs fair trade, climate change, war and peace, migration, brain drains, and science and nature.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

ERS1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ECON 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

GEOG1000 - World Regional Geography

Credits: 3

Covers the distributions, traits, and processes of the Earth's peoples and landscapes through the perspective of regional geography, which is the study of the spatial relationships of natural environments and human societies.

Cross Listed INST 1060.
USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG
Former Course Number [G&R 1000]

RELI1000 - Introduction to Religion

Credits: 3

Introduces world religions and shared characteristics. Draws on various academic approaches to religion study, emphasizing similarities and differences among wide variety of religions.

USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

RELI2315 - History of Non-Western Religions

Credits: 3

Max Credit 9

Introduces students to religions outside the Judeo-Christian realm familiar in the west. Each religion analyzed in its world views, its ways of life, and in its social organization. History of each religion and its changes.

Cross Listed HIST 2315.
USP 2003-2014 Code U3CH, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

INBU1040 - Introduction to International Business

Credits: 3

A broad survey of the field of international business which introduces basic concepts of international business activity and theory and reviews major foreign environmental forces--financial, economic and socioeconomic, physical, sociocultural, political, legal, labor, competitive and distributive.

Cross Listed INST 1040.
A&S College Core 2015 ASG
Former Course Number [BUSN 2000]

Upper Division Coursework

Select 9 credits from the following courses:

- 3000 or 4000 level Engineering courses completed during a Study Abroad program
- 3000 or 4000 level courses in International Studies (INST)
- Engineering design courses with an International focus

- Internship credits earned from an International internship
(Must be approved by International Engineering Minor Coordinator, in advance, with course syllabus or internship plan with detailed International content.)
- Undergraduate Research (for-credit) experience with an International focus
(Must be approved by International Engineering Minor Coordinator, in advance, with course syllabus or internship plan with detailed International content.)
- Any of the courses listed below

ARE3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ART 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

ART3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ARE 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

CHE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Examines social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed PETE 4000.

Prerequisite: junior standing and completion of two lab sciences.

PETE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Studies social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed CHE 4000.

Prerequisite: junior standing and completion of two lab sciences.

Graduate

Engineering and Applied Science, MBA/MS Dual Degree

Students who hold both an MBA and an MS in Engineering set themselves apart when entering the competitive marketplace. As leaders, not only do they speak the technical lingo, they also understand the overall strategy and operational goals.

MS/MBA Dual Degree Requirements

The MS/MBA is typically a non-thesis option. An additional 21 credits in engineering, science or mathematics must be earned beyond the BS degree. At least 15 credits of graduate course work must be at the 5000-level from the respective EAS graduate program.

MBA Courses

All students pursuing a dual degree program with the College of Engineering and Applied Science and the College of Business must meet the admission requirements for both programs in order to be considered for the dual degree program. If admitted to both programs, students will complete the following requirements:

Any 9 credit hours of the following required MBA core courses can be counted towards the MS/MBA degree.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

Program Specific Requirements

Please review the specific program requirements for each program within the dual degree agreement.

- Business Administration, M.B.A.
- Mechanical Engineering, M.S.
- Petroleum Engineering, M.S.

Thesis Option

For a thesis option, students will only count one MBAM course from the above list and are required to complete 4 credits of ME 5960 and 2 credits for ME 5478 similar to the Plan A option.

Department of Atmospheric Science

6034 Engineering Building, (307) 766-3245

FAX: (307)766-2635

Web site: www.atmos.uwyo.edu

Department Head: Jeffrey French

Professors:

BART GEERTS, Licenciaat Physical Geography Katholieke University, Belgium 1984; Engineer in Irrigation Sciences 1986; Ph.D. University of Washington 1992; Professor of Atmospheric Science 2011, 1999.

Associate Professor:

JEFFREY R. FRENCH, B.S. South Dakota School of Mines 1992; M.S. 1994; Ph.D. University of Wyoming 1998; Associate Professor of Atmospheric Science 2021, 2015.

ZACHARY J. LEBO, B.S. Pennsylvania State University 2007; M.S. 2009; Ph.D. California Institute of Technology 2012; Associate Professor of Atmospheric Science 2021, 2015.

SHANE MURPHY, B.S. University of Colorado 2000; Ph.D. California Institute of Technology 2009; Associate Professor of Atmospheric Science 2019, 2011.

Assistant Professors:

DANA CAULTON, B.S. Indiana University 2010; Ph.D. Purdue University 2014; Assistant Professor of Atmospheric Science 2018.

DANIEL T. MCCOY, B.S., New Mexico Institute of Mining and Technology, 2010; Ph.D., Atmospheric Science, University of Washington, 2016. Assistant Professor of Atmospheric Science 2020.

Adjunct Professors:

Xiaohong Liu
Zhien Wang

Professors Emeritus:

Terry L. Deshler, Robert D. Kelly, John D. Marwitz, Derek C. Montague, Thomas R. Parish, Alfred R. Rodi, Jefferson R. Snider, Gabor Vali

Atmospheric Science is a rapidly evolving discipline aimed at better understanding the earth's atmosphere and sits at the nexus between meteorology, physics, chemistry, biology, engineering, mathematics and computer science. The entire development of atmospheric science demonstrates how progress can result from the application of knowledge developed in the basic sciences to a complex environmental system. Concurrently, atmospheric scientists develop many observational and analytical techniques unique to the study of the atmosphere. Over the past decades, atmospheric science developed vigorously, stimulated by the availability of the latest satellite, ground-based and aircraft observations, as well as the availability of large computers for numerical simulations of atmospheric processes. At the same time, the importance of the atmosphere as a crucial resource in the welfare and survival of humankind is being recognized, as knowledge about how the atmosphere behaves is obtained.

The Department of Atmospheric Science offers graduate programs leading to the M.S. and Ph.D. degrees.

In these graduate programs, great emphasis is placed on the active research involvement of students both during the academic year and during the summer months. The low student to faculty ratio in the department ensures an atmosphere of cooperation among students, faculty and staff. Student theses and dissertations form integral parts of the department's research productivity and usually lead to articles published in the refereed literature.

Research interests in the department center around cloud and precipitation physics, cloud and mesoscale atmospheric dynamics, boundary layer processes, tropospheric aerosols and atmospheric chemistry, climate change, instrumentation and air quality. These interests are reflected in the department's academic program, which has the breadth and depth necessary to give students a background for entering into many different types of employment upon graduation.

A number of unique research tools are available in the department. Prominent among these is the King Air research aircraft which carries extensive instrumentation and computer-directed data acquisition systems. A mobile lab for sampling near surface atmospheric gases and aerosols can be deployed across the United States. Excellent laboratory facilities are available in the department's spacious quarters. These laboratories focus on cloud physics, remote sensing,

aerosol, and atmospheric chemistry. Well-equipped electronic and mechanical construction and design facilities are conducive for work in instrument development. A wide range of computer facilities are available, including access to the NCAR/Wyoming Supercomputer Center(NWSC). The Department of Atmospheric Science is the lead user of the Wyoming allocation of the NWSC.

A prerequisite for admission to the graduate program is a bachelor's degree in meteorology, engineering, physics, chemistry, mathematics or a similar relevant discipline. Graduate assistantships are available by application to the department and are awarded on the basis of past record and promise for achievement.

For material containing further details on curriculum and research programs, write to the graduate admissions coordinator or visit the web site at www.uwyo.edu/atsc/.

Graduate Study

The Department of Atmospheric Science offers degree programs leading to the master of science and doctor of philosophy degrees. The department has strong research programs in the following areas: cloud physics and dynamics; tropospheric aerosols and clouds; greenhouse gases; air pollution and wildfires; boundary layer processes; remote sensing; and airborne instrumentation. The department's observational facilities are: 1) the King Air research aircraft (UWKA); 2) the Air Quality Mobile Lab and the Wyoming Air Quality Monitoring Lab; 3) the Wyoming Cloud Radar (WCR) and Wyoming Cloud Lidar (WCL) for the study of cloud structure and composition; and 4) the Keck Aerosol Laboratory. The UWKA, WCR, and WCL are designated Lower Atmospheric Observing Facilities by the National Science Foundation (NSF). Please refer to the departmental homepage at www.atmos.uwyo.edu for programmatic updates, or contact the department directly.

Program Specific Admission Requirements

Admission based on the university minimum requirements. Admissions are competitive.

Program Specific Graduate Assistantships

Assistantships are offered for both the M.S. and Ph.D. tracks.

Program Specific Degree Requirements

Master's Program

Approval of research plan by the graduate committee Colloquium and oral defense of M.S. thesis Approval of M.S. thesis by the graduate committee Requires a minimum of 26 hours of acceptable graduate coursework and four hours of thesis research and a thesis (final written project). 21 in-residence coursework hours

Doctoral Program

Approval of research plan by the graduate committee At least one colloquium presentation per year Preliminary exam Oral defense of Ph.D. dissertation Approval of Ph.D. dissertation by the graduate committee Ph.D. requires a minimum of 72 graduate hours, with at least 42 hours in formal coursework. This includes appropriate coursework from a master's degree. Additional credits toward the 72 credit hour requirement may include dissertation research hours, internship hours, or additional coursework. 24 in-residence coursework hours

Required Courses

These courses are required for the master's program.

ATSC 5010: Physical Meteorology. 4.

ATSC 5011: Physical Meteorology II. 4.

ATSC 5014: Dynamic Meteorology. 4.

ATSC 5016: Synoptic Meteorology. 4.

ATSC 5018: Ethics & Research Methods. 1.

UW Elective(s) to be determined by committee. 9 minimum

Graduate

Atmospheric Science, M.S.

The Master of Science degree in Atmospheric Science prepares the recipient to work in fields related to meteorology, weather and forecasting, air quality, climate change and environmental regulation.

Program Specific Degree Requirements

Approval of research plan by the graduate committee

Colloquium and oral defense of M.S. thesis

Approval of M.S. thesis by the graduate committee

A minimum of 30 hours of acceptable graduate credit hours that includes at least:

- 26 hours of acceptable graduate coursework and
- 4 hours of thesis research

21 graduate credits must be earned in the Department of Atmospheric Science

Required Courses

These courses are required for the master's program.

ATSC5010 - Physical Meteorology I

Credits: 4

First and second law of thermodynamics applied to energy transformations in the atmosphere, including dry, moist, and saturated processes and atmospheric stability. Fundamentals of radiation including blackbody, planetary budget, and propagation and how these drive the thermodynamics of the earth's atmosphere.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5011 - Physical Meteorology II

Credits: 4

Quantitative description of cloud particle nucleation, growth by condensation, and growth by deposition and collection. Ties to other atmospheric processes, e. g. , radiation budgets and cloud dynamics, are also emphasized. Course material is presented in lecture and computer-based laboratory settings. A numerical cloud model is developed and analyzed in the laboratory.

Prerequisite: ATSC 5010.

ATSC5014 - Dynamic Meteorology

Credits: 4

Development and interpretation of the atmospheric equations of motion, scales of motion, horizontal atmospheric winds, thermal wind equation, circulation and vorticity, mesoscale motions. Introduction to planetary boundary layer flows. Data visualization software is also introduced and used to develop understanding of dynamical processes.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5016 - Synoptic Meteorology

Credits: 4

Large-scale vertical motion as viewed from quasigeostrophic and isentropic potential vorticity perspectives. Baroclinic instability, and the structure and evolution of extratropical cyclones. Identification and development of fronts, jet streams and associated weather features. Role of topography on large-scale circulations.

Prerequisite: MATH 2210, PHYS 1310 and PHYS 1320 or equivalent.

ATSC5018 - Ethics and Research Methods

Credits: 1

Ethics and ethical dilemmas in research and academia and how to address them are discussed. This course also covers general research methodology and describes processes for research funding and disseminating research findings and the peer-review process.

Prerequisite: graduate standing.

Atmospheric Science, Ph.D.

The Doctorate of Philosophy degree in Atmospheric Science prepares the recipient for a career in research studying the atmosphere. Graduates may work in academia, governmental laboratories and agencies, and private industry.

Program Specific Degree Requirements

Approval of research plan by the graduate committee

Successful completion of the Preliminary Examination

Approval of Ph.D. dissertation by the graduate committee

A minimum of 72 hours of acceptable graduate credit hours that includes at least:

- 42 hours of acceptable graduate coursework, and
- 10 hours of thesis or dissertation research

24 graduate coursework hours must be earned in the Department of Atmospheric Science

Department of Chemical Engineering

4055 Engineering Building, (307) 766-2500

Web site: www.uwyo.edu/chemical

Department Head: Patrick Johnson

Professors:

VLADIMIR ALVARADO, B.Sc. Universidad Central de Venezuela 1987; M.S. Institut Francais du Pétrole 2002; Ph.D. University of Minnesota 1996; Professor of Chemical Engineering 2017, 2006.

DAVID M. BAGLEY, B.S. Colorado School of Mines 1984; M.S. Cornell University 1989; Ph.D. 1993; Professor of Chemical Engineering 2011, 2005.

DAVID A. BELL, B.S. University of Washington 1976; M.S. Rice University 1979; Ph.D. Colorado State University 1992; Professor of Chemical Engineering 2019, 1993.

JOSEPH HOLLES, B.S. Iowa State University 1990; M.E. University of Virginia 1998; Ph.D. 2000; Associate Professor of Chemical Engineering 2010.

JOHN OAKEY, B.S. The Pennsylvania State University 1997; M.S. Colorado School of Mines 1999; Ph.D. 2003; Professor of Chemical Engineering 2019, 2010.

MICHAEL V. PISHKO, B.S. University of Missouri-Columbia 1986; M.S. 1987; Ph.D. University of Texas at Austin 1992; Professor of Chemical Engineering 2015.

PATRICK JOHNSON, B.S. Lehigh University 1992; M.S. University of Virginia 1994; Ph.D. Columbia University 2004; Associate Professor of Chemical Engineering 2012, 2006.

Associate Professors:

SAMAN ARYANA, B.S. University of Texas at Arlington 2003; M.S. 2006; Ph.D. Stanford University 2012; Assistant Professor of Chemical Engineering 2013.

KATIE DONGMEI LI-OAKEY, B.S. Shandong University of Technology 1994; M.S. Tianjin University 1997; M.S. University of Colorado at Boulder 1999; Ph.D. 2003; Associate Professor of Chemical Engineering 2018, 2011.

Associate Professor of Practice:

JOHN TATARKO JR., B. ChE, cum laude: 2008 Cleveland State University. MS ChE: 2010 Cleveland State University. MS EE: 2013 University of Louisville. PhD ChE: 2015 University of Louisville.

Assistant Professors:

KAREN WAWROUSEK, B.S. The College of St. Rose 2001; Ph.D. California Institute of Technology 2009; Assistant Professor of Chemical Engineering 2014.

Adjunct Professors:

John Ackerman
Morris Argyle
Youqing Shen
John Schabron

Professors Emeriti:

Chang Yul Cha
H. Gordon Harris
Henry W. Haynes

Chemical Engineering is one of the most versatile of the engineering programs. It prepares students for employment in many diverse fields, such as production of pharmaceuticals, polymers and plastics, semiconductors, heavy industrial chemicals, synthetic fuels, petrochemicals and petroleum refining. Chemical engineers also work in biological engineering, environmental engineering, enhanced oil recovery, corrosion control, metallurgy and microelectronics. Undergraduate chemical engineering training has been found to be an excellent background for graduate work not only in engineering, but also in a number of other fields, including medicine, law, business, and the natural sciences.

The chemical engineering curriculum is based on a sound background in chemistry, mathematics, physics, and biology. The essentials of engineering are added to this foundation, including fluid dynamics and thermodynamics. In order to develop the individual's social consciousness and to broaden the student's educational background, an integrated program of study in the humanities and social sciences is included in the curriculum. Chemical engineering courses in multicomponent thermodynamics, transport phenomena, kinetics, process control and process design are concentrated in the junior and senior years. This program provides training for engineers to enter production, research, product and process development, process design, technical sales and engineering management positions. Training in chemical engineering equips the graduate to solve many of the problems facing society today: human health, energy shortages, synthetic fuels production, water and air pollution, toxic chemical control, and food production. Furthermore, our program prepares students interested in a career in medicine or the life sciences and is suitable for pre-medical and pre-dental students.

The department offers an 18-credit-hour block of approved technical electives. Students select an emphasis in Biological Engineering, Environmental Engineering, Materials Science and Engineering, Chemical Process Industry, Petroleum Engineering, Graduate School Preparation, and Pre-Medicine. Students can also pursue a concurrent major in Chemistry, minors in Physics, Chemistry, Math, Computer Science, Molecular Biology and Business. See department for details. Students are required to take a minimum of 3 credits of Chemical Engineering Technical electives. The Chemical Engineering Program requires that the number of credits of upper division courses be satisfied (ie., 10 credits of Technical electives must be 3000+). The Chemical Engineering program requires 48 hours of 3000 and 4000-level coursework. This is fulfilled by required courses and approved technical electives.

Chemical Engineering degree candidates must meet the academic requirements of the college and, in addition, must have a GPA of 2.000 in Chemical Engineering courses attempted at UW that are applied toward graduation for the B.S. degree from the department.

Students must achieve a C- or better in all chemical engineering courses serving as a prerequisite for another chemical engineering course.

Chemical Engineering Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Chemical Engineering should:

- Successfully practice the profession of Chemical Engineering;
- Demonstrate successful career growth

Chemical Engineering Program Outcomes

During the course of study in Chemical Engineering, the student should demonstrate:

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;
- an ability to communicate effectively with a range of audiences;
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts;
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions;
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Graduate Study

The Department of Chemical Engineering offers graduate programs leading to the M.S. and Ph.D. degrees in chemical engineering. The M.S. degree is offered under Plan A and Plan B. In addition, an environmental engineering program, run jointly by the Department of Chemical Engineering, the Department of Petroleum Engineering, and the Department of Civil and Architectural Engineering, offers graduate programs leading to an M.S. in environmental engineering under either Plan A or Plan B.

Program Specific Admission Requirements

Admission Process and Requirements

Standard Admission

Admission is open to students with at least a bachelor's degree who meet the minimum requirements:

1. A GPA of 3.000 (A = 4.000), or equivalent;
2. A GRE score (there is no minimum GRE score requirement)
3. For international applicants who did not attend an English-speaking program in an English-speaking country for all years of their highest degree:

A TOEFL score of 600 (paper-based), 250 (computer-based), or 80 (Internet based) or an IELTS score of 6.5.

Unofficial transcripts of all prior college-level coursework, test scores and recommendations from three references must be uploaded as parts of the application.

If admission is granted, then official transcripts, GRE and TOEFL scores are required.

Applications submitted by February 1 will be given priority consideration for the fall semester.

The application will not be processed until all the necessary documents have been uploaded.

Major

Chemical Engineering, B.S.

Chemical Engineering draws upon fundamentals of chemistry, physics, biology, and math to analyze and design processes. Chemical Engineers work in a variety of fields including the energy, medicine, food, microelectronics, biotechnology, environmental, and manufacturing industries. The B.S. in Chemical Engineering is accredited by ABET and provides a path to P.E. licensure.

Curriculum

For students entering UW Fall 2022 or later.

CHE1005 - Introduction to Chemical Engineering

Credits: 1

Provides an overview of chemical engineering and its role in the current technological importance: energy, biotechnology, production of chemicals, and materials processing. Introduces strategies for solving engineering problems, including ethical considerations and teamwork, discusses process variables, units, mass balance, and data analysis, and incorporates active learning exercises using spreadsheet to solve chemical engineering problems.

Prerequisite: concurrent enrollment in MATH 2200.

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHE2060 - Chemical Engineering Computing

Credits: 3

Introduces fundamental concepts in linear algebra, numerical methods and applied statistics needed to solve engineering problems. In this context, this course also introduces and reinforces computational tools that will be useful for other CHE classes.

Prerequisite: C or better in CHE 1005 or ES 1060; C or better in CHE 2005; concurrent enrollment in MATH 2310.

CHE2070 - Chemical Thermodynamics

Credits: 3

Discusses first and second laws of thermodynamics applied to chemical processes, production of power from heat, refrigeration, and liquefaction processes, develops thermodynamic relations for calculating thermodynamic properties of fluids, including the use of equations of state, and introduces heat effects, Gibbs-energy change of reaction, and chemical-reaction equilibria.

Prerequisite: C- or better in CHE 2005, PHYS 1210; C or better in MATH 2210.

CHE2080 - Chemical Engineering Fluid Mechanics

Credits: 3

Introduces the fundamental aspects of macroscopic fluid mechanics, including physical properties, fluid statics, mass, energy, and momentum balances, momentum transport, and flow through pumps, pipes, and other chemical engineering equipment for both incompressible and compressible fluids, and of microscopic fluid mechanics, including differential mass and momentum balances.

Prerequisite: C- or better in CHE 2005, PHYS 1210, and C or better in MATH 2210.

CHE3015 - Chemical Thermodynamics II

Credits: 3

Introduces mixture properties, such as chemical potentials, excess properties, partial molar properties, heats of mixing, fugacities, and practical tools for estimating them from solution theories and equations of state. These tools and concepts are applied to phase and chemical equilibria.

When Offered (Normally offered fall semester)

Former Course Number [3010]

Prerequisite: C or better in CHE 2060, and CHE 2070 or ES 2310.

CHE3026 - Heat Transfer

Credits: 3

Introduces the theory and application of energy transport (e. g. conduction, convection, radiation), discusses in depth fundamentals of microscopic energy transport, and applies the knowledge to macroscopic chemical engineering processes and systems.

Prerequisite: C- or better in CHE 2060, and CHE 2080 or ES 2330.

CHE3028 - Mass Transfer

Credits: 3

Introduces mass transfer concepts, including molecular diffusion, convective mass transfer, and mass transfer between phases, and the development of mathematical models of these physical phenomena, applicable to the analysis and design of chemical processes.

Prerequisite: C- or better in CHE 2005, CHE 2060, and CHE 2080 or ES 2330.

CHE3040 - Unit Operations Laboratory I

Credits: 3

Laboratory experiments examining settling, pump performance, heat transfer, adsorption, gas transfer, and distillation. Introduces topics in statistics including: probability distributions, mean, median, mode, variance and standard deviation, systematic and random error, confidence intervals, and t-tests, F-tests and ANOVA. Emphasizes the preparation of formal laboratory reports including experimental error analysis.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: C- or better in CHE 3026 and CHE 3028 and CHE 4060. (Normally offered fall semester)

CHE4050 - Unit Operations Laboratory II

Credits: 3

Laboratory experiments examining heat transfer and process control. Also requires students to design, conduct and analyze 'open-ended' experiments. Introduces LabView and covers factorial experimental design and linear and non-linear data regression approaches. Emphasizes the preparation of a formal report describing all aspects of the experiments.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

Prerequisite: C- or better in CHE 3040. (Normally offered spring semester)

CHE4060 - Reaction Engineering

Credits: 3

Introduces chemical process kinetics, catalysis and reactor design. Includes homogeneous and heterogeneous reaction kinetics; design of batch, stirred-tank and tubular reactors; and nonisothermal operation.

When Offered (Normally offered spring semester)

Prerequisite: C- or better in CHE 3015 and CHE 3026 and concurrent enrollment in CHE 3028.

CHE4070 - Process Simulation & Economics

Credits: 4

Max Credit 4

Introduces simulation software used to model chemical processing. Techniques used to determine economic feasibility of chemical plants are described.

When Offered (Normally offered fall semester)

Prerequisite: C or better in CHE 3028 and CHE 4060

CHE4080 - Senior Design

Credits: 4

Max Credit 4

Intended for the senior year. Applies all previous courses to the design of safe, economical and environmentally benign processes.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: COM-2, concurrent enrollment in CHE 4070

CHE4090 - Process Dynamics and Control

Credits: 3

Encompasses analysis and design control systems for the chemical process industry including steady-state approximation, types of controllers, simple unsteady-state analysis, use of mathematical models and process dynamics under control.

Prerequisite: C- or better in CHE 3028 and CHE 4060.

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

CHEM1060 - Advanced General Chemistry II

Credits: 4

Second semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1030 and 1060.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1050 or CHEM 1020, with permission of the instructor.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

CHEM4507 - Physical Chemistry I

Credits: 3

First semester of a one-year sequence. Emphasis on introductory quantum mechanics, atomic structure, molecular bonding and structure and spectroscopy. Kinetic molecular theory of gasses may be introduced. Uses multivariable calculus, differential equations and some linear algebra.

When Offered (Normally offered fall semester)

Prerequisite: one year of general chemistry, multivariable calculus, one year of general college physics.

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

University Studies Program Requirements

The University Studies Program 2015

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Approved Electives

See CEAS Advising Center for a current list of approved technical electives. There are a total of 18 credits required for technical electives.

Transfer Coursework: All Wyoming Community College equivalent courses will be evaluated for acceptance into the CHE program. For upper-division coursework, no more than two CHE 3000+ courses can be transferred and applied to the CHE degree, however, CHE4070 - Process Simulation & Economics and CHE4080 - Senior Design cannot be transferred to UW.

In addition, all CHE transfer courses must be completed with a grade of C- or better.

Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Chemical Engineering should:

- Successfully practice the profession of Chemical Engineering;
- Demonstrate successful career growth

Chemical Engineering Program Outcomes

During the course of study in Chemical Engineering, the student should demonstrate:

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;
- an ability to communicate effectively with a range of audiences;
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts;
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions;
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Minor

Biomedical Engineering Minor

Biomedical Engineering is an interdisciplinary field that combines principles of biology and medicine with engineering design to produce healthcare innovations. Biomedical engineers contribute to medical technologies in a variety of areas including diagnostics, therapeutics, imaging, bioinformatics, and rehabilitation.

Learning Outcomes:

A student who has completed the Biomedical Engineering Minor will have:

1. Experience and proficiency in applying principles of engineering, biology, human physiology, chemistry, calculus-based physics, differential equations, and statistics;
2. Experience and proficiency in solving biomedical engineering problems, including those associated with the interaction between living and nonliving systems;
3. Experience and proficiency in analyzing, modeling, designing, and realizing medical (biomedical engineering) devices, systems, components, or processes;
4. Experience and proficiency in making measurements on and interpreting data from living systems;
5. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
6. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
7. An ability to communicate effectively with a range of audiences.
8. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
9. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
10. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
11. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Biomedical Engineering is an interdisciplinary field that combines principles of biology and medicine with engineering design to produce healthcare innovations. Biomedical engineers contribute to medical technologies in a variety of areas including diagnostics, therapeutics, imagins, bioinformatics, and rehabilitation. Accordingly, biomedical engineers typically possess a broad biology background and strong engineering design and problem-solving principles. The

purpose of this minor in Biomedical Engineering is to prepare students studying engineering or the life sciences for careers in industries that develop technologies to advance medicine.

The following curriculum is accessible to students from any major degree program in the College of Engineering and Applied Science (CEAS). Major-specific tracks anticipating the most appropriate groupings of electives are provided to the CEAS advising center. Specialized, more comprehensive programs of study are proposed for students with a particular interest in medical school preparation.

Coursework:

The minimum required coursework consists of 18 credits of electives. The course of study can be self-directed or tailored to a student's major degree program. Example coursework tracks are provided below for students pursuing specific engineering majors.

Chemical Engineering

Chemical Engineering draws upon the fundamentals of chemistry, physics, and biology to analyze and design processes. Chemical Engineers work in a variety of biomedical disciplines including pharmaceutical production, biomedical devices, tissue engineering, and medical sensing. The following coursework covers biological fundamentals and materials with a focus on process and device design.

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 5100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.
+ 6 Credits for approved coursework

Electrical Engineering

BE4810 - Bioinstrumentation

Credits: 3

Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 5810.

Prerequisite: EE 2210 or similar electric circuit course.

BE4820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from experimental data.

Dual Listed BE 5810.

Prerequisite: EE 3220, basic course, or equivalent.

EE5410 - Neural and Fuzzy Systems

Credits: 3

Theory of feed forward and recurrent neural networks. Supervised and unsupervised learning theories. Fuzzy logic and systems. Associative memories. Matching and self-organizing networks. Application of neural and fuzzy systems.

Prerequisite: EE 3220.

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

Mechanical Engineering

With a focus upon biomaterials and biomechanics, this minor combines biology and physiology with mechanical engineering. This coursework helps students apply mechanical engineering principles to biological challenges including prosthetics, robotic surgery instruments, and medical device design.

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 5100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

Medical School Preparation

With a focus upon biomaterials and biomechanics, this minor combines biology and physiology with mechanical engineering. This coursework helps students apply mechanical engineering principles to biological challenges including prosthetics, robotic surgery instruments, and medical device design.

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

Plus the following suggested coursework:

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

or

PHCY6120 - Advanced Pathophysiology

Credits: 3

Advanced course covering the molecular, cellular, genetic and clinical principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for Doctor of Pharmacy students who will transition into their clinical rotations. Students will jointly meet once per week with students within

PHCY 3450 for interprofessional education revolving around student-led case study presentations.

Former Course Number [6220]

Prerequisite: LIFE 1010, LIFE 1020, CHEM 1020, CHEM 1030, CHEM 2420, CHEM 2440, MOLB 2240, MOLB 3610, ZOO 3115, ZOO 4125.

Additional Approved Courses:

In addition to the suggested tracks above, individual programs may be customized or augmented by selecting from any of the following approved credits, which may be counted in fulfillment of technical elective requirements within the major degree program.

Select 18 credit hours from the following:

CHE3100 - Fundamentals of Bioengineering

Credits: 3

An introduction to select biological concepts with emphasis on their relevancy to bioengineering. Topics include model organisms, cells and organelles, bioenergetics and metabolism, macromolecules, DNA replication and modern molecular biology methods, and control mechanisms.

Prerequisite: C- or better in LIFE 1010.

CHE4100 - Biochemical Engineering

Credits: 3

Applies chemical engineering principles to the analysis and design of biological processes widely used in the pharmaceutical, food and environmental remediation industries. Topics include kinetics of enzyme-catalyzed reactions, cellular growth and metabolism, bioreactor design and mass transfer considerations.

Dual Listed CHE 5100.

Prerequisite: Completion with a C- or better or concurrent enrollment in CHE 3100 or MOLB 2021.

CHE4160 - Biomedical Engineering-Transport Processes

Credits: 3

Focuses on chemical and physical transport processes with applications toward the development of drug delivery systems, artificial organs, bioartificial organs and tissue engineering. Involves topics covering body fluids, capillary solute transport, physical and flow properties of blood, tissue oxygen transport, pharmacokinetic models and cell physiology.

Prerequisite: consent of instructor and grade of C or better in at least three courses counting no more than two from CHEM 1020, CHEM 1030, CHEM 1050, LIFE 1010, LIFE 1020 and at least one from LIFE 2022, MATH 2200, KIN 2040, MOLB 2021, MOLB 2240, CHE 3000, ES 2310.

CHE4165 - Biomaterials

Credits: 3

Material science and engineering of the various materials used for biomedical applications, in-depth discussion of the molecular and cellular interactions to implanted materials, as well as a survey of practical applications. Materials covered will include polymers, ceramics, metals, composites, silicones, and natural materials, such as collagen, elastic, and silk.

Dual Listed CHE 5165.

Prerequisite: LIFE 1010 and CHEM 1020 or CHEM 1050, or permission of instructor.

CHE3900 - Undergraduate Research

Credits: 1-6

Students carry out research appropriate to undergraduates, under faculty supervision. May be taken more than once.

When Offered (Normally offered each semester)

Prerequisite: junior standing in chemical engineering.

CHE4220 - Metabolic and Protein Engineering

Credits: 3

An introduction to the design of biological systems for conversion of a feedstock to product, with emphasis on synthetic biology and directed evolution design principles, evolutionary mechanisms and tradeoffs. Metabolic pathways and molecules of industrial importance will be discussed, as well as ethics as applied to synthetic biology and bioengineering.

Dual Listed CHE 5220.

Prerequisite: MOLB 2021 or concurrent enrollment in CHE 3100.

BE4810 - Bioinstrumentation

Credits: 3

Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 5810.

Prerequisite: EE 2210 or similar electric circuit course.

BE4820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from experimental data.

Dual Listed BE 5810.

Prerequisite: EE 3220, basic course, or equivalent.

EE4800 - Problems in _____

Credits: 1-6

Max Credit (Max. 6)

Section 1 is individual study. Other sections are group study by seminar or class format. Features topics not included in regularly offered courses.

Prerequisite: consent of instructor.

EE5410 - Neural and Fuzzy Systems

Credits: 3

Theory of feed forward and recurrent neural networks. Supervised and unsupervised learning theories. Fuzzy logic and systems. Associative memories. Matching and self-organizing networks. Application of neural and fuzzy systems.

Prerequisite: EE 3220.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

MOLB4100 - Clinical Biochemistry

Credits: 4

Integrated discussion of biochemical, molecular, and physiological principles underlying human medical disorders and biochemical and molecular genetics tests used in prevention, diagnosis and treatment. Weekly discussion sessions review basic concepts studied by students independently and class sessions include problem solving in an active learning format, lectures and other applied activities.

When Offered Spring

Former Course Number [3980]

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600; course in physiology recommended (e.g. ZOO 3115).

MOLB4260 - Quantitative Microscopy

Credits: 1

Acquaints students with principles of light microscopy, use of fluorescent probes and image processing software. Students use phase contrast, fluorescent, and confocal microscopes learning to measure and compare size and intensity of images.

Dual Listed MOLB 5260.

When Offered Fall

Prerequisite: MOLB 3610 or CHEM 4400 or MOLB 4600, and PHYS 1120.

MOLB4400 - Immunology

Credits: 4

Biology of immune system; cellular and molecular mechanisms; host resistance to infectious agents; as well as hypersensitivities, autoimmunity, tumor and tissue rejection. Includes laboratory for immunological techniques.

Cross Listed PATB 4400.

Dual Listed MOLB 5400.

When Offered Fall

Prerequisite: MOLB 2021 or MICR 2021 or MOLB 2240 or PATB 2220, and a minimum grade of C in MOLB 3000 or MOLB 3610.

MOLB4600 - Advanced Biochemistry

Credits: 3

Emphasis will be placed on identifying essential chemical features of select biomolecules, understanding molecular mechanisms of representative biochemical and bioenergetic processes, and detailing experimental approaches for addressing important research questions in biochemistry.

Dual Listed MOLB 5600

When Offered Fall

Prerequisite: Minimum grade of C in MOLB 3610 or CHEM 4400

MOLB4610 - Biochemistry 2: Molecular Mechanisms

Credits: 3

Biochemical and molecular mechanisms underlying cell function, including gene expression and epigenetic regulation, RNA and protein modification and function, assembly of macromolecular complexes, signaling and regulation of the cell cycle, are discussed.

Dual Listed MOLB 5610

Prerequisite: Minimum grade of C in MOLB 3610 or MOLB 4600

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY6120 - Advanced Pathophysiology

Credits: 3

Advanced course covering the molecular, cellular, genetic and clinical principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for Doctor of Pharmacy students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 3450 for interprofessional education revolving around student-led case study presentations.

Former Course Number [6220]

Prerequisite: LIFE 1010, LIFE 1020, CHEM 1020, CHEM 1030, CHEM 2420, CHEM 2440, MOLB 2240, MOLB 3610, ZOO 3115, ZOO 4125.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

NOTE

CHE 3100 fulfills the LIFE 2021 & 3050 pre-requisite requirements for CHE 4100, 4160, and 4165.

Alternatively, students may take the following in lieu of CHE 3100: MICR 2021 Microbiology (4) or MOLB 3610 Principles of Biochemistry (4)

Process Control Minor

Process control engineers optimize processes and implement quality control systems in the manufacturing industry. They design, test, and oversee the implementation of new processes. Process control engineers are often employed at manufacturing plants that process chemicals, metals, and other materials.

Required Courses

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHE2090 - Practical Fundamentals of Process Control

Credits: 2

Introduces students to sensors, valves, actuators and the assembly of process control components. Provide hands-on practical experience with level control, flow control, temperature control and pressure control processes. This course consists of one (1) hour of lecture and two (2) hours of laboratory per week.

Prerequisite: C or better in MATH 2205.

CHE3090 - Applying Simulation to Dynamic Processes

Credits: 1

Introduces students to dynamic simulation software for controlling individual chemical engineering processes. This course consists of two (2) hours of laboratory per week.

Prerequisite: C or better in CHE 2005.

CHE4092 - Controlling Process Systems

Credits: 3

Capstone process control course. Students will design process control for systems of linked processes including sensing and transmission, final control elements, and controller. This course consists of two (2) hours of lecture and three (3) hours of laboratory per week.

Prerequisite: C or better in CHE 3090 and concurrent enrollment in either CHE 4090, EE 4620, or EE 4621.

CHE4090 - Process Dynamics and Control

Credits: 3

Encompasses analysis and design control systems for the chemical process industry including steady-state approximation, types of controllers, simple unsteady-state analysis, use of mathematical models and process dynamics under control.

Prerequisite: C- or better in CHE 3028 and CHE 4060.

or

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

or

EE4621 - Honors Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers. Honors students will at the end of the semester design a high-performance control system for a sophisticated plant with realistic feedback limitations.

Prerequisite: EE 2220 or ME 3020.

Approved Elective Courses

At least 6 hours of approved elective courses are required for this minor.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution; difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

ME4020 - Design of Mechanical/Electronic Systems

Credits: 3

Theoretical and experimental study of sensors and actuators, interfacing sensors and actuators to a microcomputer, discrete and continuous controller design, analog and digital electronics, and real-time programming for control.

Prerequisite: Completion of the ME Success Curriculum, ME 3020.

COSC4450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the World Wide Web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 5450.

Prerequisite: COSC 3020 and MATH 2250.

COSC4765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

CHE4972 - Internship in Process Control Engineering

Credits: 1-6

Max Credit (Max. 6)

Enables credit for students serving as interns with an approved organization that provides process control and instrumentation experience.

Prerequisite: Be enrolled in the Process Control and Instrumentation minor.

Learning Outcomes

An engineer who has completed the Process Control and Instrumentation Minor will be able to examine an engineering process that requires automated control and provide a practical control design by:

- Identifying key performance and technical features of the process
- Specifying process variables to control to achieve desired process outcomes
- Identifying the appropriate manipulated variables to achieve control
- Selecting appropriate measurement instrumentation for process variables
- Specifying needed final control elements to effect change of manipulated variables
- Selecting an appropriate controller and control algorithm that achieves stable control
- Testing and tuning the control design in simulation

- Evaluating the control design against performance and economic objectives
- Understand key nomenclature and terms in process control
- Understand the difference between analog and digital components

Graduate

Chemical Engineering, M.S.

Graduate Study Guidelines

All incoming M.S. Plan A and M.S. Plan B students must have an adviser. The student is responsible for contacting faculty members in order to find an adviser.

All Chemical Engineering graduate students must take the following Chemical Engineering Core courses:

CHE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed PETE 5020.

Prerequisite: graduate standing.

CHE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed PETE 5010.

Prerequisite: ES 2330, MATH 2310, and graduate standing in Chemical or Petroleum Engineering.

CHE5030 - Reaction Kinetics

Credits: 3

An analysis of reactions involving phase boundaries, heterogeneous catalysis, gas-solid systems, and gas-liquid systems.

Prerequisite: CHE 4060.

CHE5355 - Mathematical Methods in Chemical Engineering

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization

techniques, and linear solution techniques: direct and iterative methods.

Dual Listed PETE 5355

Prerequisite: MATH 2210, CHE/PETE 3025 or equivalent.

Credit Hours

- Total (from above) Credits: 12
- CHE 5960 - Thesis Research Credits: 4
- Electives Credits: 14
- Total Credits: 30

Plan B (Non-Thesis)

The coursework requirements are the same as the M.S. Plan A requirements except that Thesis Research (CHE 5960) is not required. Plan B students take an additional 4 hours of elective course credits (a total of 30 hours required).

M.S. Plan B students must write a paper on a topic assigned by the adviser and present their work to their graduate committee. This paper must be submitted to the student's graduate committee for approval at least one week prior to the oral presentation.

M.S. Seminar Requirements

All chemical engineering graduate students must enroll in CHE 5890, Chemical Engineering Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Registered off-campus graduate students can be exempt from having to enroll in CHE 5890.

M.S. Thesis

All M.S. Plan A students must orally defend their thesis at a public final examination. At least two weeks before the examination, the student must provide each member of the graduate committee with a copy of the written M.S. thesis and provide the department an announcement of their defense for advertisement by bulletin board, e-mail, or other means. The results of the examination are reported on the Report of Final Examination form. Graduate committee members may request changes in the thesis, and they may postpone signing the form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Graduate Student Resources web site. This copy will be rejected if the format standards specified by the Thesis and Dissertation Format Guide are not met. This guide allows for a publication-ready format. If required by the department and/or committee, additional printed copies should be delivered to the University Store for binding. Students should consult with the adviser to determine if the adviser wants a copy of the thesis, dissertation, or other research documentation.

Chemical Engineering, Ph.D.

The Department of Chemical Engineering offers graduate programs leading to the M.S. and Ph.D. degrees in chemical engineering. The M.S. degree is offered under Plan A and Plan B. In addition, an environmental engineering program, run jointly by the Department of Chemical Engineering and the Department of Civil and Architectural Engineering, offers graduate programs leading to an M.S. in environmental engineering under either Plan A or Plan B.

The mission of the graduate program in Chemical Engineering is to prepare students to be leaders in industry, government, or academia.

A master's degree is not required to enter a Ph.D. program.

Graduate Core Classes

All incoming Ph.D students must have an adviser. The student is responsible for contacting faculty members in order to find an adviser.

All Chemical Engineering graduate students must take the following Chemical Engineering Core courses:

CHE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed PETE 5020.

Prerequisite: graduate standing.

CHE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed PETE 5010.

Prerequisite: ES 2330, MATH 2310, and graduate standing in Chemical or Petroleum Engineering.

CHE5030 - Reaction Kinetics

Credits: 3

An analysis of reactions involving phase boundaries, heterogeneous catalysis, gas-solid systems, and gas-liquid systems.

Prerequisite: CHE 4060.

- CHE 5355 - Mathematical Methods in Chemical Engineering Credits: 3

Doctoral Program

Credit Hours

- CHE 5980 - Dissertation Research Credits: 30
- Electives - Credits: 30 (CHE 5980 will count toward your electives)
- Total Credits: 72

Ph.D. Seminar Requirements

All chemical engineering graduate students must enroll in CHE 5890, Chemical Engineering Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Registered off-campus graduate students can be exempt from having to enroll in CHE 5890.

Ph.D. Preliminary Examination

All Ph.D. students must pass a preliminary examination no later than the end of the student's fifth full semester in the graduate program and a least 15 weeks prior to the dissertation defense. Prior to attempting the Ph.D. preliminary examination, students must have completed all required core classes no later than the end of their fourth semester in the graduate program. Students must file a program of study prior to attempting the preliminary examination.

The goal of the preliminary exam is for the student to demonstrate his or her research progress to-date and present the research proposition that will be investigated and lead to his or her final dissertation. The preliminary exam consists of three components: a written document provided to each member of the student's graduate committee at least one week prior to the oral presentation; a public oral presentation; and a private examination by the student's graduate committee immediately following the oral presentation.

The written document may be in any format but must concisely provide a survey of the relevant literature, a summary of the student's progress to-date, and a clear, detailed plan for the successful completion of the proposed work. The preliminary exam oral presentation should be consistent with the written document. It should provide an appropriate literature background, demonstrate proficiency with proposed experimental/computational techniques, identify details of the experiments to be performed, and provide a timeline to final defense.

The student's committee will pass or fail the student on the strength of the preliminary examination, with an option to conditionally pass the student while requiring an interim committee meeting prior to the final Ph.D. examination. A form sent by the student's adviser to the Office of the Registrar reports the results of the examination.

Ph.D. Final Examination (Dissertation Defense)

All Ph.D. students must orally defend their thesis or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public thesis defense in oral presentation format. At least two weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis of Ph.D. dissertation and provide the department an announcement of their defense for advertisement by bulletin board, e-mail, or other means. The results of the examination are reported on the Report of Final Examination form. Graduate committee members may request changes in the thesis or dissertation, and they may postpone signing the form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Graduate Student Resources web site. This copy will be rejected if the format standards specified by the Thesis and Dissertation Format Guide are not met. This guide allows for a publication-ready format. If required by the department and/or committee, additional printed copies should be delivered to the University Store for

binding. Students should consult with the adviser to determine if the adviser wants a copy of the thesis, dissertation, or other research documentation.

QuickStart Program

Chemical Engineering Quick Start, B.S./M.S.

The BS/MS Quick Start program in Chemical Engineering (CHE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their Bachelor of Science (B.S.) degree in Chemical Engineering. These students may apply for admission to the Quick Start program during the second semester of their junior year or during their senior year.

This program allows for early planning of the graduate portion of a student's education and provides more flexibility in the number of required courses and the order in which they are taken. The more efficient and better-planned use of time should result in reduction of the time required for obtaining the Master of Science in Chemical Engineering (M.S. CHE) degree. Students who enter the Quick Start program must accept the primary responsibility for actively planning their programs of study to assure timely completion of their coursework and research programs.

The Quick Start program contains two essential elements:

Qualified students may receive provisional admission to the Chemical Engineering graduate program prior to completing the normal application process. This provisional admission will permit students to make their long-term educational plans earlier in their studies, thus providing enhanced opportunities for course selection and involvement in research.

Students in the program may apply up to 6 credit hours of 5000-level courses toward both the B.S. and M.S. degree programs. By completing successfully up to 6 credit hours of graduate classes during their senior year, these students will have demonstrated their ability to do graduate-level coursework as undergraduates, easing their transition to the Chemical Engineering graduate program.

For additional information and an application form, please contact the CHE graduate program coordinator at che-info@uwo.edu or stop by 4055 Engineering Building.

Department of Civil and Architectural Engineering and Construction Management

3074 Engineering Building, (307) 766-2390

FAX: (307) 766-2221

Web site: www.uwo.edu/civil/

Department Head: Anthony S. Denzer

Professors:

MICHAEL G. BARKER, B.S. Purdue University 1983; M.S. 1987; Ph.D. University of Minnesota 1990; Professor of Civil Engineering 2003.

JONATHAN A. BRANT, B.S. Virginia Military Institute 1998; M.S. University of Nevada 2000; Ph.D. 2003; Professor of Civil Engineering 2020, 2008.

ANTHONY S. DENZER, B.A. University of California, Berkeley 1991; M.Arch. University of Kansas 1998; Ph.D. University of California, Los Angeles 2005; Professor of Architectural Engineering, 2021, 2005.

KHALED KSAIBATI, B.S. Wayne State University 1984; M.S. Purdue University 1986; Ph.D. Purdue University 1990; Professor of Civil Engineering 2001; Director of the Wyoming Technology Transfer Center 2003, 1990.

MICHAEL A. URYNOWICZ, B.S. Michigan State University 1990; M.S. University of Wisconsin 1995; M.S. Colorado School of Mines 1998; Ph.D. 2000; Professor of Civil Engineering 2014, 2002.

JIANTING "JULIAN" ZHU, B.S. Zhejiang University 1983; M.S. Peking University 1985; Ph.D. Dalhousie University 1996; Professor of Civil Engineering 2019, 2013.

Associate Professors:

MOHAMED AHMED, B.S. Al-Azhar University 2001; M.S. University of Central Florida 2009; Ph.D. 2012; Associate Professor of Civil Engineering, 2019, 2013.

FRANCOIS JACOBS, B.S. California Baptist University 1995; M.B.A. University of Denver 2005; Ph.D. Colorado State University 2010; Associate Professor of Construction Management, 2019.

DAVID J. MUKAI, B.S. University of Hawaii 1983; M.S. 1985; Ph.D. University of Washington 1991; Associate Professor of Civil Engineering 2005, 2001.

KAM NG, B.S. Iowa State University 1996; M.S. 1997; Ph.D. 2011; Associate Professor of Civil Engineering 2019, 2012.

NORIAKI OHARA, B.A. Chuo University 1997; M.A. 1999; Ph.D. University of California, Davis 2003; Associate Professor of Civil Engineering 2019, 2012.

JENNIFER E. TANNER, B.A. Eastern College 1994; B.S. Oklahoma State University 1995; M.S. University of Costa Rica 1998; Ph.D. University of Texas 2003; Associate Professor of Civil Engineering 2009, 2003.

LIPING WANG, B.S. Xi'an University of Architecture and Technology 2010; M.S. 2003; Ph.D. National University of Singapore 2007; Associate Professor of Architectural Engineering, 2020, 2013.

HAIBO ZHAI, B.S. Xi'an University of Technology 1999; M.S. Tongji University 2002; Ph.D. North Carolina State University, 2008; Associate Professor of Civil Engineering, 2020.

Assistant Professors:

AHMED ABDELATY AHMED, B.S. Cairo University 2001; M.S. 2014; Ph.D. Iowa State University, 2017; Assistant Professor of Construction Management, 2020.

WEBB, RYAN W., B.S. University of New Mexico, Albuquerque, NM 2010; M.S. University of New Mexico, Albuquerque, NM 2012; Ph.D. Colorado State University, Fort Collins, CO 2016; Assistant Professor of Construction Management, 2021.

CHENGYI "CHARLIE" ZHANG, B.S. Harbin University of Commerce 2007; M.S. China University of Mining and Technology, Beijing 2009; Ph.D. Illinois Institute of Technology 2013; Assistant Professor of Construction Management, 2020.

MILAN ZLATKOVIC, B.S. University of Belgrade 2005; M.S. University of Utah 2009; Ph.D. 2015; Assistant Professor of Civil Engineering, 2016.

Assistant Instructional Professors:

AYSEGUL DEMIR, B.S. Dokuz Eylul University 2013; M.S. Istanbul Technical University 2016; Ph.D. The University of Texas at Austin 2022.

SHAWN C. GRIFFITHS, B.S. Utah State University 2009; M.S. University of Arkansas 2011; Ph.D. University of Texas, Austin 2015; Assistant Professor of Civil Engineering 2015.

Academic Professionals:

KIMBERLY FRITH, B.S. Clemson University, 2007; M.S. Stanford University 2009; Assistant Lecturer, 2020.

JAIN, DHAWAL, B.S. K.R.V.I.A Mumbai India 2014; M.S. Virginia Tech 2018.

JON A. GARDZELEWSKI, B.S. University of Wyoming 2002; M.Arch. University of Oregon 2005; Associate Lecturer, 2016, 2010.

SHELLEY MACY, B.S. University of Wyoming 2002; M.S. University of Wyoming, 2013; Assistant Lecturer, 2021.

Adjunct Faculty:

Aaron Cvar, Song Jin, Mark Kilgore, Robert Loane, Marci Miller, Alan Moore, Evan O'Toole, Chris Schabron, Dennis Moulard, Nathan Bergh.

Professors Emeriti:

Patricia J.S. Colberg, Charles W. Dolan, Thomas V. Edgar, K. James Fornstrom, Victor R. Hasfurther, Michael Humenick, Anton Munari, Larry O. Pochop, Jay Puckett, Richard J. Schmidt, James L. Smith, John P. Turner.

Civil Engineering

The mission of the department of Civil and Architectural Engineering and Construction Management at the University of Wyoming is:

- To educate and prepare Civil & Architectural Engineering and Construction Management students to lead as designers, builders, project managers and entrepreneurs as it relates to the sustainable built and natural environments.
- To develop technical solutions through research, innovation, and improved infrastructure to diversify and grow the economies that serve Wyoming and the world.

The Civil Engineering curriculum begins with a basic education in the physical, engineering, mathematical and computer sciences. This foundation supports further development of engineering topics that prepare the engineer to address critical societal needs. To meet these needs, the Civil Engineer designs and builds bridges, buildings, dams and hydraulic structures, pipelines and canals, power plants, transportation facilities, sanitary and environmental engineering facilities, surveying and mapping systems, space and ocean platforms, as well as numerous other engineering systems. The civil engineer must also be aware of the social, humanistic, and political aspects of their projects. Therefore, course work in the humanities and social sciences is required to better understand the social aspects

of public works. During the last two years of their program, students may pursue several areas of Civil Engineering or, depending upon their interests, more specialized courses in one or more of the specific technical areas listed below. All students must have a comprehensive design experience.

Structural engineering: Analysis and design of structural systems including buildings, bridges, towers and other structures. Structural engineering also includes the study of solid mechanics and advanced structural materials.

Environmental engineering: Analysis, design and development of engineering systems to provide potable water supplies, treat municipal, industrial and hazardous wastes and protect human health and the environment.

Water resource engineering: Planning, analysis and design of hydraulic and hydrologic systems with respect to watersheds, municipalities, irrigation and drainage, and flood control. Conservation and management of groundwater and surface water are emphasized.

Transportation engineering: Planning, analysis and design of highways, traffic engineering and control, traffic safety, and pavement maintenance, design and rehabilitation.

Geotechnical engineering: Design and analysis of foundations, dams, embankments, slope stability and construction practices in soil and rock.

The Civil Engineering curriculum prepares the graduate to engage in professional practice, and upon completion of post-graduate requirements, to obtain registration as a Professional Engineer. It also provides the graduate with an excellent preparation for graduate studies in engineering, business or law.

Civil Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in courses required for the major. Students must complete a minimum of 42 upper division (junior/senior) or graduate-level semester credit hours. Students may have a maximum of 6 credits in courses with a grade of D in upper division CE courses that apply towards their degree program.

Computer Requirement

Many courses in Civil Engineering require students to have a laptop or tablet computer to bring to class, and to be able to download various software program (normally free). See www.uwyo.edu/civil/undergrad/laptop.html for more information.

CE Objectives

Three to six years after graduation, graduates of the University of Wyoming Civil Engineering Program will:

CE-OB1. Be able to successfully practice the profession of Civil Engineering.

CE-OB2. Be prepared and motivated to accept challenging assignments and responsibilities.

CE-OB3. Demonstrate successful professional growth through leadership development and career progression.

CE Outcomes

The Civil Engineering department regularly evaluates the following student skills.

Specifically, every University of Wyoming Civil Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Transfer Coursework: The Civil Engineering program accepts transfer course equivalents listed in the Wyoming Transfer Catalog. Other transfer courses will be considered by petition to the Department. The Department has a Policy on Transfer Courses for Continuing Students, which says continuing students should not plan to substitute "core" courses with transfer credits from other institutions, and that transfer credits for continuing students are evaluated on a case-by case basis. For upper-division coursework, no more than two upper division courses may be transferred and applied to the CE degree. CE 4010 and CE 4900 cannot be transferred to UW.

Advanced Civil and Architectural Engineering Standing

All undergraduate students in Civil and Architectural Engineering must fulfill the Gateway Requirement prior to enrolling in any upper-division (3000-5000 level) courses taught in the College of Engineering and Applied Science.

To meet the Civil and Architectural Engineering Gateway Requirement, the student must earn a minimum of 57 Quality Points from any combination of the following seven classes or their equivalent. It is not necessary to complete all seven courses to fulfill the Gateway Requirement.

Gateway Courses

- CHEM1020 - General Chemistry I

- PHYS1210 - Engineering Physics I
OR
- PHYS1220 - Engineering Physics II

- MATH2200 - Calculus I
- MATH2205 - Calculus II
- ES2110 - Statics
- ES2120 - Dynamics
- ES 2410 Mechanics of Material I

See the advising pages on the Civil and Architectural Engineering website for more information.

Graduate Study

Graduate Programs

An advanced degree in civil and architectural engineering is professionally and economically attractive. Advanced degrees are important for professional civil engineers in many specialized areas of civil engineering. Many consulting firms and industrial design groups require advanced knowledge gained from graduate studies. Engineers in such firms often work at the forefront of their profession. UW alumni are involved in design and construction of major projects worldwide.

An advanced degree is also required for careers in university teaching and research. A university career is highly recommended for those motivated students who are interested in becoming leaders in education and in the development of new concepts, processes and inventions.

The Department of Civil and Architectural Engineering offers programs leading to the degrees of master of science and doctor of philosophy. Areas of study in the M.S. and Ph.D. programs include: environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources engineering. The department also offers a master of science in architectural engineering and a master of science in environmental engineering in cooperation with the Department of Chemical and Petroleum Engineering. Additional information is available from the department or from the Web page.

Program Specific Admission Requirements

Admission is open to all students holding a bachelor's degree with at least a 3.000 GPA from an accredited engineering curriculum and a GRE combined minimum score of 298.

Ph.D. applicants are reviewed with regard to stated interests, objectives and the ability of the department to provide a quality experience for the applicant.

International students must achieve a TOEFL score of 550 on the paper-based, a minimum of 76 on the internet-based or a minimum of 6.0 on the IELTS.

Architectural Engineering

Architectural Engineering is a rapidly expanding profession that deals with the myriad aspects of buildings and their design, construction and operation. Architectural Engineers are typically specialists, responsible for the design and integration of such building elements as the structural, plumbing, fire protection, heating and air conditioning, or lighting and electrical systems. The curriculum in architectural engineering is designed to acquaint students with the various aspects of building design and construction and exposes them to a variety of courses dealing with different building materials and systems. The curriculum also includes course work in the humanities and social sciences, both to enrich the student's academic experience and assist in dealing with and contributing to society. The program leads to a Bachelor of Science in Architectural Engineering, preparing graduates to engage in practice as Professional Engineers upon completion of post-graduate registration requirements. Graduate work with emphasis in Architectural Engineering leading to a Master of Science and Doctor of Philosophy degree is offered through the Civil and Mechanical Engineering Programs. Additionally, advanced study can also be pursued in allied areas such as architecture, business or other engineering fields.

Students choose an area of emphasis in either structural or mechanical systems and select courses from approved electives, usually beginning their elective sequence in the second semester of their junior year. Consult with the Civil and Architectural Engineering Department for current elective lists.

Architectural Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in courses required for the major. Students must complete a minimum of 42 upper division (junior/senior) or graduate-level semester credit hours.

Students may have a maximum of 6 credits in courses with a grade of D in upper division ARE courses that apply towards their degree program.

Computer Requirement

Many courses in Architectural Engineering require students to have a laptop or tablet computer to bring to class, and to be able to download various software programs (normally free). See www.uwyo.edu/civil/undergrad/laptop.html for more information.

Architectural Engineering Objectives

Three to six years after graduation, graduates of the University of Wyoming Civil Engineering Program will:

ARE-OB1 Be able to successfully practice the profession of Architectural Engineering.

ARE-OB2 Be prepared and motivated to accept challenging assignments and responsibilities.

ARE-OB3 Demonstrate successful professional growth through leadership development and career progression.

ARE Outcomes

The Architectural Engineering department regularly evaluates the following student skills. Specifically, every University of Wyoming Architectural Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Transfer Coursework: The Architectural Engineering program accepts transfer course equivalents listed in the Wyoming Transfer Catalog. Other transfer courses will be considered by petition to the Department. The Department has a Policy on Transfer Courses for Continuing Students, which says continuing students should not plan to substitute "core" courses with transfer credits from other institutions, and that transfer credits for continuing students are evaluated on a case-by case basis. For upper-division coursework, no more than two upper division courses may be transferred and applied to the ARE degree. ARE 4720 and ARE 4740 cannot be transferred to UW.

Advanced Civil and Architectural Engineering Standing

All undergraduate students in Civil and Architectural Engineering must fulfill the Gateway Requirement prior to enrolling in any upper-division (3000-5000 level) courses taught in the College of Engineering and Applied Science.

To meet the Civil and Architectural Engineering Gateway Requirement, the student must earn a minimum of 57 Quality Points from any combination of the following seven classes or their equivalent. It is not necessary to complete all seven courses to fulfill the Gateway Requirement.

Gateway Courses

- CHEM1020 - General Chemistry I
- PHYS1210 - Engineering Physics I
- **OR**
- PHYS1220 - Engineering Physics II

- MATH2200 - Calculus I
- MATH2205 - Calculus II
- ES2110 - Statics
- ES2120 - Dynamics
- ES 2410 Mechanics of Material I

See the advising pages on the Civil and Architectural Engineering website for more information

Graduate Study

Graduate Programs

An advanced degree in architectural engineering is professionally and economically attractive. Advanced degrees are important for professional civil engineers in many specialized areas of civil engineering. Many consulting firms and industrial design groups require advanced knowledge gained from graduate studies. Engineers in such firms often work at the forefront of their profession. UW alumni are involved in design and construction of major projects worldwide.

An advanced degree is also required for careers in university teaching and research. A university career is highly recommended for those motivated students who are interested in becoming leaders in education and in the development of new concepts, processes and inventions.

The Department of Civil and Architectural Engineering offers programs leading to the degrees of master of science and Areas of study in the M.S. programs include: building mechanical systems engineering, environmental engineering, geotechnical engineering, structural engineering, and building energy modeling. Additional information is available from the department or from the Web page.

Students choose an area of emphasis in either, building, structural or mechanical systems and select courses from approved electives, usually beginning their elective sequence in the second semester of their junior year. Consult with the Civil and Architectural Engineering Department for current elective lists. Students are required to have a lap top computer.

Architectural engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in civil and architectural engineering courses attempted at this university.

Construction Management

Construction Management is a rapidly-growing discipline, that is focused on the planning and oversight required to deliver construction projects on-time and on-budget. Students learn skills such as project management, decision making, budgeting, scheduling, and site logistics including safety planning, surveying, and building information modeling.

The Construction Management curriculum is designed to prepare students for success in a wide variety of career paths available in the construction sector. The curriculum includes course work in construction, business, humanities and social sciences to enrich the student's academic experience and to assist them in making a positive contribution to society. The program leads to a four-year Bachelor of Science in Construction Management degree.

Construction Management degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 in courses required for the major.

A grade of C or better is required in all required courses with a CM prefix.

Construction Management Learning Objectives

Upon graduation students shall be able to:

1. Create written communications appropriate to the construction discipline.
2. Create oral presentations appropriate to the construction discipline.
3. Create a construction project safety plan.
4. Create construction project cost estimates.
5. Create construction project schedules.
6. Analyze professional decisions based on ethical principles.
7. Analyze construction documents for planning and management of construction processes.
8. Analyze methods, materials, and equipment used to construct projects.
9. Apply electronic-based technology to manage the construction process.
10. Apply basic surveying techniques for construction layout and control.
11. Understand construction management skills as a member of a multi-disciplinary team.
12. Understand different methods for project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
13. Understand construction risk management.
14. Understand construction accounting and cost control.
15. Understand construction quality assurance and control.
16. Understand construction project control processes.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
18. Understand the basic principles of sustainable construction.
19. Understand the basic principles of structural behavior.
20. Understand the basic principles of mechanical, electrical and piping system.

Environmental Engineering

3074/4055 Engineering Building,

766-5255/766-2500

E-mail: cae.info@uwyo.edu

Web site: www.uwyo.edu/chemical/graduate/prospective/environmental/index.html

A master of science in environmental engineering is available in the College of Engineering through a joint effort of the Department of Civil and Architectural Engineering and the Department of Chemical Engineering. This interdisciplinary degree offers students an engineering perspective for solutions to environmental problems. Emphasis is on minimization, monitoring, control, and processing of waste products as well as treatment and disposal associated with point and non-point pollution sources. Integration of engineering with science, regulatory, and policy aspects of environmental engineering is an important component of this unique program. Further information is available from the environmental engineering graduate studies program office and/or departments involved.

Program Specific Admission Requirements

Admission is open to students with at least a bachelor's degree who meet the minimum requirements:

1. A GPA of 3.000 (A=4.000), or equivalent;
2. A GRE score of 291 (combined verbal and quantitative sections);
3. For international applicants who did not attend an English-speaking program in an English-speaking country for all years of their highest degree: A TOEFL score of 76 (Internet based) or an IELTS score of 6.0.

Complete official transcripts of all prior college-level coursework and recommendations from three references must be submitted as parts of the application.

The deadline to submit application credentials is February 1 (to be considered for fall semester), and October 1 (to be considered for spring semester).

The application will not be processed until all the necessary documents have been submitted.

Major

Architectural Engineering, B.S.

Architectural Engineers create structural and mechanical-electrical-plumbing systems for buildings. The B.S. in Architectural Engineering is accredited by ABET and provides a path to P.E. licensure. Note: This is not an Architecture degree.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Core Courses: 73 Credit Hours

ARE1000 - Exploring CAECM

Credits: 1

Introduction to civil and architectural engineering professions through exploration of modern engineering challenges. Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globaliztion, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed CE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

ARE1600 - Architectural Design Studio I

Credits: 3

Freshman-level architectural design in a project-based learning environment. Introduction to Building Information Modeling (BIM); architectural presentation drawings; freehand sketching; essentials of architectural design and building code compliance.

Former Course Number [ARE 2100]

ARE2410 - Fundamentals of Building Performance

Credits: 3

Introduction to building performance measures that embrace a global notion of environmental stewardship. Emphasis on passive heating and cooling systems and daylighting strategies to manage the thermal and luminous environments over the facility life cycle.

Prerequisite: PHYS 1210.

ARE2600 - Architectural Design Studio II

Credits: 3

Sophomore-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 1600, with a new emphasis on building materials and construction methods.

Former Course Number [ARE 2200]

Prerequisite: ARE 1600.

ARE-3110 Professional Practice

ARE3200 - Structural Analysis I

Credits: 3

Introductory design and analysis topics in stress and displacement analysis of structures, including beams, trusses and frames, classical flexibility and stiffness methods.

Cross Listed CE 3200.

Prerequisite: ES 2410.

ARE3210 - Civil Engineering Materials

Credits: 4

Laboratory investigation and design of materials used in civil engineering: metals, masonry, concrete and timber. Non-destructive evaluation of materials. Analysis and presentation of data, including various types of written reports and oral presentations.

Cross Listed CE 3210.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Prerequisite: COM2 and ES 2410.

ARE3300 - Building Electrical and Plumbing Systems

Credits: 3

Introduction to National Electrical Code. The topics include basic circuits, AC and DC single phase, three phase power, transients, capacitance and inductance, branch circuits. Study of plumbing systems and fixtures including wastewater, water supply, storm water, and venting systems. Study of International Plumbing Code.

Prerequisite: ARE 1600 or CE 1010, and ES 2330 or concurrent enrollment.

ARE3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ME 3400.

Former Course Number [ARE 3800]

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ARE3600 - Architectural Design Studio III

Credits: 3

Junior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). This course builds upon skills learned in ARE 2600, with a new emphasis on the complexities that accompany mid-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 2410 and ARE 2600.

ARE4600 - Architectural Design Studio IV

Credits: 3

Senior-level architectural design in a project-based learning environment using Building Information Modeling (BIM). The course builds upon skills learned in ARE 3600, with a new emphasis on the complexities that accompany high-rise construction, and the integration of structural and mechanical systems.

Prerequisite: ARE 3600.

ART3030 - History of Architecture

Credits: 3

A survey of the history of architecture and its allied fields, focusing on the formal, aesthetic, cultural and socio-political dimensions, from prehistory to the present.

Cross Listed ARE 3030.

USP 2003-2014 Code U3CH, U3G

USP 2015 Code U5H

Prerequisite: WA or COM1.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Geology Course: 4 Credit Hours

Must take one of the following.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

Physics Course: 4 Credit Hours

Must take one of the following courses:

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

ARE Professional Development Courses: 18 Credit Hours Required

Must take six of the following:

ARE3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ESE 3360/ME 3360.
Former Course Number [ARE 3430, ARE 4420]

Prerequisite: MATH 2310, ES 2310 and ES 2330.

ARE4200 - Structural Analysis II

Credits: 3
Stress and displacement of indeterminate structures. Determination of loads on buildings. Matrix stiffness methods.

Cross Listed CE 4200
Prerequisite: ARE 3200/CE 3200.

ARE4250 - Structural Steel Design

Credits: 3
Design of structural components and applications utilizing steel.

Cross Listed CE 4250.
Prerequisite: ARE 3200/CE 3200.

ARE4260 - Structural Concrete Design

Credits: 3
Design of structural components and systems using reinforced concrete.

Cross Listed CE 4260.
Prerequisite: ARE 3200/CE 3200.

ARE4285 - Masonry Design

Credits: 3
Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed CE 4285.
Dual Listed ARE 5285 and CE 5285.
When Offered Offered on a three semester rotation.
Former Course Number [ARE 4280]

Prerequisite: ARE 4260/CE 4260 and ARE 3200/CE 3200.

ARE4295 - Structural Timber Design

Credits: 3

Design of structural components and systems utilizing timber.

Cross Listed CE 4295.

Dual Listed ARE 5295.

Former Course Number [ARE 4290]

Prerequisite: CE 3200 or equivalent.

ARE4330 - Building Electrical Systems

Credits: 3

Analysis and design of electrical systems in buildings using the National Electrical Code. The topics include panel boards, motors, system sizing, electrical distribution in buildings, methodology of reducing the available short circuit current, transformers, capacitors in buildings, and power systems harmonics. Students will perform an electrical building design project.

Prerequisite: ARE 3300.

ARE4390 - Building Safety and Fire Protection

Credits: 3

Fundamentals of building design for fire and life safety. Emphasis is on a systematic design approach. Basic considerations of building codes, fire loading, fire resistance, means of egress design, introduction to protective systems including fire protection systems, and fundamentals of fire and smoke control.

Prerequisite: ARE 3300.

ARE4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ME 4430.

When Offered (Normally offered alternate spring semesters)

Former Course Number [ARE 3420, ARE 4810]

Prerequisite: Completion of the ME Success Curriculum, ARE 3400 and ARE 3360/ME 3360 or concurrent.

ARE4490 - Modeling and Optimization of Energy Systems

Credits: 3

Application of principles of thermodynamics, fluids, and heat and mass transfer in the component and system-level design of energy/thermal systems, including modeling, simulation and optimization techniques. Examples are drawn from building environmental control, energy conversion and thermal industrial processes. Students work on projects for

integration of these components in the design of energy/thermal systems. Requires enrollment in associated laboratory session.

Cross Listed ME 4490.

Prerequisite: ARE 3400.

CE3600 - Soil Mechanics I

Credits: 4

A study of soil and the properties which influence its usefulness as an engineering material. Principles governing movement of soil, water and propagation of stresses through soil masses are studied.

Former Course Number [4600]

Prerequisite: ES 2410.

CE4610 - Foundation Engineering

Credits: 3

Site characterization, laboratory shear tests and determination of soil properties. Analyses include bearing capacity, stress distribution and settlement. Design of shallow and control of deep foundations using static and dynamic methods.

Dual Listed CE 5610.

Prerequisite: CE 3600.

CE4620 - Soil and Rock Slope Engineering

Credits: 3

Advanced engineering and geologic classification of landslides; detailed field investigations; solid and rock strength properties for stability analysis; advanced analytical and numerical methods for analysis of slope stability; design of engineered stabilization systems.

Dual Listed CE 5660.

Prerequisite: CE 3600.

CE4630 - Ground Improvement, Reinforcement and Treatment

Credits: 3

This course is designed to help students understand a number of available geotechnical ground improvement, reinforcement and treatment techniques currently in use.

Dual Listed CE 5630.

Prerequisite: CE 3600.

CE5010 - Advanced Mechanics of Materials

Credits: 3

Elements of elasticity, unified approach to strength of structural members design and failure criteria; basic concepts of fracture mechanics; stress concentration factors; treatment of torsion, bending, axial and shear in structural members including plastic effects; bending of flat plates.

Prerequisite: ME 3010 or CE 3200, MATH 2310.

CE5200 - Advanced Structural Analysis

Credits: 3

Analysis of framed structures with stiffness-based matrix methods including plane trusses, frames, and grid systems and space trusses and frames. Column, beam, beam-column and frame stability. Geometric and material nonlinearities of framed structures. Plastic analysis and moment-curvature relationships. Computer applications are emphasized.

Prerequisite: CE 4200 or equivalent.

CE5220 - Structural Dynamics

Credits: 3

Introduction to general structural dynamics, general dynamic loading, generalized coordinated and nonlinear structural response, linear and nonlinear response spectra, multiple degree of freedom systems, continuous systems, and discretization of continuous systems. Introduction to seismic load specifications.

Prerequisite: CE 4200 or equivalent and MATH 2310.

CE5255 - Advanced Steel Design

Credits: 3

A comprehensive design course for steel building structures. Topics include preliminary design, selection of framing systems, braced and unbraced frames, stability effects and nonlinear behavior. Includes building design project for seismic regions.

Prerequisite: grade of C or better in CE 4250 or ARE 4250.

CE5270 - Highway Bridge Engineering

Credits: 3

A study of the analysis, design and rating of highway bridges, including consideration of dead and vehicular loads, analysis of typical systems, service, fatigue and ultimate strength behavior, rating of existing bridge design, and bridge operations. Composite and non-composite steel and concrete bridges are considered. Includes investigations that require field trips outside the schedule class times. Contemporary issues are routinely discussed.

Prerequisite: CE 4250 and CE 4260.

ME3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ESE 3040

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3170 - Machine Design

Credits: 3

Application of engineering mechanics and materials science to the analysis and design of mechanical components such as bolted connections, springs, gears, bearings and shafts. Design for dynamic loading conditions. Principles of hydrodynamic lubrication. Introduction to computer-aided design. Case studies with appropriate topics.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ARE Capstone: 3 Credit Hours

Must take 1 of the following courses

ARE4720 - Structural Systems Design Project

Credits: 3

Final course in the building structural systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's structural systems.

Prerequisite: ARE/CE 3110, ARE 4200, ARE 4250, and ARE 4260 or concurrent enrollment.

ARE4740 - Mechanical Systems Design Project

Credits: 3

Final course in the building mechanical systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's mechanical systems.

Cross Listed ARE/ME 4740

Prerequisite: ARE/CE 3110 and ARE 3400

ARE Math/Sci/Tech/Prof Courses: 6 credit hours

Must take 6 additional credit hours in Math/Science/Technical/Professional courses.

Total Required Credit Hours: 123 Hours (Minimum)

A Minimum of 42 Credit Hours Must Be Upper Division (3000+) Level.

- **Advanced Standing/Gateway:** Prior to enrolling in upper division ARE/CE courses, students must earn 57 quality points in the following courses: CHEM 1020, PHYS 1210 or PHYS 1220, MATH 2200, MATH 2205, ES 2110, ES 2120, and ES 2410.
- Degree candidates must meet the academic requirements of the university, and must have a minimum GPA of 2.0 in all engineering courses, and all courses required for the major. *Grades of C or better are required for all prerequisite courses.
- Students choose an area of emphasis in either structural or mechanical systems, and select Optional Electives and the Capstone Design for their emphasis area. Care should be taken to ensure prerequisites are completed.
- Students may have a maximum of 6 credits in courses with a grade of D in upper division ARE courses that apply towards their degree.
- Students may not take a course for S/U credit to satisfy any requirement, unless the course is offered for S/U credit only.
- No more than two upper division courses may be transferred and applied to the ARE degree. ARE 4720 and ARE 4740 cannot be transferred to UW.

ARE Outcomes

The Architectural Engineering department regularly evaluates the following student skills. Specifically, every University of Wyoming Architectural Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Civil Engineering, B.S.

Civil Engineers create infrastructure and development projects, including structures, transportation, water & wastewater, earthworks, and urban site plans. The B.S. in Civil Engineering is accredited by ABET and provides a path to P.E. licensure.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Core Courses: 75 Credits

CE1000 - Exploring CAECM

Credits: 1
Introduction to civil and architectural engineering professions through exploration of modern engineering challenges.

Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globalizability, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed ARE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE1010 - Civil Engineering Tools

Credits: 3

This course is an introduction to computing tools commonly used in civil engineering practice including 3-D Computer Aided Drafting, Spreadsheets and Presentation Software. Tools will be introduced through design work on typical civil engineering design projects.

Prerequisite/Corequisite: of MATH 2200.

CE2070 - Engineering Surveying

Credits: 3

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Traverse field techniques and office calculations. Basic principles of surveying and map making.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE-3110 Professional Practice

CE3200 - Structural Analysis I

Credits: 3

Introductory design and analysis topics in loads on building, stress and displacement analysis of structures, including beams, trusses and frames, classical flexibility and stiffness methods.

Cross Listed ARE 3200.

USP 2003-2014 Code [WB<>(none)]

Prerequisite: ES 2410.

CE3210 - Civil Engineering Materials

Credits: 4

Laboratory investigation and design of materials used in civil engineering: metals, masonry, concrete and timber. Nondestructive evaluation of materials. Analysis and presentation of data, including various types of written reports and oral presentations.

Cross Listed ARE 3210.

USP 2003-2014 Code U3WB

USP 2015 Code U5C3

Former Course Number [2210]

Prerequisite: COM2 and ES 2410.

CE3300 - Hydraulic Engineering

Credits: 3

Develops analysis, design and modeling techniques for incompressible pipe flow, steady uniform and gradually varied open channel flow, and hydraulic structures.

Former Course Number [4320]

Prerequisite: ES 2330.

CE3400 - Introduction to Environmental Engineering

Credits: 3

An introduction to the major topics in environmental engineering. Focus areas include water supply, wastewater treatment, air pollution control and solid and hazardous waste management. Quantitative aspects and engineering solutions to problems are emphasized.

Prerequisite: MATH 2205 and CHEM 1020 or equivalent.

CE3500 - Transportation Engineering

Credits: 4

Introduction to the major topics in Transportation Engineering. The topics covered include human, vehicle and roadway characteristics and performance, traffic characteristics and flow theory, roadway capacity and Level of Service (LOS) concepts, intersection and traffic signal design, public transportation, transportation planning, geometric design of highways, traffic safety, highway materials, and pavement design

Former Course Number [4500]

Prerequisite: CE 1010.

CE3600 - Soil Mechanics I

Credits: 4

A study of soil and the properties which influence its usefulness as an engineering material. Principles governing movement of soil, water and propagation of stresses through soil masses are studied.

Former Course Number [4600]

Prerequisite: ES 2410.

CE4010 - Civil Engineering Design

Credits: 3

Students will prepare final civil engineering documents including construction plans, specifications, and engineering estimates for a civil engineering project. Concepts of standard specifications and sustainability measures will also be applied to the design.

Former Course Number [3010]

Prerequisite: STAT 2050.

CE4900 - Comprehensive Design Experience

Credits: 3

Team comprehensive project design experience considering the sub-disciplines of civil engineering.

Prerequisite: ARE/CE 3110 and 3 of CE 3200, CE 3300, CE 3400, CE 3500, CE 3600, and two of CE 4250, CE 4260, CE 4610, CE 4555, CE 4510, CE 4400, CE 4410, or CE 4800, or instructor consent.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Physics Course

Must take one of the following:

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity,

magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Science Elective: 4 credit hours

Must take one of the following.

ASTR2310 - General Astronomy I

Credits: 4

[(none)<>PN] Covers the history of astronomy, orbital mechanics, solar system (the Sun, planetary interiors, atmospheres, moons, comets, meteors); interaction of radiation and matter (physical processes in gas, black body radiation) astronomical instrumentation and detectors. Laboratory includes exercises in observational astronomy. Observing sessions are scheduled after dark and held when weather permits.

When Offered (Normally offered spring semester)

USP 2003-2014 Code PN

Prerequisite: PHYS 1210 or PHYS 1310, MATH 2200.

ATSC2000 - Introduction to Meteorology

Credits: 4

First course in meteorology for students with minimal background in math and science. Provides general and practical understanding of weather phenomena. Emphasizes observational aspects of the science, meteorological view of the physical world and the impact the science has on life and society. Includes three hours of lecture and one laboratory per week. Includes atmospheric composition and structure, radiation, winds and horizontal forces, stability and vertical motions, general circulation, synoptic meteorology, clouds and precipitation, severe storms and atmospheric optics.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1110 - Physical Geology for Engineers

Credits: 4

Introduction to geologic principles for engineers with emphasis on near surface processes and material properties. The first half will teach planetary basics, mineral/ rock and geologic structure, surface processes, geologic material strength and deformation, and geohazards. The final half covers methods and analysis with the collection of geophysical data on-campus to assess near-surface properties with a full lab report.

USP 2003-2014 Code [(none)< >PN]

Prerequisite: MATH 1400 and MATH 1405 or MPE score of 5 or higher or SAT Math score of 600 or higher or ACT Math score of 27 or higher.

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

Structural Design Course: 3 credit hours

Must take one of the following.

CE4250 - Structural Steel Design

Credits: 3

Design of structural components and applications utilizing steel.

Cross Listed ARE 4250.

Prerequisite: ARE 3200/CE 3200.

CE4260 - Structural Concrete Design

Credits: 3

Design of structural components and applications utilizing reinforced concrete.

Cross Listed ARE 4260.

Prerequisite: ARE 3200/CE 3200.

CE Professional Development Courses: 12 credit hours

Must take four of the following.

Selection of Professional Development Courses must demonstrate breadth by covering more than one area among Environmental, Geotechnical, Transportation and Water Resources.

CE4200 - Structural Analysis II

Credits: 3

Stress and displacement of indeterminate structures. Determination of loads on buildings. Matrix stiffness methods.

Cross Listed ARE 4200

Prerequisite: ARE 3200/CE 3200.

CE4265 - Prestressed Concrete Design

Credits: 3

This is a classical course on designing prestressed and precast concrete systems. Principles and behavior of prestressed concrete build the foundation for topics that included flexure, shear, and axial load, construction and fabrication, and application. The course continues with fundamental concepts taught in RE/CE 4260.

Cross Listed ARE 4265.

Dual Listed CE 5265.

Prerequisite: ARE 4260/CE 4260.

CE4285 - Masonry Design

Credits: 3

Design of structural components in reinforced masonry buildings, including walls, columns, beams and connections. Particular attention is paid to current codes, specifications and analysis.

Cross Listed ARE 4285.
Dual Listed ARE 5285 and CE 5285.
When Offered Offered on a three semester rotation.
Former Course Number [4280]

Prerequisite: ARE 4260/CE 4260 and ARE 3200/CE 3200.

CE4295 - Structural Timber Design

Credits: 3
Design of structural components and applications utilizing timber.

Cross Listed ARE 4295.
Dual Listed CE 5295.
Former Course Number [4290]

Prerequisite: CE 3200 or equivalent.

CE4400 - Design of Water Treatment Facilities

Credits: 3
A theoretical and practical design course for municipal potable water treatment systems. Major emphasis includes health criteria, operational control procedures, primary and secondary drinking water regulations, as well as the latest treatment design standards for production of drinking water.

Prerequisite: CE 3400.

CE4410 - Design of Wastewater Treatment Facilities

Credits: 3
A theoretical and practical design course for treatment of municipal wastewaters. Major areas of emphasis include waste characterization and physical, chemical and biological unit processes.

Prerequisite: CE 3400.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3
Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.
Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

CE4441 - Solid Waste Engineering

Credits: 3

Municipal solid waste characteristics and quantities, collection, landfills, processing of municipal solid waste, materials separation, combustion and energy recovery, and biochemical processes with an emphasis on materials flow. Integrated solid waste management principles are also discussed.

Former Course Number [4440]

Prerequisite: CE 3400.

CE4510 - Pavement Design for Airports and Highways

Credits: 3

Designing flexible and rigid pavements for highways and airports. Topics include pavement materials and common uses, soil stabilization, quality control of materials, pavement design procedures.

Dual Listed CE 5510.

Former Course Number [5510]

Prerequisite: CE 3500 or CE 3600.

CE4530 - Traffic Engineering: Operations

Credits: 3

Basic characteristics of traffic, such as drivers, vehicles, volumes, speeds, delay, origins and destinations, intersection performance, capacity, termination and accidents; techniques for making traffic engineering investigations; traffic laws and ordinances, regulations, design and application of signal systems; curb parking control; enforcement and traffic administration; and public relations.

Dual Listed CE 5530.

Prerequisite: CE 3500.

CE4555 - Geometric Design of Highways

Credits: 3

Criteria controlling geometric design of highways including design speed, design volume, vehicle requirements and capacity design standards for different highway types; design of sight distance, alignment, grade; cross-section design; access control, frontage roads; intersection design elements, and design of intersections and interchanges.

Dual Listed CE 5555.

A&S College Core 2015 Students may not receive credit for both CE 4555 and CE 5555.

Former Course Number [4520]

Prerequisite: CE 3500.

CE4610 - Foundation Engineering

Credits: 3

Site characterization, laboratory shear tests and determination of soil properties. Analyses include bearing capacity, stress distribution and settlement. Design of shallow and control of deep foundations using static and dynamic methods.

Dual Listed CE 5610.

Prerequisite: CE 3600.

CE4620 - Soil and Rock Slope Engineering

Credits: 3

Advanced engineering and geologic classification of landslides; detailed field investigations; solid and rock strength properties for stability analysis; advanced analytical and numerical methods for analysis of slope stability; design of engineered stabilization systems.

Dual Listed CE 5660.

Prerequisite: CE 3600.

CE4630 - Ground Improvement, Reinforcement and Treatment

Credits: 3

This course is designed to help students understand a number of available geotechnical ground improvement, reinforcement and treatment techniques currently in use.

Dual Listed CE 5630.

Prerequisite: CE 3600.

CE4800 - Hydrology

Credits: 3

Analysis of elements of the hydrologic cycle and design with emphasis on precipitation, evapotranspiration, infiltration, runoff and groundwater. Precipitation/Runoff relationships, routing methods, flood prediction, groundwater yield and drawdown in unconfined and confined aquifers, unsteady well behavior, and method of images are also introduced.

Prerequisite: CE 3300.

CE4810 - Groundwater Hydrology

Credits: 3

Principles and basic equations associated with saturated and unsaturated flow in soils describing groundwater and drainage flow. Laws governing the movement, recharge, and production of underground water with special emphasis on techniques and modeling methods for development of groundwater resources.

Dual Listed CE 5810.

Prerequisite: ES 2330.

CE4870 - Water Resource Engineering

Credits: 3

Study in water resource planning and design and problem solving applying engineering principles and procedures. Western United States water problems are emphasized, including user completion, reallocation, consumptive use, water development, conservation, conveyance losses, and return flows.

Dual Listed CE 5870.

Prerequisite: CE 3300.

CE Math/Sci/Tech/Prof Courses: 9 credit hours

Must take 9 additional credit hours in Math/Science/Technical/Professional courses.

Required Credits: 125 Hours (Minimum)

A Minimum of 42 Credit Hours Must Be Upper Division (3000+) Level.

- **Advanced Standing/Gateway:** Prior to enrolling in upper division ARE/CE courses, students must earn 57 quality points in the following courses: CHEM 1020, PHYS 1210 or PHYS 1220, MATH 2200, MATH 2205, ES 2110, ES 2120, and ES 2410.
- Degree candidates must meet the academic requirements of the university, and must have a minimum GPA of 2.0 in all engineering courses, and all courses required for the major. *Grades of C or better are required for all prerequisite courses.
- Students choose an area of emphasis in either structural or mechanical systems, and select Optional Electives and the Capstone Design for their emphasis area. Care should be taken to ensure prerequisites are completed.
- Students must take either CE 4250 or CE 4260 for the Structural Design requirement. Remaining Professional Development Electives must cover at least two of the following areas: Environmental, Geotechnical, Transportation, Water Resources.
- Students may have a maximum of 6 credits in courses with a grade of D in upper division ARE courses that apply towards their degree.
- Students may not take a course for S/U credit to satisfy any requirement, unless the course is offered for S/U credit only.
- No more than two upper division courses may be transferred and applied to the CE degree. CE 4010 and CE 4900 cannot be transferred to UW.

CE Outcomes

The Civil Engineering department regularly evaluates the following student skills. Specifically, every University of Wyoming Civil Engineering graduate shall have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Civil Engineering/Water Resources

The purpose of this program is to broaden the students' master of science program in the water resource area in civil engineering.

Plan A Thesis Requirement

Only students with a M.S. Plan A thesis option are eligible. The student's graduate committee will include at least one member of the Water Resources Curriculum Committee.

Coursework and Thesis

Each student must complete a minimum of 28 hours of graduate level coursework and a thesis under Plan A (4 credit hours) to qualify for the master of science in civil engineering/ water resources.

The student must obtain at least 18 credit hours of graduate level coursework in engineering, emphasizing a concentration of core courses in a particular area of emphasis in civil engineering. The core course areas of emphasis for this program are hydrologic and hydraulic engineering. The particular set of courses for a given area of emphasis will be designated by the faculty in the water resources area for these areas of emphasis with the approval of the Civil Engineering Graduate Committee.

Interdisciplinary Component

9 hours

Technical Hydrology (3 Hours)

GEOL5444 - Geohydrology

Credits: 3

Examines the physical principles governing the occurrence, movement, and extraction of water in aquifers.

Dual Listed GEOL 4444.

When Offered (Normally offered fall semester)

Prerequisite: MATH 2205.

GEOL5550 - Numerical Methods in Ground Water Geology I

Credits: 3

Numerical solution of ground water flow equations with emphasis on steady state and elementary time dependent finite difference techniques.

Prerequisite: GEOL 4444 or GEOL 5444, competence in FORTRAN programming.

GEOL5570 - Advanced Geohydrology

Credits: 3

Aquifer performance and testing, ground water basin development and management, conjunctive use of ground and surface water, and regional water resource investigations.

Prerequisite: GEOL 4444 or GEOL 5444.

REWM5285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 5285.

Dual Listed REWM 4285.

Prerequisite: graduate standing and University Studies QA.

- REWM 5280 - Stream Habitat Management Credits: 3

Law/Natural Resource Economics (3 Hours)

(please refer to the general degree requirements for a list of courses)

Water Quality (3 Hours)

GEOL5450 - Geochemical Modeling

Credits: 3

Modeling of geochemical processes in fluid-rock systems of the Earth's crust. Emphasizes development and application of conceptual models as well as quantitative numerical models. Reinforces and expands fundamental skills in aqueous and fluid-rock geochemistry to better understand geochemical processes and solve problems in fluid-rock systems.

Prerequisite: GEOL 4777/GEOL 5777 or GEOL 5610 or GEOL 4490.

GEOL5777 - Geochemistry of Natural Waters

Credits: 3

Physical chemistry of solutions applied to natural waters. Chemistry of rock weathering, controls on major, minor, and

trace element contents of natural waters. Problems of introduced pollutants.

Cross Listed GEOL 4777.

Prerequisite: CHEM 1030 OR consent of instructor.

- MOLB 4410 Water Microbiology Credits: 3
- MOLB 4500 Microbial Ecology Credits: 3

ZOO4440 - Limnology

Credits: 3

Studies ecology of inland waters; biological, chemical and physical features of lakes and streams.

When Offered (Offered fall semester)

Prerequisite: LIFE 1010, LIFE 3400 and CHEM 1030 or consent of instructor.

Construction Management, B.S.

Construction Managers are responsible for overseeing construction projects, including schedules, budgets, and quality control. The B.S. in Construction Management is a candidate for accreditation by ACCE and provides numerous career paths.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Core Courses: 50 credit hours

CE1000 - Exploring CAECM

Credits: 1

Introduction to civil and architectural engineering professions through exploration of modern engineering challenges. Students work on a design project, starting with problem definition and working towards concept designs using spreadsheet and communication tools. Professional topics introduced include globalizability, diversity, professional ethics, design limitations and constraints, sustainability, environmental stewardship, and engineering economics.

Cross Listed ARE 1000.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CE2070 - Engineering Surveying

Credits: 3

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Traverse field techniques and office calculations. Basic principles of surveying and map making.

Prerequisite/Corequisite: of MATH 1450 or MATH 1405.

CM2000 - Introduction to Construction Management

Credits: 3

Introduction to the practice and principles of construction management as it relates to both vertical and horizontal construction projects.

CM2120 - Construction Materials and Methods

Credits: 3

Introduction to building materials and construction practices used in the construction industry to construct both vertical and horizontal construction projects.

Prerequisite: COM1.

CM2300 - Construction Safety

Credits: 3

Introduce students to the various causes of construction accidents and adopted strategies to prevent worksite injuries and illnesses with an emphasis on OSHA standards.

Prerequisite: CM 2000.

CM2400 - MEP Systems

Credits: 3

Introduction to mechanical, electrical and plumbing systems in site infrastructure and vertical construction projects.

Prerequisite: C in PHYS 1110.

CM2600 - Construction Documents

Credits: 3

Introduction to the creation and interpretation of construction documents used in the construction industry to build today's vertical and horizontal construction projects.

Prerequisite: CM 2000.

CM3100 - Construction Scheduling

Credits: 3

Principles of construction scheduling including analytical and quantitative scheduling and management techniques as they apply to both vertical and horizontal construction projects.

Prerequisite: CM 3210

CM3160 - Construction Law & Contracts

Credits: 3

The course covers different contract methods, or arrangements, used by the Construction industry to contract and procure construction work. The course also introduces students to construction law in support of planning and the execution of construction work.

Prerequisite: CM 2600.

CM3180 - Evolving Technologies in CM

Credits: 3

The course introduces students to Leadership in Energy and Environmental Design (LEED), Building Information Modeling (BIM) and evolving technologies in construction.

Prerequisite/Corequisite: Grade of C in CM 2000

CM3200 - Statics & Structural Systems

Credits: 4

The course introduces students to the basic principles of statics and structural analysis and design. It provides students with a concise presentation of structural technology, from the determination of structural loads, sizing and design as it relates to timber, steel and concrete structures.

Prerequisite: PHYS 1110 and MATH 2200 with grades of C or better.

CM3210 - Construction Estimating

Credits: 3

The course introduces students to concepts in estimating including but not limited to labor and equipment calculations, the use of price databases, direct and indirect cost, bid preparation and computer applications.

Prerequisite: C in CM 2600.

CM3220 - Soils and Concrete

Credits: 3

This course will introduce students with the construction process that includes, site clearing, soil mechanics, testing, concrete foundations, concrete mix design, concrete construction practice, and concrete testing.

Prerequisite: GEOL 1110 with a grade of C or better and concurrent enrollment in CM 3200.

CM4100 - Project Management

Credits: 3

This course guides students through fundamental Project Management concepts and behavioral skills needed to success-fully launch and lead construction projects in the construction sector.

Prerequisite: CM 3100.

CM4140 - Heavy CM Methods

Credits: 3

The course provides student an overall understanding of construction equipment and selected construction methods used on large scale construction projects. With specific reference to selection, economy, and productivity of common construction equipment and construction procedures for site development and industrial, heavy and civil construction.

Prerequisite: CM 2120 and CM 3200.

CM4600 - Building Info. Modeling

Credits: 3

This course focuses on the skills and information needed to effectively use an existing Building Information Model (BIM) in plan execution for a building construction project. This is a projectbased course where students develop skills on the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction operations.

Prerequisite: CM 2600.

CM4900 - Capstone Project

Credits: 3

This course requires students to participate in a "real" construction situation involving all aspects of managing a project; from initial planning to completion, including budgets, estimating, scheduling, financing and creating contracts

and other construction forms as necessary. Case studies will be utilized to develop critical thinking skills.

Prerequisite: CM 4100.

Business & Professional Courses: 18 credit hours

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are

poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.
USP 2003-2014 Code U3CS
USP 2015 Code U5H

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

Math/Science Courses: 18 credit hours

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE
USP 2015 Code U5PN

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

PHYS1110 - General Physics I

Credits: 4

First course of two-semester sequence. Introduces elementary college physics without calculus. Primarily for premedical, pre dental, preoptometry, prephysical therapy and other students requiring insight into workings of the physical world. Includes classical mechanics, gravitation and heat. Laboratory sessions will illustrate principles studied. Students receiving credit for PHYS 1110 cannot receive credit for PHYS 1050, PHYS 1210 or PHYS 1310.

When Offered (Normally offered fall and summer semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1450, 1405 or equivalent.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

Math/Science Elective Credits: 3

CM Electives: 6 credit hours

Must take 6 additional credit hours in Construction Management elective courses.

General Electives: 12 credit hours

Must take 12 additional credit hours in general elective courses.

Required Credits: 120 Hours (Minimum)

A Minimum of 42 Credit Hours Must Be Upper Division (3000+) Level.

- Degree candidates must meet the academic requirements of the university, and must have a minimum GPA of 2.0 in all courses, and all courses required for the major. *Grades of C or better are required for all prerequisite courses.
- Math 2350 may replace Math 2200 but student must also have Math 1405.
- Math 1405 may be satisfied with Level 5 of the Math placement exam or Math ACT of 27 or SAT Math of 640. Students placing out of Math 1405 will need an additional general elective.
- Students may not take a course for S/U credit to satisfy any requirement, unless the course is offered for S/U credit only.

Minor

Construction Management Minor

For UW undergraduate students in other majors, a Minor in Construction Management may be earned by:

Completing any 15 credits with a CM prefix, with the exceptions listed below.

Architectural Engineering majors will not be permitted to use the following courses to satisfy the Minor requirement (or as ARE Major Electives), because they duplicate content in required courses in their major:

CM 2120: Construction Materials and Methods

CM 2200: Structures

CM 2400: MEP Systems

CM 2600: Construction Documents

CM 3220: Soils and Concrete

CM 4600: Building Info. Modeling

Civil Engineering majors will not be permitted to use the following courses to satisfy the Minor requirements (or as CE MSTP Electives), because they duplicate content in required courses in their major:

CM 2200: Structures

CM 3220: Soils and Concrete

Minors in Construction Management are not accredited

Land Surveying Minor

A minor in Land Surveying requires 31 hours of specific course work. This minor includes the Wyoming Board of Professional Engineers and Professional Land Surveyor's education requirements for a Land Surveyor in Training license. The Land Surveying minor may be paired with any major. All Land Surveying classes are offered as distance learning through Distance Education Programs.

Curriculum Requirements:

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2015 - Engineering Surveying Laboratory

Credits: 1

Field surveying activities consisting of traversing, differential leveling, construction staking and gathering topographic data.

Former Course Number [CE 2073]

Prerequisite: LS 2010 or concurrent.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2110 - Real Property Law

Credits: 3

Covers all major areas of real property law, including the nature of real property, types of ownership, real estate contracts, title and insurance, financing, landlord and tenant, land use, environmental law and regulation. An understanding of real property law is fundamental to understanding boundary law.

Former Course Number [CE 2050]

LS2400 - Basic Geodesy for Today's Land Surveyor

Credits: 2

The history of geodesy including measurement techniques, coordinate systems, ellipsoids, and datums is reviewed. The modern geodetic and Cartesian coordinates systems, as well as the differences between grid and ground coordinates systems, and the current geodetic and Cartesian coordinate systems available today are discussed.

Former Course Number [CE 2089]

Prerequisite: CE 2070 or LS 2010.

LS3100 - Real Property Descriptions

Credits: 2

Historical and current issues for land description writing and usage for the practicing surveyor. Relationship between written descriptions and field survey data, interpreting old descriptions and the structure principles of description.

Former Course Number [CE 2088]

Prerequisite: CE 2070 or LS 2010, and LS 2100 and LS 2110.

LS3110 - Boundary Evidence

Credits: 2

A practical and working guide to understanding survey evidence and the laws of boundary location for efficient, accurate boundary determination. This material aids in the elimination of errors in location of land boundaries. The surveyor's liability and statutes of limitations are explored in depth. Also included are discussions of the surveyor's role in court. Normally offered only through the Outreach School.

Former Course Number [CE 3750]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3120 - Boundary Principles

Credits: 2

This course in boundary law addresses the fundamental principles of real property as applied to land surveying and related professions. Discussion and applications center on practical situations and concepts commonly encountered

while conducting boundary surveys and the determination of the extent of ownership rights. Students explore the scope of the surveyors' judiciary role in real property ownership. Primarily offered through the Outreach School.

Former Course Number [CE 3740]

Prerequisite: CE 2070 or LS 2010, and LS 3100 and LS 2110.

LS3130 - Public Land Surveys

Credits: 3

Basic fundamentals of the Public Land Survey System (PLSS), dependent and independent resurveys, survey plats, "bona fide rights", riparian boundaries, non-rectangular entities, corner evidence and the role of the modern day surveyor.

Former Course Number [CE 2085]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3200 - Route Surveying

Credits: 3

Laying out of super elevation and circular, parabolic, and spiral curves; the difference between highway and railway horizontal curve geometry; offsets to spiral curves as boundaries; area and volumes of earthwork.

Former Course Number [CE 3710, CE 4710]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

Total Credits: 31 Hours

¹ Computer Aided Drafting 1 offered through Sheridan College Outreach Programs.

The intent of this application based minor is to prepare the student for the pursuit of Professional Licensure. Those only seeking the remote learning Land Surveying courses should see the Cadastral Land Surveying Certificate found at <http://www.uwyo.edu/civil/landsurvey/>.

Graduate

Architectural Engineering, M.S.

The MSCE Quick Start (Plan A) program in Civil and Architectural Engineering (CAE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor of science (BS) degree in Civil Engineering or Architectural Engineering. These students must apply for admission to the Quick Start (Plan A) program no later than the second semester of their junior year. Areas of study in the master of science program include: building mechanical systems, building energy modeling, structural engineering. The master of science degree in each of these areas requires completion of 12 to 18 hours of engineering courses related to the particular program area.

Plan A (Thesis)

The degree of master of science, Plan A, requires a minimum of 26 hours of coursework and a minimum of 4 hours thesis research in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework for approval by the departmental graduate studies committee (AREGS), and the department head.

Plan A is required of all state or contract supported graduate assistants.

Plan B (Non-thesis)

Requires a minimum of 30 hours of coursework and a Plan B paper, in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework and the course number that the Plan B paper covers for approval by the AREGS and the department head.

Civil Engineering, M.S.

Program Specific Degree Requirements

Master's Program

Areas of study in the master of science program include: building mechanical systems engineering, environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources engineering. The master of science degree in each of these areas requires completion of 12 to 18 hours of engineering courses related to the particular program area.

Plan A (Thesis)

The degree of master of science, Plan A, requires a minimum of 26 hours of coursework and a minimum of 4 hours thesis research in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework for approval by the departmental graduate studies committee (CEGS), and the department head.

Plan A is required of all state or contract supported graduate assistants.

Plan B (Non-Thesis)

Requires a minimum of 30 hours of coursework and a Plan B paper, in addition to the minimum requirements set forth in this bulletin.

Early in the program, the student must submit a program of study listing coursework and the course number that the Plan B paper covers for approval by the CEGS and the department head.

Civil Engineering, Ph.D.

Areas of study in the doctor of philosophy program include: building mechanical systems engineering, environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources engineering.

Minimum of 42 hours of coursework beyond the baccalaureate, 36 hours of which must be 5000-level (graduate-level) courses or the equivalent, and concentrated independent research leading to an acceptable dissertation.

In addition to expertise in the specific dissertation topic, the candidate must demonstrate competence in two or more research areas that will help to insure a high-quality dissertation acceptable to the student's graduate committee.

Subject to department and university requirements, the student's coursework is arranged by consultation between the student, his or her adviser, and his or her committee, and must also be approved by the CEGS and by the department head.

Coursework is defined in a program of study that should be filed by the end of the second semester of the Ph.D. program.

At a time near the completion of formal coursework, the student is required to take and pass a preliminary examination on the Ph.D. coursework and, as a part of the examination, is required to present a written and oral dissertation proposal to his or her committee for approval.

Finally, the student must demonstrate research competence in an oral defense of the dissertation and must submit an acceptable written version of the dissertation to his or her graduate committee in a timely manner to meet deadlines. In addition, the student is to meet the minimum requirements set forth in this bulletin.

Certificate

Cadastral Surveying Certificate

Program Information

- Students must be properly admitted as Cadastral Surveying Certificate students through the University of Wyoming Admissions Office to be eligible for this Certificate.

- This certificate requires a minimum of 30 semester hours as listed below. 21 credit hours must be successfully completed at the University of Wyoming.
- All transfer credit is subject to review by the UW Land Surveying Director.
- A grade of C or better must be earned in each course.
- The Certificate meets the Wyoming Board of Professional Engineers and Land Surveying licensing requirements for the surveying specific course work required to apply to be a Land Surveyor in Training (LSIT).
- Students earning the Cadastral Surveying Certificate are NOT eligible for Federal Financial Aid. Students may utilize private student loan programs available through the Student Financial Aid Office.
- The UW Cadastral Surveying program is not ABET Accredited.
- Students should have a working knowledge of algebra and trigonometry, and some experience with spreadsheets prior to beginning in this program.
- AutoCAD Civil 3D is recommended.

Course Requirements

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2110 - Real Property Law

Credits: 3

Covers all major areas of real property law, including the nature of real property, types of ownership, real estate contracts, title and insurance, financing, landlord and tenant, land use, environmental law and regulation. An understanding of real property law is fundamental to understanding boundary law.

Former Course Number [CE 2050]

LS2400 - Basic Geodesy for Today's Land Surveyor

Credits: 2

The history of geodesy including measurement techniques, coordinate systems, ellipsoids, and datums is reviewed. The modern geodetic and Cartesian coordinates systems, as well as the differences between grid and ground coordinates systems, and the current geodetic and Cartesian coordinate systems available today are discussed.

Former Course Number [CE 2089]

Prerequisite: CE 2070 or LS 2010.

LS3100 - Real Property Descriptions

Credits: 2

Historical and current issues for land description writing and usage for the practicing surveyor. Relationship between written descriptions and field survey data, interpreting old descriptions and the structure principles of description.

Former Course Number [CE 2088]

Prerequisite: CE 2070 or LS 2010, and LS 2100 and LS 2110.

LS3110 - Boundary Evidence

Credits: 2

A practical and working guide to understanding survey evidence and the laws of boundary location for efficient, accurate boundary determination. This material aids in the elimination of errors in location of land boundaries. The surveyor's liability and statutes of limitations are explored in depth. Also included are discussions of the surveyor's role in court. Normally offered only through the Outreach School.

Former Course Number [CE 3750]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3120 - Boundary Principles

Credits: 2

This course in boundary law addresses the fundamental principles of real property as applied to land surveying and related professions. Discussion and applications center on practical situations and concepts commonly encountered while conducting boundary surveys and the determination of the extent of ownership rights. Students explore the scope of the surveyors' judiciary role in real property ownership. Primarily offered through the Outreach School.

Former Course Number [CE 3740]

Prerequisite: CE 2070 or LS 2010, and LS 3100 and LS 2110.

LS3130 - Public Land Surveys

Credits: 3

Basic fundamentals of the Public Land Survey System (PLSS), dependent and independent resurveys, survey plats, "bona fide rights", riparian boundaries, non-rectangular entities, corner evidence and the role of the modern day surveyor.

Former Course Number [CE 2085]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3200 - Route Surveying

Credits: 3

Laying out of super elevation and circular, parabolic, and spiral curves; the difference between highway and railway horizontal curve geometry; offsets to spiral curves as boundaries; area and volumes of earthwork.

Former Course Number [CE 3710, CE 4710]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

Required Credits: 30 Hours Minimum

QuickStart Program

Civil and Architectural Engineering Quick Start, B.S./M.S.

The MSCE Quick Start (Plan A) program in Civil and Architectural Engineering (CAE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their bachelor of science (BS) degree in Civil Engineering or Architectural Engineering.

Department of Electrical Engineering and Computer Science

5068 Engineering Building, (307) 766-2279

FAX: (307) 766-2248

Web site: www.uwyo.edu/electrical and www.uwyo.edu/cosc

Professors:

STEVEN F. BARRETT, B.S. University of Nebraska 1979; M.E. University of Idaho 1986; Ph.D. University of Texas 1993; Professor of Electrical Engineering 2011, 1999.

RUBEN GAMBOA, B.S. Angelo State University 1984; M.C.S. Texas A&M University 1986; Ph.D. The University of Texas 1999; Professor of Computer Science 2015, 2002.

JOHN M. HITCHCOCK, B.S. Iowa State University 1999; M.S. 2001; Ph.D. 2003; Professor of Computer Science 2015, 2003.

JOHN E. McINROY, B.S. University of Wyoming 1986; M.S. Rensselaer Polytechnic Institute 1988; Ph.D. 1991; Professor of Electrical Engineering 2002, 1991.

SURESH S. MUKNAHALLIPATNA, B.E. University of Bangalore, India 1988; M.E. 1991; Ph.D. University of Wyoming 1995; Professor of Electrical Engineering 2010, 1997.

JOHN W. PIERRE, B.S. Montana State University 1986; M.S. University of Minnesota 1989; Ph.D. 1991; Professor of Electrical Engineering 2002, 1991.

CAMERON H.G. WRIGHT, B.S. Louisiana Tech University 1983; M.S. Purdue University 1988; Ph.D. University of Texas 1996; Professor of Electrical Engineering 2016, 2003.

Associate Professors:

AMY BANIC, B.S. Duquesne University 2003; M.S. University of North Carolina 2005; Ph.D. 2008; Associate Professor of Computer Science 2012, 2010.

MIKE BOROWCZAK, B.S. University of Cincinnati 2007; Ph.D. 2013; Associate Professor of Computer Science 2022.

DONGLIANG DUAN, B.E. Huazhong University of Science and Technology 2006; M.S. University of Florida 2009; Ph.D. Colorado State University 2012; Associate Professor of Electrical Engineering 2019, 2012.

EVA S. FERRE-PIKAL, B.S. University of Puerto Rico 1988; M.S. University of Michigan 1989; Ph.D. University of Colorado 1996; Associate Professor of Electrical Engineering 2004, 1998.

JOHN F. O'BRIEN, B.S. California State Polytechnic University, Pomona 1991; M.S. University of Wyoming 1997; Ph.D. Rensselaer Polytechnic Institute 2001; Associate Professor of Electrical Engineering 2009, 2003.

JON M. PIKAL, B.S. Purdue University 1988; M.S. University of Colorado 1993; Ph.D. Colorado State University 1999; Associate Professor of Electrical Engineering 2005, 1999.

Assistant Professors:

CHAO JIANG, B.E. Chongqing University 2009; Ph.D. Stevens Institute of Technology 2019; Assistant Professor of Electrical and Computer Engineering 2019.

LARS KOTTHOFF, Diplom (M.Sc.) University of Leipzig 2007; Ph.D. University of St. Andrews 2012; Assistant Professor of Computer Science 2017.

NGA NGUYEN, B.S. Hanoi University of Science and Technology 2005; M.S. 2007; Ph.D. Michigan State University 2017; Assistant Professor of Electrical and Computer Engineering 2018.

DIKSHA SHUKLA, B.S. Kanpur University 2008; M.C.A. Jawaharlal Nehru University 2011; M.S. Louisiana Tech University 2014; Ph.D. Syracuse University 2019; Assistant Professor of Computer Science 2019.

Senior Lecturer:

JAMES S. WARD, B.S. University of Wyoming 1993; M.S. 1997; Senior Lecturer of Computer Science 2011, 2000.

Associate Lecturer:

KIM BUCKNER, B.S. Chapman University 1993; M.S. University of Tennessee, Knoxville 1998; Ph.D. 2003; Associate Lecturer of Computer Science 2014, 2008.

Adjunct Faculty:

Robin Hill, Elena Oggero, Guido Pagnacco

Professors Emeriti:

Thomas A. Bailey, Jr., Mark Balas, Henry R. Bauer III, James L. Caldwell, Christos T. Constantinides, John R. Cowles, Jerry J. Cupal, Clifford D. Ferris, Jerry Hamann, Raymond G. Jacquot, Robert F. Kubichek, Stanislaw Legowski, John Rowland, John W. Steadman, A.H.M. Sadrul Ula, David Whitman

Lecturer Emeritus:

Jeri R. Hanly

Computer Science

A Bachelor of Science degree (B.S.) in Computer Science prepares students for careers in virtually any industry or to continue on with graduate study in Computer Science and many other fields. Computer science students learn to approach problems from a computational (algorithmic) point of view, and this approach to problem solving often leads to better and more general solutions. Software systems, information technology, and large scale data applications are core technologies in every area and the applications continue to grow with software and information systems becoming more and more embedded in the fabric of everyday life. These systems are essential tools in science and engineering, for business and finance, government, communications, medicine, and entertainment. Software systems make the world go round and smart devices, such as phones, tablets, glasses, wearable devices, medical implants are ubiquitous. As a result, computer science has grown from a specialized field to an independent, broadly based area that studies all aspects of the use and understanding of software systems, information, and computational processes. Students studying B.S. in Computer Science at the University of Wyoming have the option to focus their studies by taking a concentration in Business, Big Data, or the Cybersecurity certificate. The Cybersecurity certificate captures core technical cyber security foundations and principles, from databases and networks to advanced threat detection and mitigation. All of the Computer Science concentrations lead to a Bachelor of Science in Computer Science and all programs are ABET accredited.

Program Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Program Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Graduate Study - Computer Science

The Department offers graduate work leading to the Master of Science degree in computer science and the Doctor of Philosophy in computer science. The Department also offers a graduate minor in computer science.

Program Specific Admission Requirement

Applicants for a graduate degree in computer science are expected to have completed undergraduate courses in Algorithms and Data Structures (COSC 3020 equivalent), Theory of Computing (COSC 4100 or COSC 4200 equivalent), Operating Systems (COSC 4740 equivalent), and Programming languages or Compilers (COSC 4780 or COSC 4785 equivalent). Applicants to the doctoral program must have completed a bachelor's or master's degree in computer science or a closely related discipline at an accredited university or college.

The Graduate Record Examination (GRE) is required of all applicants. GRE scores are required with minimums of 40th percentile for the verbal score and 65th percentile for the quantitative score. Our strongest students tend to have scores substantially above these minimums, with quantitative scores often around the 90th percentile or higher.

Students whose native language is not English must also complete the Test of English as a Foreign Language (TOEFL) with a score of at least 550 on the paper based TOEFL; 213 on the computerized test including a 58 or better in section 1-Reading; 80 for the Internet based TOEFL (iBT) including a score of 23 or better in section 1-Reading or the International English Language Testing System (IELTS) test with a 6.5 score or better. Students may also use the Duolingo exam, with a minimum of 105 overall and 125 in the Literacy section.

You must submit to the online application system contact information for three references that can evaluate your potential for graduate study in computer science. If you wish to pursue a Ph.D., the letters should address your ability to pursue quality original research. Letters should also evaluate your oral and written communication skills.

If you meet the minimum criteria and would like to formally apply for admission you will also need to submit the following information during the completion of your application via the application portal:

Copies of transcripts from all colleges and universities (minimum GPA or equivalent 3.000 on a scale of 4.000) for all degrees attained. International applicants must submit copies of individual semester transcripts, consolidated transcripts will not be accepted.

Copy of GRE scores a minimum percentile of 40% on verbal and 65% on quantitative portions of the exam. The majority of admitted students tend to have scores substantially above these minimums.

Contact information for three recommendation letters (applicants should follow-up with recommenders to ensure this requirement is fulfilled; applications will not be processed further until all recommendations have been received).

International students will also need to submit a copy of TOEFL scores, IELTS scores, or Duolingo scores.

High performing undergraduates in computer science can elect for Quick Start admission to the graduate program, allowing the sharing of up to six credit hours of 5000-level coursework toward the completion of both the B.S. and the graduate degree programs.

Electrical Engineering

The program of study outlined in the curriculum has been planned to provide the depth of understanding necessary to meet challenges of changing technology while being flexible enough to allow students to pursue in-depth study in at least one area of electrical engineering. In order to attain this, students are required to gain an understanding of mathematics and the basic engineering sciences. The fundamental electrical engineering education consists of courses in circuits, networks, electromagnetics, electronics, digital systems, communications, controls and energy conversion. Selection of elective courses, in consultation with the academic adviser, enables students to specialize in the above mentioned areas, as well as in robotics, microcircuits, microprocessors and high frequency electronics.

Laboratory work associated with electrical engineering courses is an important part of the curricula. This work helps students gain experience in applying the theoretical knowledge they acquire to practical engineering problems.

Engineering design is an important component of the curriculum that concludes with a significant design experience in the senior year. Additional programs are described below.

F.M. Long Bioengineering Option. Named in honor of UW Professor Francis M. Long, this area offers excellent opportunities for those interested in applying the techniques of the electronic engineer to problems of environmental science, biology and medicine. Employment opportunities exist in state and federal agencies, industry and medical institutions. Career placement includes such areas as environmental monitoring, design and development of biological and medical instrumentation and clinical engineering. With minor modifications, the curriculum shown may be used as preparation for entrance to medical or dental school.

Computer Engineering

Computer Engineering is a blend of Computer Science and Electrical Engineering. In fact, a Computer Engineering student can change majors to Computer Science within the first three semesters without losing any credits. More careful planning is required to switch from Computer Science to Computer Engineering. Computer Engineering students receive training that allows them to design complex computer systems and embed them in custom applications such as robots, spacecraft, automobiles, etc. A typical system may interface with a sensor to measure the world, then decide how to best use the information to achieve goals and eventually turn on actuators which perform the needed task. They also develop computer vision systems, high performance computers and software, and the internet of things. They take many of the same required courses as Electrical Engineers, but fill in their electives with computer specific courses. Graduates have the ability to design electric circuits, understand network hardware, design computer systems, and write the software inside those systems. Compared to Electrical Engineers, Computer Engineers have less breadth of knowledge in Electrical Engineering but more depth in software and computer hardware. Compared to Computer Scientists, Computer Engineers know much more about hardware and signal/system theory. Computer Engineers sometimes also major in either Electrical Engineering or Computer Science to get two degrees.

Grade Policy

Electrical and computer engineering majors must achieve a grade of C (2.000) or better on courses that are prerequisites for courses within the student's course of study. Students must also achieve a grade of C (2.000) or better in all required mathematics courses.

Concurrent Major and Minor

The department offers a concurrent major and minor in both the electrical engineering and computer engineering programs. Consult the department office for a current detailed list of requirements.

Program Educational Objectives for Electrical and Computer Engineering

Graduates of the University of Wyoming Electrical and Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

University of Wyoming, Electrical and Computer Engineering Program, Student Outcomes

All Electrical (Computer) Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Graduate Program - Electrical Engineering

The department offers programs of study leading to the Master of Science and Doctor of Philosophy degrees in electrical engineering. Study programs are individually planned to students' interests in both course work and research. The areas of major concentration at the graduate level are:

- Bio-Engineering
- Controls
- Electrical Energy Systems
- Electronic Systems and Devices
- Robotics
- Signal Processing and Computer Networks

The department also offers a combined B.S./M.S. program for exceptional students wishing to obtain both degrees in a shorter period of time.

Program Specific Admission Requirements

Statement of purpose

Official transcripts from all post-secondary institutions attended

GRE verbal percentile minimum of 45 percent. GRE quantitative percentile minimum of 65 percent.

TOEFL total of 79 iBT or IELTS total 6.5.

Program Specific Graduate Assistantships

Additionally, all international students who are state-funded teaching assistantships or any international student with teaching responsibilities are required to complete an Oral Proficiency Interview (OPI). Students will need to follow the recommendations to improve their English skills. Students on state-funding who fail to follow the recommendations or

do not meet the minimum proficiency by the end of their first semester will not be able to receive any state-funding until they have demonstrated proficiency.

Major

Computer Engineering, B.S.

A B.S. in Computer Engineering provides the knowledge needed for careers in computer programming & design. It is a blend of Computer Science and Electrical Engineering and is often used to develop special purpose computers like those in your car.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Math & Science

MATH2200 - Calculus I

Credits: 4
Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and

organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

- 3 credits of an approved Math/Science Elective ²

Engineering Science

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

Electrical Engineering

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE2390 - Digital Systems Design

Credits: 4

Binary logic, digital logic gates, reduction of Boolean expressions, combinational logic design. MSI and LSI combinational logic ICs, flip-flops, synchronous and asynchronous sequential systems design, MSI and LSI sequential system ICs, and algorithmic state machines.

Prerequisite: COSC 1010 or COSC 1015 or COSC 1030 or ES 1060, and MATH 2205.

EE3150 - Electromagnetics

Credits: 3

A thorough study of static electric and magnetic fields using vector methods with an introduction to dynamic fields.

Prerequisite: ES 2210, or ES 2215 and ES 2216, MATH 2210, and PHYS 1220 or concurrent enrollment.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution;

difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

EE3311 - Electronics I

Credits: 3

Physical characteristics and models of semiconductor devices with application to electronic circuit design. Diode circuits, single transistor amplifiers, biasing, and load lines. Prerequisites: (PHYS 1220 or PHYS 1320 or EE 3150), and EE 2220 or concurrent enrollment.(Offered fall semester only)

Prerequisite: PHYS 1220 or PHYS 1320 or EE 3150, and EE 2220 or concurrent enrollment

EE3312 - Electronics I Laboratory

Credits: 1

Hands on interactive laboratory investigation of the physical characteristics of semiconductor devices and applications in electronic circuit design. Study of diode and transistor characteristics as well as diode circuits and single transistor amplifier circuit design, construction and testing. Prerequisites: EE3311 must be taken either concurrently or as a prerequisite. (Offered fall semester only)

When Offered (Offered fall semester only)

Prerequisite: EE3311 must be taken either concurrently or as a prerequisite.

EE3331 - Electronics II

Credits: 3

Current sources, differential and multistage amplifiers; circuits with ideal and non-ideal operational amplifiers; low and high band frequency response, feedback, stability, gain and phase margin of amplifiers; output stages, class A and push-pull; monolithic operational amplifier; oscillators; transistors as switches and introduction to digital electronic circuits. Laboratory. Prerequisites: (EE 3310 or EE 3311) and EE 2220. (Offered spring semester only)

When Offered (Offered spring semester only)

Prerequisite: (EE 3312 or EE 3311) and EE 2220

EE3332 - Electronics II Laboratory

Credits: 1

Hands on interactive laboratory investigation of transistor switching circuits, differential amplifiers, current sources, amplifier frequency response, feedback, output stages, and oscillators. Prerequisites: EE 3312 and EE 3331 concurrently (offered spring semester only).

Prerequisite: EE 3312 and EE 3331 concurrently

EE4220 - Probabilistic Signals and Systems

Credits: 3

Fundamentals of probability and statistics for engineers; reliability in engineering systems; random processes, statistical estimation, auto/ cross correlation and power spectral density functions and linear filtering of random signals.

Prerequisite: MATH 2210 and EE 3220. EE 3220 may be taken concurrently.

EE4390 - Microprocessors

Credits: 3

Design of microcomputers, controllers and instruments which use microprocessors. Semiconductor memory design, CPU architecture, bus structure and timing, input-output interfaces and devices, assembly language programming, assemblers, compilers, editors and simulators. Emphasizes design techniques. Laboratory.

When Offered (Normally offered once a year)

Prerequisite: EE 2390.

EE4490 - Hardware Descriptive Language (HDL) Digital Design

Credits: 3

Hardware Description Language design of digital systems. Industrial CAD tools are used to produce a functional description of hardware that is both simulated and then synthesized into hardware. Methods to describe both combinational logic and synchronous devices are given. Devices such as CPLDs and FPGAs are targeted in this design process. Emphasizes design techniques.

Prerequisite: EE 2390.

EE4820 - Senior Design I

Credits: 2

Students choose a senior design project and complete the preliminary design. This stage of senior design includes investigation of alternative solutions that meet the project's requirements, cost analysis, and building the prototype circuit. Periodic oral and written project progress reports are required.

When Offered (Offered fall semester only)

Prerequisite: EE 2220, EE 2390, and EE 3312 or concurrent enrollment, plus 6 hours of 4000 level EE/BE classes, or concurrent enrollment. COM2 must be passed with a C or better grade.

EE4830 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in EE 4820. The final result of the senior design project includes assembly of a PC board hardware that meets the project's requirements and final report describing the design procedure, designed hardware and software, and results of final testing. Periodic oral and written project progress reports are required.

When Offered (Offered spring semester only)

Prerequisite: EE 4820 and selected courses in the area of the design project.

EE4870 - Computer Network Hardware

Credits: 4

Basic LANs, Ethernet LAN architecture, and classical Ethernet CSMA/CD MAC protocol. 10Mbps, 100 Mbps, and gigabit Ethernet architecture. Introduction to switching, queuing theory, architecture, design and performance analysis of switch fabrics. Architecture, design, algorithms and performance analysis of Routing. Cellular Networks. TCP/IP Protocol.

Prerequisite: EE 2390.

OR

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

Computer Science

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

CPEN Electives

12 credits from the following list.

A maximum of two CPEN elective courses can be from the computer science department.

EE 4075 is not allowed as a CPEN Elective.

EE4245 - Digital Signal Processing

Credits: 3

Sampling and oversampling A/D's; FIR and IIR digital filter design, effects of quantization, practical realizations; applications of the discrete and fast Fourier Transform (DFT and FFT); correlation, periodograms, window effects, multi-rate techniques, multi-dimensional signal processing, and other topics in digital signal processing.

Prerequisite: EE 3220.

EE4340 - Semiconductor Materials and Devices

Credits: 3

Physical properties of semiconductor materials and devices, including crystal lattices and energy bands, carrier generation, transport, and recombination. PN, metal-semiconductor, and heterojunction operation. Field Effect Transistors, including Metal Oxide Semiconductor (MOSFET), Junction (JFET), MEtal Semiconductor (MESFET), and High Electron Mobility (HEMT) transistors. Bipolar Junction (BJT) and Heterojunction (HBT) Transistor operation.

Cross Listed PHYS 4340.

Prerequisite: PHYS 1220 or PHYS 1320.

EE4345 - Hardware Digital Signal Processing

Credits: 3

Hands-on introduction to real-time digital signal processing. Programming DSP algorithms using C on modern DSP hardware. Students gain deep understanding of fundamental DSP concepts by implementing selected applications including sampling, reconstruction, FIR and IIR filters, signal generation, and FFT. Hardware concepts include EDMA,

memory maps, interrupts, buffered serial ports.

Prerequisite: EE 3220.

EE4360 - VLSI Design

Credits: 3

Introduction to CMOS processing, MOS fundamentals including devices models; switching and timing; analog subcircuits and amplifiers; inverters and CMOS gates; concept of standard cells and fully custom design; use of SPICE, digital simulation, and chip layout and verification software.

Prerequisite: EE 2390, and EE 3331 or concurrent enrollment.

EE4440 - Communication Theory

Credits: 3

Amplitude and angle modulation and demodulation; digital baseband and carrier communication systems; performance of communication systems; and current topics in communication systems.

When Offered (Normally offered once a year)

Prerequisite: EE 3220 and EE 4220.

EE4590 - Real Time Embedded Systems

Credits: 3

Emphasizes a systems approach to real time embedded systems. Students are expected to apply methodical system design practices to designing and implementing a microprocessor-based real time embedded system. Students employ a robot-based educational platform to learn the intricacies of real time embedded systems, distributed processing, and fuzzy logic. Students learn processor input/output interfacing techniques. Students use state-of-the-art design and troubleshooting tools.

Dual Listed EE 5590.

Prerequisite: EE 4390.

EE4870 - Computer Network Hardware

Credits: 4

Basic LANs, Ethernet LAN architecture, and classical Ethernet CSMA/CD MAC protocol. 10Mbps, 100 Mbps, and gigabit Ethernet architecture. Introduction to switching, queuing theory, architecture, design and performance analysis of switch fabrics. Architecture, design, algorithms and performance analysis of Routing. Cellular Networks. TCP/IP Protocol.

Prerequisite: EE 2390.

EE4990 - Advanced Microprocessors

Credits: 3

Architecture and instruction set of Intel family of microprocessors; Intel System Development Kit and its monitor program; Microsoft Macro Assembler (MASM) and Visual C/C++ Express; modular programming; High level language compilers of object code; Interface design issues of peripheral devices to Personal Computer.

Prerequisite: EE 4390.

EE5390 - Computer Architecture

Credits: 3

Examines the various methodologies used in the design of high-performance computer systems. Topics include CISC and RISC architecture and instruction sets, pipelining, instruction-level parallelism, memory hierarchy (including cache) design and computer networks.

Prerequisite: EE 4390.

EE5410 - Neural and Fuzzy Systems

Credits: 3

Theory of feed forward and recurrent neural networks. Supervised and unsupervised learning theories. Fuzzy logic and systems. Associative memories. Matching and self-organizing networks. Application of neural and fuzzy systems.

Prerequisite: EE 3220.

EE5430 - 3-D Computer Vision

Credits: 3

This course is intended to provide a mathematical framework for describing three dimensional imaging and computer vision. Topics include 3-D coordinate transforms, image formation, camera calibration, reconstruction from two views, SIFT detection, hidden Markov models, Markov random fields, and "bag-of-words" visual description.

Prerequisite: EE 4220, MATH 2250.

EE5460 - Probabilistic Robotics

Credits: 3

Fundamental theory underlying the robust sensing and planning used in self-driving machines is developed. Topics covered are: Bayesian, Kalman, and Particle Filters; simple ground robot motion models; mobile robot localization; simultaneous localization and mapping; partially observable Markov decision processes.

Prerequisite: EE 4220.

EE5620 - Digital Image Processing

Credits: 3

Methodologies and algorithms for processing digital images by computer. Includes gray level transformations,

histogram analysis, spatial domain filtering, 2D Fourier transforms, frequency domain filtering, image restoration, and reconstruction of computer tomography (CT) medical images.

When Offered (Offered fall of even-numbered years)

Former Course Number [4530]

Prerequisite: EE 3220 or equivalent background.

EE5630 - Advanced Image Processing

Credits: 3

Introduces students to advanced aspects of image processing (IP), using specific applications to demonstrate these principles. Concepts such as medical imaging; color IP; wavelets and multiresolution IP; image compression; morphological IP; image segmentation, representation, description and understanding are covered.

Prerequisite: EE 5620.

EE5650 - Object and Pattern Recognition

Credits: 3

Introduces students to both fundamental and advanced aspects of object and pattern recognition, using specific applications to demonstrate these principles. Concepts such as Bayesian, maximum-likelihood, principal components, nonparametric, linear discriminant, multi-layer neural networks, etc., and the trade-offs and appropriateness of classification techniques are covered.

Prerequisite: EE 4220.

EE5670 - Digital Image Formation

Credits: 3

This course introduces fundamental aspects of practical digital image formation, using specific applications to demonstrate these principles. Standard CCD and CMOS cameras (both still and video) and standard camera lens systems are assumed.

Prerequisite: EE 3220 or equivalent background.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

COSC4210 - Web Application Development

Credits: 3

The course covers the basics of developing data driven web applications. Topics include using responsive design for user interfaces, architectural patterns and frameworks, object-relational mapping, language-integrated queries, authentication, authorization, unit testing, using source control for code management, publishing web applications and cloud computing.

Prerequisite: COSC 3011.

COSC4220 - Design and Implementation in Emerging Environments

Credits: 3

Students who have completed the analysis and design course extend their knowledge by implementing an information system in an emerging systems environment. Teams use project management principles to implement the system.

Prerequisite: COSC 4210.

COSC4450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the World Wide Web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 5450.

Prerequisite: COSC 3020 and MATH 2250.

COSC4550 - Introduction to Artificial Intelligence

Credits: 3

A computational study of intelligent behavior. Focus is on intelligent agents, which could be software agents or robots. Covers how agents sense, reason, and act within their environment. Includes problem-solving, search, knowledge representation, planning, game playing, learning, and neural and belief networks.

Dual Listed COSC 5550.

Prerequisite: COSC 3020.

COSC4555 - Machine Learning

Credits: 3

Goal is to program machines to learn and improve their performance on their own, based on experience and/or data. First half covers machine learning techniques; second half covers applications.

Dual Listed COSC 5555.

Prerequisite: COSC 3020.

COSC4560 - Modern Robots and Softbots

Credits: 3

Popular agent designs: logic-based, biomimetic, and physicomimetic. Foundational issues on internal robot and softbot knowledge representations. Planning and control, followed by issues of how agents can reason and plan under real-world conditions of environmental uncertainty. Concludes with discussions about papers on modern robot and softbot applications, as well as invited lectures by graduate students and faculty.

Dual Listed COSC 5560.

COSC4730 - Mobile Application Programming

Credits: 3

Introduces development of applications on mobile devices. Presents the principles, techniques, and tools for developing mobile applications. Differences between desktop applications and mobile applications are discussed.

Dual Listed COSC 5730.

Prerequisite: six hours of upper division COSC coursework.

COSC4735 - Advanced Mobile Programming

Credits: 3

Continues the development of applications on mobile devices. The focus is device sensors, such as camera, AR, VR, Bluetooth, embedded and connected devices.

Dual Listed COSC 5735.

Prerequisite: COSC 4730.

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

BE5410 - Rehabilitation Engineering

Credits: 3

This course covers the engineering principles of multiple rehabilitation technologies, including rehabilitation robots, exoskeletons, wearable sensors, electrical stimulators, implants, and virtual reality. Students will learn the technical and biological principles of all of these technologies via lectures, projects, and literature reviews.

Prerequisite: graduate standing.

MATH4500 - Matrix Theory

Credits: 3

Continuation from MATH 2250 of the study of matrices, an important tool in statistics, physics, engineering and applied mathematics in general. Concentrates on the structure of matrices, including diagonalizability; symmetric, hermitian and unitary matrices; and canonical forms such as Jordan form.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250.

EE/BE Elective

3 credits of an approved EE/BE Elective.

General Elective

1 credit of a general elective (1000 level or higher)

Total Credits: 128 Hours

¹ PHYS 1210: no credit can be earned in PHYS 1210 if taken after ES 2120. PHYS 1220 should be taken before or concurrently with ES 2210.

² One course from the ECE Math/Science Elective List. ABET requires a minimum of 30 hours of Math/Science courses.

³Or any ES, EE, BE course (>2000 level), or COSC 3011 or COSC 3750

⁴To meet the COM3 requirement with EE 4820 and EE 4830 the COM2 course must be taken before EE 4820. Also, EE 4820 and EE 4830 must be taken in sequence. COM 2 grade of C or better is required.

⁵ Network Congestion Control can also be taken to fulfill the CPEN network course requirement.

Online courses taken outside of the Wyoming system will not be considered for preapproved transfer.

Students must have a minimum cumulative GPA 2.000 in all Engineering courses for graduation.

A grade of C or better is required for all prerequisite courses.

Students must also achieve a grade of C or better in all required mathematics courses.

Students must complete a minimum of 42 hours of upper division coursework, 30 of which must from the University of Wyoming.

EE 1101 is the recommended FYS course for EE and CPEN majors

Computer Engineering Program Educational Objectives

Graduates of the University of Wyoming Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

Computer Engineering - Student Learning Outcomes

All Computer Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Computer Science, B.S.

Computer scientists learn the theory and practice of computing, which is essential in the modern world. A B.S. in Computer Science prepares you for a career designing, implementing, and securing software-intensive systems.

Computer Science General Information

Computer Science majors must satisfactorily meet the requirements of the University Studies Program (USP), and they must complete a minimum of 120 credit hours, at least 42 of which must be upper division hours.

Note that some of the courses required for the Computer Science core or the concentrations will meet some of the USP requirements. Students do not have to take additional courses to meet those requirements.

All courses in Computer Science, Mathematics, and Statistics must be completed with a grade of C or better.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Mathematics and Science Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed MATH 2300.

Prerequisite: COSC 1030, MATH 2200 or MATH 2350.

OR

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

- Approved Science course - 4 credits
 - Approved Science course - 4 credits
 - Approved Math/Science Elective - 4 credits
- ABET requires a minimum of 30 Math/Science credit hours.

Math elective means any MATH course above Calculus II or STAT courses 3000 and up.

Exceptions: cannot count MATH 2350, MATH 2355, MATH 4000, STAT 4220 [Inactive] or any variable credit courses toward this requirement.

Courses meeting the Science requirement must have a lab component and be for science or engineering majors. See Department web pages for a current list of approved courses.

Computer Science Courses

Introductory Programming Course - Choose one of:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

COSC3011 - Introduction to Software Design

Credits: 3

Introduces the principles and practice of software design, including UML and design patterns. Uses case studies to illustrate design in action.

Prerequisite: COSC 2030.

COSC3015 - Functional Programming

Credits: 3

Studies programming in the context of a functional language that emphasizes algorithmic strategies over syntactic detail.

Prerequisite: COSC 2030 and COSC 2300.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

Theory Course - Choose one of:

COSC4100 - Foundations of Computing

Credits: 3

Introduces several theoretical areas which are the basis of computer science. Languages and automata, computability, complexity, analysis of algorithms, logic, and the specification and correctness of programs.

Prerequisite: COSC 3020.

OR

COSC4200 - Computability and Complexity

Credits: 3

Introduction to theoretical study of computability and efficient computation. Finite-state and pushdown automata; turing machines and the Church-Turing thesis; undecidability, computational complexity; NP-completeness.

Prerequisite: COSC 3020.

Operating Systems Course - Choose one of:

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

OR

COSC3750 - Linux Programming for System Applications

Credits: 3

Provide the necessary tools and skills to begin programming effectively on UNIX and Linux operating systems. Topics will include, shells and basic shell scripting, Linux utilities, editors, compilation, I/O and the file system, sockets and interprocess communication, and time permitting, threads.

Prerequisite: COSC 2150 and COSC 2030.

Programming Language Course - Choose one of:

COSC4780 - Principles of Programming Languages

Credits: 3

Introduces the methods of analysis and design of programming languages. Covers syntax, typing schemes and the semantics (denotational and operational) in the context of functional and imperative programming languages. Students build interpreters to explore the implications of the different constructs on computational behavior.

Prerequisite: COSC 3015.

OR

COSC4785 - Compiler Construction

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 5785.

Prerequisite: COSC 2150 and COSC 3020.

Systems Course - Choose one of:

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

OR

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with

the problems and issues of database management.

Prerequisite: COSC 2030.

COSC4950 - Senior Design I

Credits: 1

Students choose a senior design project, investigate alternate solutions and submit a preliminary project design. Periodic oral and written project progress reports are required.

Prerequisite: COSC 3011 and COSC 3020.

COSC4955 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in COSC 4950. Successful communication of the details of the solution through written documents and oral presentations will be required.

Prerequisite: COSC 4950.

Electives

- 9 credits of COSC Electives (3000-level or above, not used to complete any other requirement)
- General Electives to reach 120 credits.

A total of 3 credits of COSC 3970 can be used.

Approved EE courses may also be taken as COSC electives. See Department web pages for a current list of approved courses.

General electives include any course at or above the 1000 level, not used to complete any other requirement.

Electives should be selected to meet the 42 hour requirement for Upper Division credits.

Computer Science Program Educational Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Computer Science - Student Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Computer Science, Big Data Concentration, B.S.

The B.S. in Computer Science with a Concentration on Big Data combines a rigorous education in Computer Science with statistics, preparing you for a career in computer science, data analysis, or machine learning.

Computer Science General Information

Computer Science majors must satisfactorily meet the requirements of the University Studies Program (USP), and they must complete a minimum of 120 credit hours, at least 42 of which must be upper division hours.

Note that some of the courses required for the Computer Science core or the concentrations will meet some of the USP requirements. Students do not have to take additional courses to meet those requirements.

All courses in Computer Science, Mathematics, and Statistics must be completed with a grade of C or better.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Mathematics and Science Courses:

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed MATH 2300.

Prerequisite: COSC 1030, MATH 2200 or MATH 2350.

OR

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

- Approved Science Course - 4 credits
 - Approved Science Course - 4 credits
 - Approved Math/Science Elective - 4 credits
- ABET requires a minimum of 30 Math/Science credits hours.

Math electives means any MATH course above Calculus II or STAT courses 3000 and up.

Exceptions: cannot count MATH 2350, MATH 2355, MATH 4000, STAT 4220 or any variable credit courses toward this requirement.

Courses meeting the Science requirement must have a lab component and be for science or engineering majors. See Department web pages for a current list of approved courses.

Computer Science Courses

Introductory Programming Course - Choose one of:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

COSC3011 - Introduction to Software Design

Credits: 3

Introduces the principles and practice of software design, including UML and design patterns. Uses case studies to illustrate design in action.

Prerequisite: COSC 2030.

COSC3015 - Functional Programming

Credits: 3

Studies programming in the context of a functional language that emphasizes algorithmic strategies over syntactic detail.

Prerequisite: COSC 2030 and COSC 2300.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

Theory Course - Choose one of:

COSC4100 - Foundations of Computing

Credits: 3

Introduces several theoretical areas which are the basis of computer science. Languages and automata, computability, complexity, analysis of algorithms, logic, and the specification and correctness of programs.

Prerequisite: COSC 3020.

OR

COSC4200 - Computability and Complexity

Credits: 3

Introduction to theoretical study of computability and efficient computation. Finite-state and pushdown automata; Turing machines and the Church-Turing thesis; undecidability, computational complexity; NP-completeness.

Prerequisite: COSC 3020.

Operating Systems - Choose one of:

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

OR

COSC3750 - Linux Programming for System Applications

Credits: 3

Provide the necessary tools and skills to begin programming effectively on UNIX and Linux operating systems. Topics will include, shells and basic shell scripting, Linux utilities, editors, compilation, I/O and the file system, sockets and interprocess communication, and time permitting, threads.

Prerequisite: COSC 2150 and COSC 2030.

Programming Language Course - Choose one of:

COSC4780 - Principles of Programming Languages

Credits: 3

Introduces the methods of analysis and design of programming languages. Covers syntax, typing schemes and the semantics (denotational and operational) in the context of functional and imperative programming languages. Students build interpreters to explore the implications of the different constructs on computational behavior.

Prerequisite: COSC 3015.

OR

COSC4785 - Compiler Construction

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 5785.

Prerequisite: COSC 2150 and COSC 3020.

Systems Course - Choose one of:

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

OR

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

COSC4950 - Senior Design I

Credits: 1

Students choose a senior design project, investigate alternate solutions and submit a preliminary project design. Periodic oral and written project progress reports are required.

Prerequisite: COSC 3011 and COSC 3020.

COSC4955 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in COSC 4950. Successful communication of the details of the solution through written documents and oral presentations will be required.

Prerequisite: COSC 4950.

Concentration Requirements

Big data is high volume, high velocity, and/or high variety assets that require new forms of processing to enable enhanced decision making, insight discovery and process optimization. The Big Data Concentration directs the students

toward data handling (AI, visualization, data mining, and machine learning) courses and data analysis (statistics) courses.

Students should take the following courses to fulfill the Big Data Concentration.

In addition, students who wish to pursue a Big Data concentration are required to complete a minor in Statistics.

COSC4450 - Computer Graphics

Credits: 3

Introduction to computer graphics, an increasingly important area of computer science. Computer graphics, together with multimedia and the World Wide Web, offers exciting new possibilities for the design of human-computer interfaces. Presents the principles, techniques, and tools that enable these advances.

Dual Listed COSC 5450.

Prerequisite: COSC 3020 and MATH 2250.

COSC4550 - Introduction to Artificial Intelligence

Credits: 3

A computational study of intelligent behavior. Focus is on intelligent agents, which could be software agents or robots. Covers how agents sense, reason, and act within their environment. Includes problem-solving, search, knowledge representation, planning, game playing, learning, and neural and belief networks.

Dual Listed COSC 5550.

Prerequisite: COSC 3020.

COSC4555 - Machine Learning

Credits: 3

Goal is to program machines to learn and improve their performance on their own, based on experience and/or data. First half covers machine learning techniques; second half covers applications.

Dual Listed COSC 5555.

Prerequisite: COSC 3020.

COSC4570 - Data Mining

Credits: 3

Examine methods that have emerged from artificial intelligence and statistics and proven to be of value in recognizing patterns and making predictions with large data sets. Will include both theory and practice while developing several projects.

Prerequisite: COSC 4550.

- Courses for Statistics Minor
 - General Electives to reach 120 credits.
- A total of 3 credits of COSC 3970 can be used.

General Electives include any course at or above the 1000 level, not used to complete any other requirement. Electives should be selected to meet the 42 hour requirement for Upper Division credits.

Computer Science Program Educational Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Computer Science - Student Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Computer Science, Computers and Business Concentration, B.S.

The B.S. in Computer Science with a Concentration on Computers and Business combines a rigorous education in Computer Science with an understanding of business processes, preparing you for a career applying computer science in the business world.

Computer Science General Information

Computer Science majors must satisfactorily meet the requirements of the University Studies Program (USP), and they must complete a minimum of 120 credit hours, at least 42 of which must be upper division hours.

Note that some of the courses required for the Computer Science core or the concentrations will meet some of the USP requirements. Students do not have to take additional courses to meet those requirements.

All courses in Computer Science, Mathematics, and Statistics must be completed with a grade of C or better.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Mathematics and Science Courses:

MATH2200 - Calculus I

Credits: 4
Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4
Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2250 - Elementary Linear Algebra

Credits: 3
Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

COSC2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed MATH 2300.

Prerequisite: COSC 1030, MATH 2200 or MATH 2350.

OR

MATH2300 - Discrete Structures

Credits: 3

Introduces the mathematical concepts that serve as foundations of computer science: logic, set theory, relations and functions, graphs (directed and undirected), inductively defined structures (lists and trees), and applications of mathematical induction. Provides an introduction to abstract and rigorous thinking in advanced mathematics and computer science.

Cross Listed COSC 2300.

Prerequisite: grade of C or better in COSC 1030 and in either MATH 2200 or MATH 2350.

- Approved Science Course - 4 credits
- Approved Science Course - 4 credits
- Approved Math/Science Elective - 4 credits

ABET requires a minimum of 30 Math/Science credit hours.

Math elective means any MATH course above Calculus II or STAT courses 3000 and up.

Exceptions: cannot count MATH 2350, MATH 2355, MATH 4000, STAT 4220 or any variable credit courses toward this requirement.

Courses meeting the Science requirement must have a lab component and be for science or engineering majors. See Department web pages for a current list of approved courses.

Computer Science Courses

Introductory Programming Course - Choose one of:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von

Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

COSC3011 - Introduction to Software Design

Credits: 3

Introduces the principles and practice of software design, including UML and design patterns. Uses case studies to illustrate design in action.

Prerequisite: COSC 2030.

COSC3015 - Functional Programming

Credits: 3

Studies programming in the context of a functional language that emphasizes algorithmic strategies over syntactic detail.

Prerequisite: COSC 2030 and COSC 2300.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

COSC3050 - Ethics for the Computer Professional

Credits: 1

The proliferation of computers has had a profound effect on our society. Computing professionals must be aware of the social and ethical implications of our activities. Examines the codes of behavior related to computer science through readings, discussions and case studies.

Prerequisite: junior standing and COSC major.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

Theory Course - Choose one of:

COSC4100 - Foundations of Computing

Credits: 3

Introduces several theoretical areas which are the basis of computer science. Languages and automata, computability, complexity, analysis of algorithms, logic, and the specification and correctness of programs.

Prerequisite: COSC 3020.

OR

COSC4200 - Computability and Complexity

Credits: 3

Introduction to theoretical study of computability and efficient computation. Finite-state and pushdown automata; turing machines and the Church-Turing thesis; undecidability, computational complexity; NP-completeness.

Prerequisite: COSC 3020.

Operating Systems - Choose one of:

COSC4740 - Operating Systems Design

Credits: 4

Studies systems programming languages and computer systems design. Includes interacting processes, main storage management, procedure and data sharing, scheduling, deadlock problems and file management in batch processing and multi-programming systems. Operating system implementation.

Prerequisite: COSC 2150 and COSC 3020.

OR

COSC3750 - Linux Programming for System Applications

Credits: 3

Provide the necessary tools and skills to begin programming effectively on UNIX and Linux operating systems. Topics will include, shells and basic shell scripting, Linux utilities, editors, compilation, I/O and the file system, sockets and interprocess communication, and time permitting, threads.

Prerequisite: COSC 2150 and COSC 2030.

Programming Language Course - Choose one of:

COSC4780 - Principles of Programming Languages

Credits: 3

Introduces the methods of analysis and design of programming languages. Covers syntax, typing schemes and the semantics (denotational and operational) in the context of functional and imperative programming languages. Students build interpreters to explore the implications of the different constructs on computational behavior.

Prerequisite: COSC 3015.

OR

COSC4785 - Compiler Construction

Credits: 3

Theory and implementation of interpreters and compilers. Compiler topics include lexical analysis, top-down and bottom-up parsing methods, symbol tables, and code generation from a block-structured language with recursion and parameters. Project uses compiler writing tools.

Dual Listed COSC 5785.

Prerequisite: COSC 2150 and COSC 3020.

Systems Course

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

COSC4950 - Senior Design I

Credits: 1

Students choose a senior design project, investigate alternate solutions and submit a preliminary project design. Periodic oral and written project progress reports are required.

Prerequisite: COSC 3011 and COSC 3020.

COSC4955 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in COSC 4950. Successful communication of the details of the solution through written documents and oral presentations will be required.

Prerequisite: COSC 4950.

Concentration Requirements

An understanding of business fundamentals is essential for students planning a career in applied computer science in a business environment.

Students should take COSC 4820 to satisfy the System Course requirement, and should take the following courses as part of the Computer and Business Concentration.

In addition, students who wish to pursue a Computers and Business concentration are required to complete one of the minors offered by the College of Business.

COSC4210 - Web Application Development

Credits: 3

The course covers the basics of developing data driven web applications. Topics include using responsive design for user interfaces, architectural patterns and frameworks, object-relational mapping, language-integrated queries, authentication, authorization, unit testing, using source control for code management, publishing web applications and cloud computing.

Prerequisite: COSC 3011.

COSC4220 - Design and Implementation in Emerging Environments

Credits: 3

Students who have completed the analysis and design course extend their knowledge by implementing an information system in an emerging systems environment. Teams use project management principles to implement the system.

Prerequisite: COSC 4210.

- 3 credits of COSC Electives (3000-level or above, not used to complete any other requirement)
 - Courses for Business Minor
 - General Electives to reach 120 credits
- A total of 3 credits of COSC 3970 can be used.
Approved EE courses may also be taken as COSC electives. See Department web pages for a current list of approved courses.
General electives include any course at or above the 1000 level, not used to complete any other requirement.
Electives should be selected to meet the 42 hour requirement for Upper Division credits.

Computer Science Program Educational Objectives

The following are the objectives that the Computer Science program is preparing its graduates to achieve:

Success: Graduates will be employed in a computer science-related field or making progress toward an advanced graduate degree.

Growing: Graduates show continued learning and leading in computing-related professions.

Ethics: Graduates exhibit ethical and responsible behavior in all professional and community endeavors.

Computer Science - Student Learning Outcomes

The program of study in Computer Science enables students to achieve, by the time of graduation:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Electrical Engineering, B.S.

A B.S. in Electrical Engineering provides the knowledge needed for careers in power systems, control systems, electronics, signal processing, tele-communications, computer programming & design.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Math & Science

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

- 3 credits of an approved Math/Science Elective ²

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

Electrical Engineering

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE2390 - Digital Systems Design

Credits: 4

Binary logic, digital logic gates, reduction of Boolean expressions, combinational logic design. MSI and LSI combinational logic ICs, flip-flops, synchronous and asynchronous sequential systems design, MSI and LSI sequential system ICs, and algorithmic state machines.

Prerequisite: COSC 1010 or COSC 1015 or COSC 1030 or ES 1060, and MATH 2205.

EE3150 - Electromagnetics

Credits: 3

A thorough study of static electric and magnetic fields using vector methods with an introduction to dynamic fields.

Prerequisite: ES 2210, or ES 2215 and ES 2216, MATH 2210, and PHYS 1220 or concurrent enrollment.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution; difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

EE3311 - Electronics I

Credits: 3

Physical characteristics and models of semiconductor devices with application to electronic circuit design. Diode circuits, single transistor amplifiers, biasing, and load lines. Prerequisites: (PHYS 1220 or PHYS 1320 or EE 3150), and EE 2220 or concurrent enrollment. (Offered fall semester only)

Prerequisite: PHYS 1220 or PHYS 1320 or EE 3150, and EE 2220 or concurrent enrollment

EE3312 - Electronics I Laboratory

Credits: 1

Hands on interactive laboratory investigation of the physical characteristics of semiconductor devices and applications in electronic circuit design. Study of diode and transistor characteristics as well as diode circuits and single transistor amplifier circuit design, construction and testing. Prerequisites: EE3311 must be taken either concurrently or as a prerequisite. (Offered fall semester only)

When Offered (Offered fall semester only)

Prerequisite: EE3311 must be taken either concurrently or as a prerequisite.

EE3331 - Electronics II

Credits: 3

Current sources, differential and multistage amplifiers; circuits with ideal and non-ideal operational amplifiers; low and high band frequency response, feedback, stability, gain and phase margin of amplifiers; output stages, class A and push-pull; monolithic operational amplifier; oscillators; transistors as switches and introduction to digital electronic circuits. Laboratory. Prerequisites: (EE 3310 or EE 3311) and EE 2220. (Offered spring semester only)

When Offered (Offered spring semester only)

Prerequisite: (EE 3312 or EE 3311) and EE 2220

EE3332 - Electronics II Laboratory

Credits: 1

Hands on interactive laboratory investigation of transistor switching circuits, differential amplifiers, current sources, amplifier frequency response, feedback, output stages, and oscillators. Prerequisites: EE 3312 and EE 3331 concurrently (offered spring semester only).

Prerequisite: EE 3312 and EE 3331 concurrently

EE3510 - Electric Machines and Power Systems

Credits: 4

Polyphase AC circuits; single phase and polyphase transformers; AC synchronous and induction machines; introduction to power systems and per unit system; transmission line parameters; steady-state operations of transmission lines; power flows; transient stability; synchrophasor system and its applications.

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE4075 - C++ with Numerical Methods for Engineers

Credits: 4

Introduction to the fundamentals of practical engineering programming, using specific applications of numerical methods to demonstrate these principles. The use of an object oriented approach using C++ in an efficient manner is emphasized. Other solution approaches, including C and Matlab will be discussed as appropriate.

A&S College Core 2015 Credit will not be allowed in both EE 4075 and ES 3070.

Prerequisite: MATH 2205 and (COSC 1010, COSC 1015, or ES 1060) and (MATH 2250 or MATH 2310) or consent of instructor.

EE4220 - Probabilistic Signals and Systems

Credits: 3

Fundamentals of probability and statistics for engineers; reliability in engineering systems; random processes, statistical estimation, auto/ cross correlation and power spectral density functions and linear filtering of random signals.

Prerequisite: MATH 2210 and EE 3220. EE 3220 may be taken concurrently.

EE4390 - Microprocessors

Credits: 3

Design of microcomputers, controllers and instruments which use microprocessors. Semiconductor memory design, CPU architecture, bus structure and timing, input-output interfaces and devices, assembly language programming, assemblers, compilers, editors and simulators. Emphasizes design techniques. Laboratory.

When Offered (Normally offered once a year)

Prerequisite: EE 2390.

EE4440 - Communication Theory

Credits: 3

Amplitude and angle modulation and demodulation; digital baseband and carrier communication systems; performance of communication systems; and current topics in communication systems.

When Offered (Normally offered once a year)

Prerequisite: EE 3220 and EE 4220.

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

EE4820 - Senior Design I

Credits: 2

Students choose a senior design project and complete the preliminary design. This stage of senior design includes investigation of alternative solutions that meet the project's requirements, cost analysis, and building the prototype circuit. Periodic oral and written project progress reports are required.

When Offered (Offered fall semester only)

Prerequisite: EE 2220, EE 2390, and EE 3312 or concurrent enrollment, plus 6 hours of 4000 level EE/BE classes, or concurrent enrollment. COM2 must be passed with a C or better grade.

EE4830 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in EE 4820. The final result of the senior design project includes assembly of a PC board hardware that meets the project's requirements and final report describing the design procedure, designed hardware and software, and results of final testing. Periodic oral and written project progress reports are required.

When Offered (Offered spring semester only)

Prerequisite: EE 4820 and selected courses in the area of the design project.

Advisor Approved Electives

- 15 credits of EE or BE Electives (4000-Level or Above)
- 4 credits Approved Technical Electives.⁵

Total Credits: 128 Hours

¹PHYS 1210: no credit can be earned in PHYS 1210 if taken after ES 2120. PHYS 1220 should be taken before or concurrently with ES 2210.

²One course from the ECE Math/Science Elective List. ABET requires a minimum of 30 hours of Math/ Science Electives.

³Or any ES, EE, BE course (>2000 level), or COSC 3011 or COSC 3750

⁴To meet the COM3 requirement with EE 4820 and EE 4830, the COM2 course must be taken before EE 4820. Also, EE 4820 and EE 4830 must be taken in sequence. COM 2 grade of C or better is required.

⁵Any course from the approved ECE technical elective list. Credit can be earned for professional internships or CO-OPs. Internships for Credit must go through EE 4800

Online courses taken outside of the Wyoming system will not be considered for preapproved Transfer.

Students must have a minimum cumulative GPA 2.000 in all Engineering courses for graduation.

A grade of C or better is required for all prerequisite courses.

Students must also achieve a grade of C or better in all required mathematics courses.

Students must complete a minimum of 42 hours of upper division coursework, 30 of which must from the University of Wyoming.

EE 1101 is the recommended FYS course for Electrical Engineering majors.

Electrical Engineering Program Educational Objectives

Graduates of the University of Wyoming Electrical and Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

Electrical Engineering - Student Learning Outcomes

All Electrical (Computer) Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Electrical Engineering, F.M. Long Bioengineering, B.S.

The Bioengineering B.S. is a degree in Electrical Engineering in which the electives are carefully taken to understand and design medical equipment. With a few more courses, it can serve as a pre-med or pre-dental program.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Math & Science

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

PHYS1210 - Engineering Physics I

Credits: 4

First course of a two-semester sequence. Provides introduction to physics with calculus for engineering students. Includes classical mechanics, gravitation and mechanical waves. Laboratory sessions illustrate principles studied. Students receiving credit for PHYS 1210 cannot receive credit for PHYS 1050, PHYS 1110, or PHYS 1310.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: a grade of C or higher in MATH 2200 and concurrent enrollment in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

Electrical Engineering

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE2390 - Digital Systems Design

Credits: 4

Binary logic, digital logic gates, reduction of Boolean expressions, combinational logic design. MSI and LSI combinational logic ICs, flip-flops, synchronous and asynchronous sequential systems design, MSI and LSI sequential system ICs, and algorithmic state machines.

Prerequisite: COSC 1010 or COSC 1015 or COSC 1030 or ES 1060, and MATH 2205.

EE3150 - Electromagnetics

Credits: 3

A thorough study of static electric and magnetic fields using vector methods with an introduction to dynamic fields.

Prerequisite: ES 2210, or ES 2215 and ES 2216, MATH 2210, and PHYS 1220 or concurrent enrollment.

EE3220 - Signals And Systems

Credits: 3

Discrete and continuous-time signals and systems. Topics include linear time-invariant systems; convolution; difference equations; FIR and IIR systems; sampling, aliasing, reconstruction, and quantization. Frequency domain concepts include discrete and continuous Fourier transforms, Z-transforms, system frequency response, Laplace transform properties, and applications of digital filters and DFT analysis.

When Offered (Offered spring semester only)

Prerequisite: EE 2220.

EE3311 - Electronics I

Credits: 3

Physical characteristics and models of semiconductor devices with application to electronic circuit design. Diode circuits, single transistor amplifiers, biasing, and load lines. Prerequisites: (PHYS 1220 or PHYS 1320 or EE 3150), and EE 2220 or concurrent enrollment.(Offered fall semester only)

Prerequisite: PHYS 1220 or PHYS 1320 or EE 3150, and EE 2220 or concurrent enrollment

EE3312 - Electronics I Laboratory

Credits: 1

Hands on interactive laboratory investigation of the physical characteristics of semiconductor devices and applications in electronic circuit design. Study of diode and transistor characteristics as well as diode circuits and single transistor amplifier circuit design, construction and testing. Prerequisites: EE3311 must be taken either concurrently or as a prerequisite. (Offered fall semester only)

When Offered (Offered fall semester only)

Prerequisite: EE3311 must be taken either concurrently or as a prerequisite.

EE3331 - Electronics II

Credits: 3

Current sources, differential and multistage amplifiers; circuits with ideal and non-ideal operational amplifiers; low and high band frequency response, feedback, stability, gain and phase margin of amplifiers; output stages, class A and push-pull; monolithic operational amplifier; oscillators; transistors as switches and introduction to digital electronic circuits. Laboratory. Prerequisites: (EE 3310 or EE 3311) and EE 2220. (Offered spring semester only)

When Offered (Offered spring semester only)

Prerequisite: (EE 3312 or EE 3311) and EE 2220

EE3332 - Electronics II Laboratory

Credits: 1

Hands on interactive laboratory investigation of transistor switching circuits, differential amplifiers, current sources, amplifier frequency response, feedback, output stages, and oscillators. Prerequisites: EE 3312 and EE 3331 concurrently (offered spring semester only).

Prerequisite: EE 3312 and EE 3331 concurrently

EE3510 - Electric Machines and Power Systems

Credits: 4

Polyphase AC circuits; single phase and polyphase transformers; AC synchronous and induction machines;

introduction to power systems and per unit system; transmission line parameters; steady-state operations of transmission lines; power flows; transient stability; synchrophasor system and its applications.

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE4075 - C++ with Numerical Methods for Engineers

Credits: 4

Introduction to the fundamentals of practical engineering programming, using specific applications of numerical methods to demonstrate these principles. The use of an object oriented approach using C++ in an efficient manner is emphasized. Other solution approaches, including C and Matlab will be discussed as appropriate.

A&S College Core 2015 Credit will not be allowed in both EE 4075 and ES 3070.

Prerequisite: MATH 2205 and (COSC 1010, COSC 1015, or ES 1060) and (MATH 2250 or MATH 2310) or consent of instructor.

EE4220 - Probabilistic Signals and Systems

Credits: 3

Fundamentals of probability and statistics for engineers; reliability in engineering systems; random processes, statistical estimation, auto/ cross correlation and power spectral density functions and linear filtering of random signals.

Prerequisite: MATH 2210 and EE 3220. EE 3220 may be taken concurrently.

EE4390 - Microprocessors

Credits: 3

Design of microcomputers, controllers and instruments which use microprocessors. Semiconductor memory design, CPU architecture, bus structure and timing, input-output interfaces and devices, assembly language programming, assemblers, compilers, editors and simulators. Emphasizes design techniques. Laboratory.

When Offered (Normally offered once a year)

Prerequisite: EE 2390.

EE4820 - Senior Design I

Credits: 2

Students choose a senior design project and complete the preliminary design. This stage of senior design includes investigation of alternative solutions that meet the project's requirements, cost analysis, and building the prototype circuit. Periodic oral and written project progress reports are required.

When Offered (Offered fall semester only)

Prerequisite: EE 2220, EE 2390, and EE 3312 or concurrent enrollment, plus 6 hours of 4000 level EE/BE classes, or concurrent enrollment. COM2 must be passed with a C or better grade.

EE4830 - Senior Design II

Credits: 2

Students complete the senior design project partially designed in EE 4820. The final result of the senior design project includes assembly of a PC board hardware that meets the project's requirements and final report describing the design procedure, designed hardware and software, and results of final testing. Periodic oral and written project progress reports are required.

When Offered (Offered spring semester only)

Prerequisite: EE 4820 and selected courses in the area of the design project.

Bio-Engineering and Electives

BE4810 - Bioinstrumentation

Credits: 3

Electronic systems used to monitor physiological systems and function (cardiovascular, pulmonary, nervous); transducer systems, amplifiers and recording systems used in research and clinical applications. Laboratory.

Dual Listed BE 5810.

Prerequisite: EE 2210 or similar electric circuit course.

BE4820 - Biomedical Signal Processing

Credits: 3

Extraction of signals from noise and data analysis. Emphasis on system modeling of physiological functions from experimental data.

Dual Listed BE 5810.

Prerequisite: EE 3220, basic course, or equivalent.

OR

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

- 3 credits of EE or BE Electives (4000-level or above)
- 3 credits Approved Technical Electives.⁴

Total Credits: 128 Hours

¹ PHYS 1210: no credit can be earned in PHYS 1210 if taken after ES 2120. PHYS 1220 should be taken before or concurrently with ES 2210.

² Or any ES, EE, BE course (>2000 level), or COSC 3011 or COSC 3750

³ To meet the COM3 requirement with EE 4820 and EE 4830 the COM2 course must be taken before EE 4820. Also, EE 4820 and EE 4830 must be taken in sequence. COM 2 grade of C or better is required.

⁴ Any course from the approved ECE technical elective list. Credit can be earned for professional internships or CO-OPs. Internships for Credit must go through EE 4800.

Online courses taken outside of the Wyoming system will not be considered for preapproved Transfer.

Students must have a minimum cumulative GPA 2.000 in all Engineering courses for graduation.

A grade of C or better is required for all prerequisite courses.

Students must also achieve a grade of C or better in all mathematics courses.

Students must complete a minimum of 42 hours of upper division coursework, 30 of which must from the University of Wyoming.

EE 1101 is the recommended FYS course for Electrical Engineering majors.

Electrical Engineering -F.M. Long Bioengineering Program Educational Objectives

Graduates of the University of Wyoming Electrical and Computer Engineering Program will:

- Be able to successfully practice the profession of Electrical or Computer Engineering.
- Be prepared and motivated to accept challenging assignments and responsibilities and be productive members of society.
- Demonstrate successful career growth (e.g., professional registration, graduate school, promotion and advancement, patents, publications).

Electrical Engineering, F.M. Long Bioengineering Student Learning Outcomes

All Electrical (Computer) Engineering graduates shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Minor

Computer Engineering Minor

Minor Requirements:

You must have a minimum of 12 credits of courses that are not counted toward your major.

COSC2150 - Computer Organization

Credits: 3

Introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts.

Cross Listed EE 2150

Prerequisite: COSC 1030.

EE4490 - Hardware Descriptive Language (HDL) Digital Design

Credits: 3

Hardware Description Language design of digital systems. Industrial CAD tools are used to produce a functional description of hardware that is both simulated and then synthesized into hardware. Methods to describe both combinational logic and synchronous devices are given. Devices such as CPLDs and FPGAs are targeted in this design process. Emphasizes design techniques.

Prerequisite: EE 2390.

- 17 credits of electrical engineering (EE) or CPEN Elective courses.

COSC Courses

The following COSC courses can also be used:

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

OR

COSC1015 - Introduction to Programming for Data Science

Credits: 3

Provides an accelerated introduction to computing in the setting of Data Science. Topics include basic programming techniques; data transformation; computing with vectors, matrices, and data frames; data visualization; and text processing.

USP 2015 Code U5Q

A&S College Core 2015 Credit may not be earned for both COSC 1010 and COSC 1015. Priority given to Engineering Honors students.

Prerequisite: grade of C or better in MATH 1400 or Level 4 or higher on the Math Placement Exam within one year prior to the start of the course.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

Computer Science Graduate Minor

A graduate minor in Computer Science gives you the skills and knowledge to understand how software-intensive systems are designed and implemented. With these skills, you can use computers to extend the state of the art in your major discipline.

Requirements:

12 credits are required, and must be completed with a grade of B or better.

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting,

hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- 9 additional credits of 5000-level computer science courses

Computer Science Minor

A minor in Computer Science gives you the skills and knowledge to understand how software-intensive systems are designed and implemented. With these skills, you can use computers to tackle problems specific to your major field.

Requirements

18 credits of Computer Science courses are required and must be completed with a grade of C or better.

COSC 1101 and COSC 1200 cannot be used for the Computer Science Minor.

Electrical Engineering Minor

Electrical Engineering Minor Requirements:

You must have a minimum of 12 credits of EE/BE courses that are not counted toward your major.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

- plus a total of 20 credits of electrical engineering (EE) or bioengineering (BE) courses

Graduate

Computer Science, M.S.

Computer scientists learn the theory and practice of computing, which is essential in the modern world. An M.S. in Computer Science extends your technical expertise in computer science to design, implement, and secure software-intensive systems.

Program Specific Degree Requirements

Plan A (Thesis)

A total of at least 31 credit hours must be completed. The student must complete a minimum of 27 hours of courses, including the CORE and BREADTH REQUIREMENTS. At least 19 credit hours must be COSC courses. All COSC courses must be at the 5000 level. Courses from other departments, including no more than 6 hours of 4000-level courses, may be included with the approval of the supervising M.S. committee.

Plan A students are required to formally defend their theses before their supervising committees. All defenses must be open and announced at least two weeks in advance. The thesis must be distributed to the committee at least two weeks in advance of the defense. If the student does not pass the defense, the committee will instruct the student as to what needs to be accomplished (and by when) to pass.

Plan B (Non-Thesis)

The student must complete a minimum of 33 hours of courses, including the CORE and BREADTH REQUIREMENTS. At least 22 credit hours must be COSC courses. All COSC courses must be at the 5000 level. Courses from other departments, including no more than 6 hours of 4000-level courses, may be included with the approval of the supervising M.S. committee.

UW Coursework Requirements for M.S. Transfer Students:

M.S. transfer students must complete at least 21 credit hours at the University of Wyoming. At least 12 credits of the CORE & BREADTH REQUIREMENTS must be taken at the University of Wyoming. No more than one class per category of breadth may be counted towards this 12-credit total. The algorithms course credits may be counted toward this 12-credit total.

Summary of Credit Requirements

Plan A

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- Breadth: theory course, AI course, two systems courses Credits: 12
- Additional courses Credits: 12

COSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

OR

COSC5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 31 Hours

Plan B

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- Breadth: theory course, AI course, two systems courses Credits: 12
- Additional courses Credits: 18

Total Credits: 33 Hours

Computer Science, Ph.D.

Computer scientists learn the theory and practice of computing, which is essential in the modern world. A Ph.D. in Computer Science prepares you to advance the state of the art in computing principles and practice.

Program Information

Each doctoral student will have a supervising committee of at least five members appointed. The primary functions of this committee are to suggest coursework, to administer the qualifying, preliminary, and final examinations, and to

oversee and evaluate the research of the candidate. The committee will consist of at least three members of the computer science department faculty and at least one non-COSC faculty member. The standards that this committee should consider when recommending programs of study are outlined in the following sections.

Coursework Requirements:

A total of at least 72 credit hours must be completed. A minimum of 42 of these credit hours must be taken as coursework, including the CORE and BREADTH REQUIREMENTS. A minimum of 12 hours of COSC5980 - Dissertation Research must be taken. All COSC courses must be at the 5000 level. Courses from other departments, including no more than 12 hours of 4000-level courses, may be included with the approval of the supervising Ph.D. committee. All course requirements MUST be completed or enrolled with satisfactory midterm progress prior to scheduling the Ph.D. Final Examination.

UW Coursework Requirements for Ph.D. Transfer Students:

Ph.D. transfer students must complete at least 24 credit hours at the University of Wyoming. At least 12 credits of the CORE and BREADTH REQUIREMENTS must be taken at the University of Wyoming. No more than one class per category of breadth may be counted towards this 12-credit total. The algorithms course credits may be counted toward this 12-credit total.

Program:

A program of original and innovative research will be undertaken by the candidate. At the end of this program, the candidate will document this research in a dissertation. The dissertation will present the details and results of the candidate's research in addition to providing a critical comparison with relevant previously-published works.

Each successful doctoral student must pass three examinations. These include a qualifying examination, a preliminary examination, and a final (dissertation) defense.

Qualifying Exam Criteria:

The student must complete the CORE REQUIREMENT and pass a closed oral examination on a research area administered by the supervising committee. Although closed to the public, faculty members of the Department of Computer Science are welcome to attend. The exam must be announced to the faculty at least two weeks in advance. The research area will be chosen in consultation with the committee. The student must demonstrate background knowledge of the state of the art in the area and preliminary work. This will involve, but is not limited to, presenting material and answering questions covering the relevant area knowledge. The format of the exam will be defined by the committee prior to the exam to allow for sufficient preparation. This examination is intended to motivate the candidate to review relevant literature extensively prior to pursuing the original and innovative portions of the research. Qualifying exam criteria must be completed within the first two years of enrollment in the Ph.D program. If the student does not pass the qualifying exam, the committee will instruct the student as to what needs to be accomplished (and by when) to pass. The closed oral examination requirement may be waived for a student who has completed an M.S. degree in COSC at UW if their M.S. presentation was at a research level that demonstrated background knowledge of the state of the art in the area, at the discretion of the supervising Ph.D. committee.

Preliminary Exam Criteria:

Prior to scheduling the Preliminary Examination, the student must be making satisfactory progress towards completion of their course requirements, including the BREADTH REQUIREMENTS. A Preliminary Examination will consist of

a presentation and defense of the already completed portion of the dissertation research and the research that is proposed to complete the dissertation. The Preliminary Examination must be open and announced at least two weeks in advance. The preliminary examination must be completed within two years of enrollment in the Ph.D program (within three years of enrollment for students who do not have an M.S. degree). This examination is intended to motivate the candidate to make significant progress on work towards their Ph.D. dissertation and propose milestones for completion. If the nature of the proposed continued research and methodology is deemed to be sufficiently original and innovative by the supervising committee, then the committee will approve the research direction after having administered this examination. If the student does not pass the preliminary exam, the committee will instruct the student as to what needs to be accomplished (and by when) to pass.

Option for M.S. degree en route to Ph.D.:

After completing the Qualifying Exam and Preliminary Exam, a Ph.D. student may additionally earn an M.S. degree after completing the remaining M.S. course requirements, including the BREADTH REQUIREMENTS. COSC 5980 may be substituted for COSC 5960 in the M.S. requirements at the discretion of the supervising committee. The M.S. degree will be granted only after completion of the preliminary exam. For an M.S. degree to be granted prior to completion of the preliminary exam, the student should enroll in the M.S. degree program and complete the remaining M.S. requirements.

Final Exam Criteria:

Prior to scheduling the Ph.D. Final Examination (often referred to as a "defense"), all course requirements, including the BREADTH REQUIREMENTS, MUST be completed or enrolled with satisfactory midterm progress. The Final Examination (dissertation defense) will consist of an oral presentation by the candidate of his/her research and the results that were derived. At this examination, the candidate is expected to defend the research as being original and contributory to the discipline of computer science. The Final Examination must be open and announced at least two weeks in advance. The dissertation must be distributed to the supervising committee at least two weeks in advance of the Final Examination. If the student does not pass the final exam, the committee will instruct the student as to what needs to be accomplished (and by when) to pass.

Time to degree for part-time students:

Exceptions to the completion deadlines for the Qualifying Exam and Preliminary Exam may be made for part-time students at the discretion of the supervising committee.

Computer Science Core Requirements

COSC5110 - Analysis Of Algorithms must be completed with a grade of B or better. A grade of B- is not sufficient. Students are strongly encouraged to take COSC 5110 the first time it is offered after enrollment.

Computer Science Breadth Requirements

Students must earn a grade of B or better in one class from the Theory category, one class from the Artificial Intelligence category, and two classes from the Systems category. A grade of B- is not sufficient. Thus there must be 12 credits taken to satisfy the breadth requirement. A list of courses in each category is available from the Department. Although some courses may be listed under multiple categories, a course may only count once towards the breadth requirement.

Program Specific Degree Requirements

Summary of Credit Requirements

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

- Breadth: theory course, AI course, two systems courses Credits:12
- Additional courses Credits: 27

COSC5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

OR

COSC5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

- Other credits (may include courses or COSC 5960/COSC 5980) Credits: 18

Total Credits: 72 Hours

Electrical Engineering, M.S.

Plan A (Thesis)

This is a minimum 30 credit hour program, 26 hours coursework and 4 hours of thesis

- Minimum 16 Course Hours in Electrical and Computer Engineering Course Work
- Minimum 3 Course Hours in Formal Course Work outside the Electrical and Computer Engineering Department approved by the student's committee
- 7 Additional Formal Course Hours in or out of the Electrical and Computer Engineering Department
- 4 credits of MS thesis research
- No more than 12 credit hours can be at the 4000 level
- No more than 3 credit hours of independent study

Of the above credit hours in formal coursework, no more than 12 credit hours can be 4000 level

The candidate must meet the minimum requirements for the Master of Science degree and also complete and defend a master's thesis.

Plan B (with Paper)

This is a 30 hour program:

- Minimum 18 Course Hrs in Electrical and Computer Engineering Course Work
- Minimum 3 Course Hrs in Formal Course Work outside the Electrical and Computer Engineering Department
- 9 Additional Formal Course Hrs in or out of the Electrical and Computer Engineering Department
- No more than 12 credit hours can be at the 4000 level
- No more than 3 credit hours of independent study

Plan B (Coursework Only)

This is a 30 hour program:

- Minimum 18 Course Hrs in Electrical and Computer Engineering Course Work
- Minimum 3 Course Hrs in Formal Course Work outside the Electrical and Computer Engineering Department
- 9 Additional Formal Course Hrs in or out of the Electrical and Computer Engineering Department
- No more than 12 credit hours can be at the 4000 level
- No more than 3 credit hours of independent study

Of the above credit hours in formal coursework, no more than 12 can be 4000 level.

Electrical Engineering, Ph.D.

Degree Requirements

Ph.D. Degree Requirements:

Ph.D. Credit Allocation (all at 4000 level minimum)

- 72 hours (minimum) of acceptable graduate coursework
- 42 hours (minimum) from ECE and closely related formal course work (EE5980 - Dissertation Research not counting toward this minimum)

Of those 42 hours, no more than 12 hours can be at the 4000 level

Courses required by the department bachelor of science degree may not be applied for graduate credit

- 6 hours (maximum) of EE4800 - Problems in _____ can be counted for program of study credit
- 6 hours (maximum) of EE 5880 - Problems in ... can be counted for program of study credit
- 9 hours (maximum) of EE5600 - Statistical Signal Processing in: can be counted for program of study credit.

In addition to the minimum requirements of the university, doctoral students must pass a written and oral comprehensive examination, part of which is a written proposal explaining their planned dissertation research. The student after completing successfully the oral comprehensive examination and before defending the completed dissertation must present their research work at an ECE department seminar. The student must also present and defend a completed dissertation. Programs of study, including coursework and any research tools, are arranged by consultation between the students and their graduate committee.

Environmental Engineering, M.S.

A master of science in environmental engineering is available in the College of Engineering through a joint effort of the Department of Civil and Architectural Engineering and the Department of Chemical Engineering.

Core Courses (9 Hours)

All Environmental Engineering M.S. students must take the following Core courses (9 hrs):

- ENVE 5425 - Environmental Engineering Microbiology

ENVE5430 - Environmental Engineering Chemistry

Credits: 3

Focus includes inorganic, organic, physical, equilibrium, biochemistry, colloidal and nuclear chemistry with an emphasis on the problems/solutions encountered by environmental and civil engineers.

Prerequisite: CHEM 1020.

CE5435 - Environmental Transport Processes

Credits: 3

Designed for graduate students and engineering seniors interested in the principles of mass transport and their application to environmental systems. Deals with the hydrodynamics of mixing and transport, as well as the interaction of mixing and various reaction rate processes. Applications include water and wastewater treatment, groundwater pollution, and transport and mixing in rivers, lakes and reservoirs.

Cross Listed ENVE 5435 and CHE 5435.

Prerequisite: MATH 2310 and ES 2330.

Recommended Courses (3 Hours)

Students should also take at least one of the following Recommended courses (3 hrs):

ENVE5410 - Advanced Biological Wastewater Treatment

Credits: 3

Theory and practice of advanced biological treatment processes for municipal and industrial wastewaters, sludges, groundwater bioremediation and solid waste. Emphasis is on fundamental principles applied to the design and control of existing processes and the development of innovative systems.

Cross Listed CE 5410/CHE 5410.

Prerequisite: consent of instructor.

ENVE5450 - Advanced Physical Chemical Treatment

Credits: 3

A study of physical and chemical processes for treatment of water, and waste water.

Cross Listed CE 5450.

Prerequisite: CE 4400.

Approved Elective Coursework

Plan A (Thesis) students complete another 14 hours of Approved Elective coursework, at least 4 hours of ENVE5960 - Thesis Research, and write and defend their thesis. Plan B (Project) students complete another 18 hours of Approved Elective coursework and write and present their project.

Total Required Credit Hours: 30 (Minimum)

Certificate

Cybersecurity Certificate

Cybersecurity is the practice of ensuring the confidentiality, integrity, and availability of information within interconnected systems. The certificate in Cybersecurity prepares you for a career securing software-intensive systems.

Requirements

COSC2030 - Computer Science II

Credits: 4

Builds on the introduction to object-oriented programming begun in COSC 1010 and COSC 1030 with an emphasis on algorithms, data structures, and software engineering.

Prerequisite: COSC 1030.

COSC4010 - Special Topics in Computer Science

Credits: 1-3

Individual or small group pursuit of interdisciplinary problems in the use of computers or study of advanced topics.

When Offered (Offered based on sufficient demand and resources)

Prerequisite: COSC 3020 concurrently and consent of instructor.

COSC4760 - Computer Networks

Credits: 3

Examines network protocols using a top-down approach based on the Internet model. Course focuses on the application, transport, network and link layers. Also covers wireless communication. Discusses problems and current solutions regarding the efficient use of network resources in the global, multi-media Internet.

Prerequisite: COSC 2150 and COSC 2030.

COSC3765 - Computer Security

Credits: 3

Security is paramount to creating software and systems. This course introduces the fundamentals of computer security and applied cryptography. Topics include vulnerability analysis, common exploits and defense, network/wireless security, reverse engineering, and applied cryptography.

Prerequisite: COSC 2030

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

- STAT 2010 Credits: 4

OR

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT4220 - Basic Engineering Statistics

Credits: 3

Introduces probability models, properties of distributions, statistical inference and development of statistical models for physical and engineering sciences. Credit cannot be earned in more than one of the following courses: STAT 2010, STAT 2050, STAT 2070, 4220 and 5000.

Former Course Number [4020]

Prerequisite: MATH 2205, MATH 2355 or equivalent.

Minimum Required: 20 Credits

Note: COSC 4760 can also be replaced by the ECE version ECE 4870 or a second COSC4010 - Special Topics in Computer Science.

QuickStart Program

Electrical and Computer Engineering Quick Start, B.S./M.S.

The combined B.S./M.S. program in electrical and computer engineering enables especially well-qualified students to be admitted to the M.S. program during the junior year of their B.S. program, and to work thereafter towards both the B.S. and M.S. degrees. These students would earn the B.S. in either electrical engineering or computer engineering and the M.S. degree in electrical engineering following the current curricula.

This program allows for early planning of the M.S. portion of the student's education, taking graduate courses as part of the B.S. degree, more flexibility in the order in which courses are taken, and more efficient use of what would otherwise be a final semester with a light credit hour load.

Degree Requirements

Up to 6 credit hours from UW, at the 5000-level or above, may be counted toward both the B.S. and M.S. degree programs.

For further information please visit our Web site at
<http://www.uwyo.edu/electrical/graduate/prospective/ms/quickstart.html>.

Department of Mathematics and Statistics

Mathematics

223 Ross Hall, (307) 766-4221

FAX: (307) 766-6838

Web site: www.uwyo.edu/mathstats/

Department Head: Jason Williford

Professors:

CRAIG C. DOUGLAS, B.A. University of Chicago 1977; M.S. Yale University 1978; M.Phil. 1981; Ph.D. 1982; SER Professor of Mathematics 2008.

VICTOR GINTING, B.S. Institut Teknologi Bandung Indonesia 1995; M.S. Texas A&M University 1998; Ph.D. 2004; Professor of Mathematics 2017, 2007.

STEFAN HEINZ, B.S. Humboldt University 1985; M.S. 1986; Ph.D. Heinrich-Hertz Institute 1990; Professor of Mathematics 2013, 2004.

LONG LEE, B.S. National Taiwan University, Taipei 1988; M.A. University of Maryland 1998; Ph.D. University of Washington 2002; Professor of Mathematics 2018, 2005.

RONGSONG LIU, B.A. Henan Normal University 1999; M.A. Fudan University 2002; Ph.D. York University 2006; Associate Professor of Mathematics and Program in Ecology 2015, 2009.

G. ERIC MOORHOUSE, B.S. University of Toronto 1980; M.S. 1984; Ph.D. 1987; Professor of Mathematics 2011, 1989.

ZHUANG NIU, B.S. Wuhan University 1998; M.S. 2001; Ph.D. University of Toronto 2005; Associate Professor of Mathematics 2021, 2012.

BRYAN L. SHADER, B.S. University of Wyoming 1984; M.S. University of WisconsinMadison 1987; Ph.D. 1990; Professor of Mathematics 2000, 1990.

JASON WILLIFORD, B.A. University of Pennsylvania 1998; Ph.D. University of Delaware 2004; Associate Professor Mathematics 2014, 2009.

Associate Professors:

MICHELLE T. CHAMBERLIN, B.S. Colorado State University 1997; M.S. 1999; Ph.D. Purdue University 2002; Associate Professor of Mathematics 2012, 2007.

FREDERICO da CUNHA FURTADO, B.S. Federal University of Minas Gerais 1979; M.S. Federal University of Rio de Janeiro 1984; Ph.D. Courant Institute 1989; Associate Professor of Mathematics 2002, 1997.

TYRRELL McALLISTER, B.S. University of California, Davis 2001; Ph.D. 2006; Associate Professor of Mathematics 2015, 2009.

DAN STANESCU, B.Eng. Polytechnic Institute, Romania 1986; M.Eng. McGill University, 1994; Ph.D. Concordia University 1999; Associate Professor of Mathematics 2008, 2003.

MAN-CHUNG YEUNG, B.S. Jinan University, China 1986; M.Ph. University of Hong Kong 1990; Ph.D. University of California-Los Angeles 1997; Associate Professor of Mathematics 2005, 2001.

Assistant Professor:

PING ZHONG, B.S. Huanzhong University 2005; M.S. Peking University 2008; Ph.D. Indiana University 2014; Assistant Professor of Mathematics 2018.

Senior Lecturers:

DAVID ANTON, B.S. North Dakota State University 2001; M.S. University of Wyoming 2007; Senior Lecturer in Mathematics 2017, 2005.

WILLIAM WEBER, B.S. Colorado State University 1979; B.S. University of Wyoming 1988; M.S. 1992; Senior Lecturer in Mathematics 2012, 2001.

Associate Lecturer:

NATHAN CLEMENTS, B.S. Brigham Young University-Idaho 2007; M.S. Idaho State University 2009; D.A. 2012; Associate Lecturer in Mathematics 2019, 2012.

Assistant Lecturer:

CHRISTINA G. KNOX, B.S. California State Polytechnic University, Pomona 2012; M.S. 2014; Ph.D. University of California, Riverside, 2019; Assistant Lecturer of Mathematics 2019.

JORGE FLORES, B.S. Chadron State College 2015; M.S. University of Wyoming 2018; Assistant Lecturer of Mathematics 2020.

Adjunct Professors:

Saman Aryana, Hakima Bessaih, Li Deng Douglas, George Elliot, Benedetta Ferrario, Maria Garrido-Atienda, John Hitchcock, Robert Kansky, David Meyer, Bjorn Schmalfuss, Gerald Schuster, Dongwoo Sheen, Marie-Agnés Tellier

Professors Emeriti:

Charles Angevine, Leonard Asimow, Robert Buschman, Benito M. Chen-Carpentier, George C. Gastl, John H. George, Sylvia A. Hobart, Syed Husain, Peter Polyakov, A. Duane Porter, Ben G. Roth, John Rowland, Chanyoung Lee Shader, Raymond Smithson, John Spitler, Myron B. Allen III, Farhad Jarari.

"For the things of this world cannot be made known without a knowledge of mathematics."--Roger Bacon

Virtually every student at UW will take one or more math courses to fulfill graduation requirements. The intent is to illustrate the esthetics inherent in mathematics, and to provide students with the quantitative skills needed for today's careers.

Mathematics majors receive a broad and deep view of the mathematical sciences. They develop their mathematical thinking and communications skills in algebra, analysis, and applied math. They learn a variety of technological tools necessary for jobs in education, business, government, and industry. In addition to our math classes, the department offers a variety of opportunities to enrich the undergraduate experience. Students can participate in weekly seminars, summer research projects, Putnam Team competitions, and the math club.

Mathematics Placement

All UW math courses have prerequisites which are detailed in the course listings below. These are to assure that each student has the best possible opportunity for success in the course. In accordance with this, *all students registering for a math course will have their records checked in order to determine whether the prerequisite is satisfied.*

A computerized prerequisite check is run prior to the start of every semester. *Students who preregistered for a math course but have not satisfied the prerequisites at the time of the check will be automatically dropped from the course.*

Prerequisites for courses numbered 2200 or lower (except MATH 1105 and MATH 2120), and MATH2350 - Business Calculus, may be satisfied in one of four ways:

1. Obtain a grade of C or better in a prerequisite course. Note that noncredit courses from out-of-state colleges are not accepted as prerequisites.
2. Pass the Mathematics Placement Exam (MPE) at the stated level within one year of the start of the course.
3. Obtain a sufficiently high score on one of the following standardized exams within three years of the start of the course: ACT math score or SAT quantitative score.
4. Obtain a sufficiently high score on one of the following standardized exams: AP Calculus, CLEP, or IB.

More information on mathematics placement may be obtained from 766-4221, or at www.uwyo.edu/mathstats/math-placement.

Duplication of Courses (MATH 1400, MATH 1405, MATH 1450)

To avoid loss of credit because of duplication of course content, please note the following: (a) students with credit for both MATH 1400 and MATH 1405 will not receive new credit by taking MATH 1450; (b) students with credit for one of MATH 1400 or MATH 1405 will receive only 2 additional credits by taking MATH 1450; (c) students with credit for MATH 1450 will receive only 1 additional credit by taking both MATH 1400 and MATH 1405. Note that the GPA calculation for these situations is unusual, and students should ask the Registrar's Office for details.

Note that MATH 1450 counts as one attempt at each of MATH 1400 and MATH 1405 for the purposes of repeating classes.

Graduate Study

The Mathematics Program offers programs leading to the degrees of master of arts, master of science, master of arts in teaching, master of science in teaching, and the doctor of philosophy.

The requirements for these degrees reflect our belief that mathematicians should have a broad foundation in the core areas of algebra, analysis, and applied mathematics as well as the experience of a more intensive investigation of a

specialized area. We provide this within a flexible structure that recognizes the individual interests and varied backgrounds of our students.

Program Specific Admission Requirements

To be competitive for admission, applicants must have strong backgrounds in mathematics. Generally, this means a bachelor's degree in mathematics or a closely related discipline. All applicants should have substantial coursework beyond the calculus sequence; courses in differential equations, linear algebra, and, in particular, courses in abstract algebra and analysis are highly recommended. A solid performance on the GRE Subject Test in Mathematics can demonstrate the applicant's mastery of these subjects. The GRE Subject Test in Mathematics is therefore recommended but is not required.

The GRE General Test is required, with a minimum Quantitative Reasoning score of 157 and Verbal score of 143. International applicants need a composite TOEFL score of 76 or an IELTS score of 6.5.

ETS only reports TOEFL scores taken within two years of the date of request.

Graduate Assistantships

The mathematics program employs approximately 22 graduate assistants each year. Assistantships include a full tuition and fee waiver, a monthly living stipend, and health insurance. Ph.D. students normally receive a higher stipend than master's students.

Teaching assistants teach or assist with the teaching of an undergraduate course each semester.

Students may also compete for research assistantships, provided that their interests align with an externally funded research project.

Summer support is not guaranteed but is usually available through teaching and research opportunities.

Renewal of funding and continuation in the mathematics graduate program is dependent upon the student's adequate progress towards graduation and satisfactory completion of assistantship duties.

Statistics

223 Ross Hall, (307) 766-4221

FAX: (307) 766-6838

Web site: www.uwyo.edu/mathstats

Program Director: Ken Gerow

Professors:

KENNETH G. GEROW, B.S. University of Guelph, Canada 1981; M.Sc. 1984; Ph.D. Cornell University 1992; Professor of Statistics 2007, 1993.

TIMOTHY J. ROBINSON, B.S. James Madison University 1989; M.S. Virginia Polytechnic Institute and State University 1994; Ph.D. 1997; Professor of Statistics 2012

SHAUN S. WULFF, B.S. Montana State University 1991; M.S. 1994; Ph.D. Oregon State University 1999; Professor of Statistics 2019, 1999.

Assistant Professors:

ANNALISA PICCORELLI, B.A. Miami University of Ohio 2003; M.S. Case Western Reserve University 2007; Ph.D. 2010. Assistant Professor of Statistics 2015.

Assistant Lecturer:

MICHELE BIRD, B.A. University of Nevada, Las Vegas 1996; M.A. 2000; Assistant Lecturer of Statistics 2019.

JARED STUDYVIN, B.S. University of Wyoming 2009; Ph.D. University of Wyoming 2015; Assistant Lecturer 2021.

Adjunct Professors:

Robert Petit

Emeriti Faculty:

Stephen L. Bieber, Burke Grandjean, Richard Anderson-Sprecher.

The curriculum in statistics includes a firm foundation in mathematics and computer science, in addition to course work in statistical theory and methodology. Statistics majors are also required to obtain a minor in an area of application. The nature of statistical work is to design and analyze research projects through the application of the principles of mathematics, computer science, and statistics.

The student who wishes to make valid inferences from empirical data will find the field of statistics fascinating and rewarding. The study of statistics as a separate professional field is comparatively recent. The wide demand for graduates with special training in research and development techniques has fostered development of statistical curricula in colleges and universities. A pioneer in this field, the University of Wyoming is one of the few schools in the nation where a coordinated undergraduate training program in statistics is available.

We expect that students graduating with a statistics degree will be able to: 1) recognize the importance of variation and uncertainty in the world, 2) understand how statistics improves decisions when faced with uncertainty, 3) become proficient with a broad range of statistical tools, 4) develop critical thinking skills that enable application of statistics in new and unusual settings, and 5) communicate effectively. With these skills, graduates will be able to work effectively as statistical professionals and, if desired, successfully pursue further training at the master's and doctorate levels.

Graduates with statistical training are employed in a broad spectrum of areas which include the business world, the sciences (social, biological, physical and health), as well as engineering and education. For this reason, an area of application is required of each student.

The statistics program also offers graduate programs leading to a minor in statistics, and to a Master of Science (Plan A, Plan B), and Doctor of Philosophy in statistics.

Graduate Study

The Statistics Program offers graduate programs leading to a minor in statistics, and to a master of science in applied statistics (Plan B Option 1). The minor is designed to enhance the M.S. or Ph.D. program of any student enrolled in one of the graduate programs at the University of Wyoming. All of these programs emphasize the understanding and application of a broad variety of statistical methods on real projects. Students will be provided with numerous

opportunities to perform analyses and communicate findings. The M.S. program in statistics is grounded in statistical theory.

Program Specific Admission Requirements

The prerequisite for admission to graduate study is an undergraduate degree from an accredited institution, including work in mathematics through calculus III, Linear Algebra and at least one second-level class in statistical methods. Prospective students are encouraged to have had Math Analysis and upper level introduction to probability and mathematical statistics. A score of at least 150 on the verbal reasoning section and a score of at least 141 on the quantitative reasoning section is required for the Master's Degree and the TOEFL exam is required for international students. The minimum score for the TOEFL is 540 (76 Internet-based Test) or for IELTS minimum score is 6.5. Students who do not have prerequisites in mathematics and statistics may make up this deficiency at the beginning of their graduate program; however, such work does not count toward graduation requirements.

Major

Mathematics, B.A.

A comprehensive math degree with training in the fundamentals of proofs, analysis, algebra, computation and math modeling. Provides a strong background for teaching, work in industry and graduate programs in math.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Lower Division Core Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

Upper Division

These courses, known as the transition courses, introduce students to the three main areas of mathematics research currently represented in the department.

At the upper division, all mathematics majors must take:

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general. Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

Depth Course

Every mathematics major must select one course that builds on the corresponding transition course. This sequence provides the student with an opportunity to study one of these areas in greater depth.

MATH4200 - Analysis 2: Advanced Analysis

Credits: 3

A second course in analysis. Includes metric space topology, sequences and series of functions, and analysis in \mathbb{R}^n .

When Offered (Offered fall semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 2210, MATH 2250 and MATH 3205.

OR

MATH4205 - Analysis 3: Undergraduate Topics in Analysis

Credits: 3

Special topics in analysis. Content varies. May be repeated for credit.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 4200.

OR

MATH4510 - Algebra II: Introduction to Group Theory

Credits: 3

An introduction to the fundamental properties of groups including: binary operations, groups, permutation groups, subgroups, homomorphisms, and quotient groups.

When Offered (Offered spring semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 3500.

OR

MATH4520 - Algebra III: Topics in Abstract Algebra

Credits: 3

Further examples and structure of rings and fields. Finite fields and number fields. Special topics.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 4510.

OR

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

OR

MATH4440 - Introduction to Partial Differential Equations I

Credits: 3

Survey of analytic methods for solving partial differential equations. Topics include: method of characteristics for solving first-order linear and quasi-linear equations; classification of second-order equations and canonical forms; background to separation of variables with applications; transform methods and Green functions; elliptic equations; heat and wave equations in one dimension.

Prerequisite: grade of C or better in MATH 2210 and MATH 2310.

Upper Division Math Courses

Finally, an additional 15 credits of upper division math courses (3000 and above) are required. It is recommended that these courses be selected to provide a broad view of mathematics.

Two of the math electives may be chosen from a list of approved courses that have significant math content, upon approval by the student's advisor. More details about such courses are available on the math department's web site, www.uwyo.edu/mathstats/.

Only grades of C or better will be accepted for the major.

Mathematics, B.S.

A comprehensive math degree with training in the fundamentals of proofs, analysis, algebra, computation and math modeling. Provides a strong background for teaching, work in industry and graduate programs in math.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Required Lower Division Core Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

Upper Division

These courses, known as the transition courses, introduce students to the three main areas of mathematics research currently represented in the department.

At the upper division, all mathematics majors must take

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general. Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

Depth Course

Every mathematics major must select one course that builds on the corresponding transition course. This sequence provides the student with an opportunity to study one of these areas in greater depth.

MATH4200 - Analysis 2: Advanced Analysis

Credits: 3

A second course in analysis. Includes metric space topology, sequences and series of functions, and analysis in \mathbb{R}^n .

When Offered (Offered fall semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 2210, MATH 2250 and MATH 3205.

OR

MATH4205 - Analysis 3: Undergraduate Topics in Analysis

Credits: 3

Special topics in analysis. Content varies. May be repeated for credit.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 4200.

OR

MATH4510 - Algebra II: Introduction to Group Theory

Credits: 3

An introduction to the fundamental properties of groups including: binary operations, groups, permutation groups, subgroups, homomorphisms, and quotient groups.

When Offered (Offered spring semester)

USP 2015 Code U5C3

Prerequisite: grade of C or better in MATH 3500.

OR

MATH4520 - Algebra III: Topics in Abstract Algebra

Credits: 3

Further examples and structure of rings and fields. Finite fields and number fields. Special topics.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 4510.

OR

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

OR

MATH4440 - Introduction to Partial Differential Equations I

Credits: 3

Survey of analytic methods for solving partial differential equations. Topics include: method of characteristics for solving first-order linear and quasi-linear equations; classification of second-order equations and canonical forms; background to separation of variables with applications; transform methods and Green functions; elliptic equations; heat and wave equations in one dimension.

Prerequisite: grade of C or better in MATH 2210 and MATH 2310.

Upper Division Math Courses

Finally, an additional 15 credits of upper division math courses (3000 and above) are required. It is recommended that these courses be selected to provide a broad view of mathematics.

Two of the math electives may be chosen from a list of approved courses that have significant math content, upon approval by the student's advisor. More details about such courses are available on the math department's web site, www.uwyo.edu/mathstats/.

Only grades of C or better will be accepted for the major.

Statistics, B.A.

Statisticians (data scientists) provide analytic solutions to scientific problems. Statistics is the process of using data to answer a research question.

University Studies Program

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

30 hours of Statistics - Required Courses:

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed MATH 4255.

Dual Listed STAT 5255.

When Offered (Offered fall semester)

Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

STAT4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 4265.

Dual Listed STAT 5265.

Former Course Number [4260, 4010]

Prerequisite: STAT 4255/MATH 4255.

STAT4870 - Senior Thesis

Credits: 3

Encompasses senior thesis research project under faculty member guidance and supervision. Faculty sponsorship must be obtained prior to registration.

Prerequisite: 18 hours in statistics and senior standing.

Optional from (12 Hours)

STAT4045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variables are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 5045.

Former Course Number [4040]

Prerequisite: STAT 2050 or equivalent

STAT4070 - Causal Models

Credits: 3

Applications of least-squares and iterative maximum-likelihood methods for drawing cause and effect conclusions from nonexperimental data. Topics include regression-based path analysis, reciprocal causation, confirmatory factor analysis, measurement error, and structural equation models with unmeasured (latent) variables.

Cross Listed SOC 4070.

Prerequisite: one of STAT 3050, STAT 4015, STAT 5050, 5060, STAT 5070, STAT 5080 or equivalent (regression methods).

STAT4115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analyses using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 5115

Dual Listed STAT 5115.

Former Course Number [4110]

Prerequisite: STAT 4015 /5015

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.

Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

STAT4300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminate analysis, factor analysis and multidimensional scaling. A wide range of computer assistance is incorporated.

Dual Listed STAT 5300.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment (sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 5350.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 5360.

Prerequisite: STAT 4015.

STAT4370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 5370.

Prerequisite: STAT 4015 and STAT 4025.

STAT4460 - Statistical Software

Credits: 1

Max Credit 1

An introduction to the various statistical software programs currently in use at the University of Wyoming. Topics will include the structure of each language, I/O, programming the basic statistical applications, and a comparison of the other languages.

Former Course Number [5480]

Prerequisite: STAT 2050

STAT4880 - Problems in Statistics

Credits: 1-4

Encourages individual initiative on part of students who work on extending their knowledge through library research.

Former Course Number [4790]

Prerequisite: senior standing, 8 hours in statistics and consent of instructor.

Mathematics (15 Hours)

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient,

optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

Computer Science (6 Hours)

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

Electives

Chosen so that at least 42 hours are at the 3000/4000/5000 level

Total Hours: at Least 120

Only grades of C or better will be accepted for the major.

Statistics, B.S.

Statisticians (data scientists) provide analytic solutions to scientific problems. Statistics is the process of using data to answer a research question. The B.S. in Statistics is applied with some theory.

University Studies Program

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

30 Hours of Statistics - Required Courses:

STAT2050 - Fundamentals of Statistics

Credits: 4
Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

STAT4015 - Regression Analysis

Credits: 3
Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and properties of normal probability law.

Cross Listed MATH 4255.

Dual Listed STAT 5255.

When Offered (Offered fall semester)

Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

STAT4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 4265.

Dual Listed STAT 5265.

Former Course Number [4260, 4010]

Prerequisite: STAT 4255/MATH 4255.

STAT4270 - Applied Bayesian Statistics

Credits: 3

This course introduces Bayesian data analysis in an applied context. We will learn about Bayesian statistics primarily in a regression model context, taken broadly. A conceptual understanding of popular Markov Chain Monte Carlo algorithms will be provided.

Dual Listed STAT 5270.

Prerequisite: STAT 4015 /5015

STAT4870 - Senior Thesis

Credits: 3

Encompasses senior thesis research project under faculty member guidance and supervision. Faculty sponsorship must be obtained prior to registration.

Prerequisite: 18 hours in statistics and senior standing.

Optional from (12 Hours)

STAT4045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variables are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 5045.

Former Course Number [4040]

Prerequisite: STAT 2050 or equivalent

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Credits: 3

Applications of least-squares and iterative maximum-likelihood methods for drawing cause and effect conclusions from nonexperimental data. Topics include regression-based path analysis, reciprocal causation, confirmatory factor analysis, measurement error, and structural equation models with unmeasured (latent) variables.

Cross Listed SOC 4070.

Prerequisite: one of STAT 3050, STAT 4015, STAT 5050, 5060, STAT 5070, STAT 5080 or equivalent (regression methods).

STAT4115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analyses using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 5115
Dual Listed STAT 5115.
Former Course Number [4110]

Prerequisite: STAT 4015 /5015

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.
Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

STAT4300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminant analysis, factor analysis and multidimensional scaling. A wide range of computer assistance is incorporated.

Dual Listed STAT 5300.
Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment (sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 5350.
Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 5360.
Prerequisite: STAT 4015.

STAT4370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 5370.

Prerequisite: STAT 4015 and STAT 4025.

STAT4460 - Statistical Software

Credits: 1

Max Credit 1

An introduction to the various statistical software programs currently in use at the University of Wyoming. Topics will include the structure of each language, I/O, programming the basic statistical applications, and a comparison of the other languages.

Former Course Number [5480]

Prerequisite: STAT 2050

STAT4880 - Problems in Statistics

Credits: 1-4

Encourages individual initiative on part of students who work on extending their knowledge through library research.

Former Course Number [4790]

Prerequisite: senior standing, 8 hours in statistics and consent of instructor.

Mathematics (15 Hours)

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

Computer Science (6 Hours)

COSC1010 - Introduction to Computer Science I

Credits: 3

Introduction to Programming that emphasizes good software design principles and fundamental programming skills. It aims to provide students with an understanding of the role computation can play in solving problems.

COSC1030 - Computer Science I

Credits: 4

Continues the introduction to the methodology of programming from an object-oriented perspective. The course emphasizes basic software design, expands the students' knowledge of programming language syntax, expands the students' ability to think and design in an object-oriented paradigm. Introduces the students to UML, pseudocode, and simple planning for the design of software. Also introduces the students to templates and the C STL.

Prerequisite: COSC 1010.

Electives

- Chosen so that at least 42 hours are at the 3000/4000/5000 level

Total Hours: at Least 120

Only grades of C or better will be accepted for the major.

Minor

Interdisciplinary Computational Science Graduate Minor

In recognition of the importance of modeling and simulation in an increasing number of applications, the Graduate Interdisciplinary Computational Science Minor is intended to help prepare science, math, and engineering students for leading roles in their professions.

Requirements

- The student must earn 15 credit hours in specified courses.
- Within the 15 credits, the student must earn at least 12 credits in graduate level classes (5000).
- Within the 15 credits, the student must earn 6 credits outside of her/his department.
- Only grades of B or better will be accepted for a course counting towards the minor.
- For all students, the 15 hours of coursework will be divided into 9 credit hours of core courses and 6 credit hours of electives.

Core Courses

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

OR

COSC5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability.

Cross Listed MATH 5310.

Prerequisite: MATH 3310, COSC 1010.

COSC5010 - Graduate Topics in Computer Science

Credits: 1-6
Max Credit (Max. 12)

Individual or small group pursuit of computer science research areas.

Prerequisite: graduate standing and consent of instructor.

MATH5340 - Computational Methods II

Credits: 3
Second semester of a three-semester computational methods series with emphasis on numerical solution of differential equations. Topics include explicit and implicit methods, methods for stiff ODE problems, finite difference, finite volume, and finite element methods for time-independence PDEs semi/fully discrete methods for time-dependent PDEs.

Prerequisite: MATH 5310.

OR

- COSC 5340 - Computational Methods II Credits: 3

BOT4550 - Computational Biology

Credits: 4
Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

OR

BOT5550 - Computational Biology

Credits: 4
Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

GEOL4030 - Groundwater Flow and Solute Transport Modeling

Credits: 3
Movement of groundwater and the dissolved solute is responsible for a variety of environmental, engineering, and geological processes of interest. Presents an overview of the analyses of groundwater flow and solute transport using

numerical modeling. The principles of the Finite Difference Method are introduced.

Dual Listed GEOL 5030.

Prerequisite: MATH 2205 and GEOL 4444/GEOL 5444.

OR

GEOL5030 - Groundwater Flow and Solute Transport Modeling

Credits: 3

Movement of groundwater and the dissolved solute is responsible for a variety of environmental, engineering, and geological processes of interest. Presents an overview of the analyses of groundwater flow and solute transport using numerical modeling. The principles of the Finite Difference Method are introduced.

Dual Listed GEOL 4030.

Prerequisite: MATH 2205, GEOL 5444.

ME5461 - Computational Fluid Dynamics I

Credits: 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Dual list with ME 4461 and ESE 4461

Prerequisite: graduate standing

ME5462 - Computational Fluid Dynamics II

Credits: 3

A study of advanced techniques in modern-day scientific computing as applied to Computational Fluid Dynamics. These include unstructured mesh generation using Delaunay triangulation, searching and sorting techniques, and efficient data structures. Other topics cover efficient hardware implementation including cache-effects and parallel computing and sensitivity analysis for design optimization.

Prerequisite: ME 5461

STAT5660 - Computationally Intensive Methods in Statistics

Credits: 3

Advanced statistical inference often relies on methods which are computationally intensive. The basic methods include Newton-Raphson; the EM algorithm; bootstrap and other resampling procedures; kernel density estimators; Laplace's method, importance sampling and MCMC, and saddlepoint and Edgeworth approximations.

Prerequisite: STAT 5520.

Electives

COSC5110 - Analysis Of Algorithms

Credits: 3

Analysis of algorithms to determine their time and space requirements. Beginning with data structures such as lists, stacks, trees, and sets and their implementations. The class then analyzes specific algorithms for internal sorting, hashing, and string search. Offered fall semester of even numbered years.

Prerequisite: COSC 3020 or equivalent and consent of the department.

STAT5680 - Advanced Bayesian Statistics

Credits: 3

Philosophical principles underlying Bayesian and non-Bayesian statistics. Decision theoretic foundations of Bayesian statistics including loss functions, minimaxity, and admissibility. Construction of conjugate prior distributions and non-informative prior distributions. Bayesian point estimation, hypothesis tests and credible sets. Computational tools for Bayesian problems including Markov chain Monte Carlo (MCMC) and other methods for approximating posterior distributions with some emphasis on implementation via a programming language or statistical computing software. As time and interest permit: the normal linear model, non-normal models, hierarchical models, Bayesian model averaging, other topics.

Prerequisite: STAT 5380; 5420 and STAT 5520.

STAT5380 - Bayesian Data Analysis

Credits: 3

Bayesian statistical methods for analyzing various kinds of data. Topics include basic Bayesian ideas and model formulation (priors, posteriors, likelihoods), single- and multiple-parameter models, hierarchical models, generalized linear models, multivariate models, survival models and an introduction to computation methods.

Prerequisite: STAT 5255

- High-Performance Computing in Geosciences, 2 hrs
- MATH 5320 - Mathematics Modeling of Processes Credits: 3

CHEM4560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical, density functional, semi-empirical and molecular mechanics methods.

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 5560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

OR

CHEM5560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical,

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 4560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

MATH4300 - Introduction to Mathematical Modeling

Credits: 3

A model of a real world problem captures the essential features of the problem, while scaling it down to a manageable size. In this course, symbolic tools and mathematical techniques are used to construct, analyze and interpret various mathematical models which arise from problems in the physical, biological and social sciences.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250 or MATH 2310.

Interdisciplinary Computational Science Minor

In recognition of the importance of modeling and simulation in an increasing number of applications, the Undergraduate Interdisciplinary Computational Science Minor is intended to help prepare science, math, and engineering students for leading roles in their professions.

The Undergraduate Minor in Computational Science is based on the following requirements:

1. The student must earn 15 credit hours in specified courses.
2. Within the 15 credits, the student must earn 9 credits at the upper-division level (3000 or above).
3. Within the 15 credits, the student must earn 6 credits outside of her/his major.
4. Within the 15 credits, the student must earn at least 6 credits in core courses.
5. Only grades of C or better will be accepted for the minor.

The 15 hours of coursework are divided between core and elective courses as listed below.

Core Courses

MATH4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed COSC 4340.

When Offered (Offered spring semester)

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

OR

COSC4340 - Numerical Methods for Ordinary and Partial Differential Equations

Credits: 3

Further develops the skills needed for computational problem solving and numerical analysis. Topics addressed include: one-step and linear multistep methods for solving initial value problems; truncation errors, stability analysis, and convergence of the numerical methods; finite difference approximation for elliptic equations and initial boundary value problems; iterative methods for sparse linear systems. Students typically complete a final project in this course.

Cross Listed MATH 4340.

Prerequisite: grade of C or better in MATH 2310 and MATH 3340.

- High-Performance Computing (Offered as a topics course).

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

OR

COSC3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed MATH 3340.

Prerequisite: grade of C or better in MATH 2210.

STAT4460 - Statistical Software

Credits: 1
Max Credit 1

An introduction to the various statistical software programs currently in use at the University of Wyoming. Topics will include the structure of each language, I/O, programming the basic statistical applications, and a comparison of the other languages.

Former Course Number [5480]

Prerequisite: STAT 2050

Elective Courses

BOT4550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 5550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

OR

BOT5550 - Computational Biology

Credits: 4

Introduces concepts and skills that are generally applicable to computational analysis of biological questions. Content is motivated by applied projects that require basic computer programming for analysis. Two computer languages are introduced and utilized.

Dual Listed BOT 4550.

Prerequisite: MATH 2200 or STAT 2050 or equivalent; LIFE 1010 or equivalent.

COSC3020 - Algorithms and Data Structures

Credits: 4

Introduces formal techniques to support the design and analysis of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, and an introduction to parallelism and the analysis of parallel programs.

Prerequisite: COSC 2300 , COSC 2030

PHYS4840 - Mathematical and Computational Physics II

Credits: 4

Second semester of a two-semester course. Provides a comprehensive overview of computational physics and provides numerous numerical techniques applied to physics problems. Topics include: numerical computations and visualizations, numerical solutions of ordinary differential equations, linear systems, curve fitting, discrete Fourier transforms, partial differential equations, integration, and Monte Carlo simulations of general stochastic systems. A weekly lab session will be held.

Prerequisite: MATH 2210, PHYS 2320 and PHYS 3000.

CHEM4560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical, density functional, semi-empirical and molecular mechanics methods.

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 5560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

OR

CHEM5560 - Molecular Modeling

Credits: 3

Emphasizes practical training in computational modeling of molecular properties using modern computer software. Includes ab-initio quantum mechanical,

Lab/Lecture Hours 3 hours per week.

Dual Listed CHEM 4560.

When Offered (Normally offered alternating spring semesters)

Prerequisite: CHEM 4507.

- ES 3070 - C with Numerical Methods for Engineers

MATH4300 - Introduction to Mathematical Modeling

Credits: 3

A model of a real world problem captures the essential features of the problem, while scaling it down to a manageable size. In this course, symbolic tools and mathematical techniques are used to construct, analyze and interpret various mathematical models which arise from problems in the physical, biological and social sciences.

When Offered (Offered fall semester)

Prerequisite: grade of C or better in MATH 2250 or MATH 2310.

ME4040 - Introduction to Finite Elements

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. The course includes development of the underlying matrix equations, the treatment of element

generation and properties, and implementation of boundary conditions.

Dual Listed ME 5040.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310 and (CE 4200/ARE 4200 or MATH 2250 or ME 3010 or ME 3060).

COSC4820 - Database Systems

Credits: 3

Provides comprehensive coverage of the problems involved in database design, in-depth coverage of data models and database languages. Students acquire practical skills of conceptual/logical database design and general familiarity with the problems and issues of database management.

Prerequisite: COSC 2030.

Mathematics Minor

The minor in mathematics focuses on fundamental aspects of mathematics that are essential for further study in mathematics and a variety of other disciplines. Students may customize the minor by choosing the appropriate transition course and upper-division electives.

Lower Division Core Courses

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

MATH2250 - Elementary Linear Algebra

Credits: 3

Studies linear equations and matrices, vector spaces, linear transformations, determinants, orthogonality, eigenvalues and eigenvectors.

Prerequisite: grade of C or better in MATH 2200 or MATH 2350.

MATH2800 - Mathematics Major Seminar

Credits: 2

An introduction to modern mathematical reasoning and discourse, emphasizing the distinctive ways in which logic and language are used and the motivations behind them. Develops methods of precise definition and rigorous proof. Several topics are explored, illustrating mathematics as a living, dynamic subject with its own culture and conventions.

Upper Division

Two of the math electives may be chosen from a list of approved courses that have significant math content, upon approval by the student's advisor. More details about such courses are available on the math department's web site, www.uwyo.edu/mathstats/.

Only grades of C or better will be accepted for the minor.

At the upper division, all mathematics minors must take ONE of

MATH3205 - Analysis I: Elementary Real Analysis

Credits: 3

An introduction to rigorous analysis in one real variable. Includes a rigorous reconsideration of the elements of calculus: the real number system, numerical sequences and series, limits, continuity, differentiability, and Riemann integrability for functions of one variable. Proof and mathematical writing are emphasized.

Prerequisite: Grade of C or better in MATH 2205 and MATH 2800.

OR

MATH3500 - Algebra I: Introduction to Rings and Proofs

Credits: 3

Begins with common features of integers, rational numbers, and polynomials, leading to study of rings in general. Topics include divisibility, factorization, and modular arithmetic for integers and polynomials, and homomorphisms and ideals for rings. Proof techniques include direct proof, proof by contrapostive, mathematical induction, and proof by contradiction.

Prerequisite: MATH 2800 and grade C or better in MATH 2250 or concurrent registration in MATH 2250.

OR

MATH3340 - Introduction to Scientific Computing

Credits: 3

Introduces basic numerical methods to solve scientific and engineering problems. Topics include: code structure and algorithms, basic numerical methods for linear systems, eigenvalue problems, interpolation and data fitting, nonlinear systems, numerical differentiation and integration.

Cross Listed COSC 3340.

Prerequisite: grade of C or better in MATH 2210.

- as well as 3 additional credits of upper division math courses (3000 and above)

Statistics Minor

Statisticians (data scientists) provide analytic solutions to scientific problems. Statistics is the process of using data to answer a research question. The B.S. in Statistics is applied with some theory. The minor of Statistics is all application.

Requirements

The following courses are required for a statistics minor:

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

12 Additional Hours from the Following:

STAT4015 - Regression Analysis

Credits: 3

Contains standard topics, as well as some newer and more unconventional ones. Oriented towards analysts who use computer packages for problem solutions. Includes balance of application and theory.

Dual Listed STAT 5015.

Former Course Number [4010, 4410]

Prerequisite: STAT 2050 or equivalent

STAT4025 - Design and Analysis of Experiments I

Credits: 3

Reviews design and analysis of one-factor experiments and introduces multifactor experiments, Latin squares, nested designs and random effects. Includes topics such as polynomial response curves, trend analysis, split plots and incomplete blocks as time permits.

Dual Listed STAT 5025.

Former Course Number [4020, 4310]

Prerequisite: STAT 2050 or equivalent

STAT4045 - Categorical Data Analysis

Credits: 3

Applied methods for analyzing associations when some or all variables are measured in discrete categories, not continuous scales. Topics include the binomial, multinomial, and Poisson probability models, parameter estimation and hypothesis-testing about proportions, measures of association and tests for contingency tables, logistic regression, and log-linear models.

Dual Listed STAT 5045.
Former Course Number [4040]

Prerequisite: STAT 2050 or equivalent

STAT4070 - Causal Models

Credits: 3

Applications of least-squares and iterative maximum-likelihood methods for drawing cause and effect conclusions from nonexperimental data. Topics include regression-based path analysis, reciprocal causation, confirmatory factor analysis, measurement error, and structural equation models with unmeasured (latent) variables.

Cross Listed SOC 4070.

Prerequisite: one of STAT 3050, STAT 4015, STAT 5050, 5060, STAT 5070, STAT 5080 or equivalent (regression methods).

STAT4115 - Time Series Analysis and Forecasting

Credits: 3

An applied introduction to time series and forecasting. Brief coverage of time series regression, decomposition methods, and smoothing will lead into a more detailed coverage of Box-Jenkins (ARIMA) modeling. Computer analyses using MINITAB and SAS will be an important part of the course.

Cross Listed ECON 5115

Dual Listed STAT 5115.

Former Course Number [4110]

Prerequisite: STAT 4015 /5015

STAT4155 - Fundamentals of Sampling

Credits: 3

Develops methodology of simple random sampling, stratified sampling, and multistage sampling. Provides applications related to physical, social, and biological sciences. Discusses single and two-variable estimation techniques. Presents estimation based on subsamples from subpopulations.

Dual Listed STAT 5155.

Former Course Number [4150]

Prerequisite: choice of STAT 2010, STAT 2050, STAT 2070 or equivalent.

STAT4255 - Mathematical Theory of Probability

Credits: 3

Calculus-based. Introduces mathematical properties of random variables. Includes discrete and continuous probability distributions, independence and conditional probability, mathematical expectation, multivariate distributions and

properties of normal probability law.

Cross Listed MATH 4255.

Dual Listed STAT 5255.

When Offered (Offered fall semester)

Former Course Number [4250]

Prerequisite: grade of C or better in MATH 2210.

STAT4265 - Introduction to the Theory of Statistics

Credits: 3

Presents derivations of theoretical and sampling distributions. Introduces theory of estimation and hypothesis testing.

Cross Listed MATH 4265.

Dual Listed STAT 5265.

Former Course Number [4260, 4010]

Prerequisite: STAT 4255/MATH 4255.

STAT4350 - Survey Construction and Analysis

Credits: 3

Examines the issues surrounding the construction (item wording, test theory, and numerical scales), assessment (sampling and psychometrics), and analysis (item analysis, qualitative data analysis, and factor analysis) of survey instruments. Roughly a third of the course is devoted to each of these areas.

Dual Listed STAT 5350.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4360 - Spatial Statistics

Credits: 3

Emphasis is on a generalized linear model approach to the modeling of continuous data, placing model building and the various kriging methods into a single conceptual framework.

Dual Listed STAT 5360.

Prerequisite: STAT 4015.

STAT4370 - Survival Analysis

Credits: 3

Introduction to the modeling of time to event data as it arises in epidemiological and medical research. Topics include parametric and non-parametric estimation for censored data without covariates, and for data with covariates, the proportional hazards regression model, additive hazards regression model and parametric regression models.

Dual Listed STAT 5370.

Prerequisite: STAT 4015 and STAT 4025.

STAT4300 - Applied Multivariate Analysis

Credits: 3

The application of multivariate statistical methods in behavioral science research. Topics include: multivariate regression, canonical correlation, discriminate analysis, factor analysis and multidimensional scaling. A wide range of computer assistance is incorporated.

Dual Listed STAT 5300.

Prerequisite: STAT 4015 /5015 and STAT 4025 /5025

STAT4270 - Applied Bayesian Statistics

Credits: 3

This course introduces Bayesian data analysis in an applied context. We will learn about Bayesian statistics primarily in a regression model context, taken broadly. A conceptual understanding of popular Markov Chain Monte Carlo algorithms will be provided.

Dual Listed STAT 5270.

Prerequisite: STAT 4015 /5015

Total: 18-19 Hours

Only grades of C or better will be accepted for the minor.

Graduate

Mathematics, M.A.

A comprehensive mathematics degree, with training in the fundamentals of analysis, abstract algebra, computation, and mathematical modeling. Provides a strong foundation for teaching, work in industry, and continued study in graduate-level programs.

Common Requirements

The following requirements are common to all four tracks:

- The student must maintain a 3.000 cumulative GPA.
- The student must complete 30 hours of formal mathematics coursework at the 5000 level.
- The student must pass the department's Foundation Exam. This exam covers material from advanced vector calculus and linear algebra at the upper-division undergraduate level and is offered before the beginning of each semester.

- Take one hour of the seminar MATH 4970: Professional Development in Mathematics and one hour of the seminar MATH 4970: Professional Development in Teaching.

5000-level Mathematics Courses

As part of the 30 hours of formal 5000-level mathematics courses, the student must complete the following courses with a grade of B or better:

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Tracks:

In addition to the common elements above, students must select and complete one of the capstone experiences described in the tracks below.

Track #1: Master's Thesis (Plan A)

Within the 30 hours of 5000-level courses, the Plan A student must complete 4 hours of MATH5960 - Thesis Research. At least 26 hours of 5000-level coursework must be mathcontent courses (not thesis research).

The student must prepare a master's thesis (Plan A) and give an oral defense of the thesis. In the mathematics program, a Plan A thesis reports on the result(s) of independent and original research completed by the student under the direction of a faculty member. The thesis should describe the research and its results and be written to the standards of the appropriate area of mathematics.

Track #2: Master's Paper (Plan B)

The student must prepare a master's paper (Plan B) and give an oral defense.

To write a Plan B paper, the student must present an expository paper on a designated mathematical subject. Students are guided by their advisor in the subject matter and in the preparation of the paper. A successful paper and defense demonstrates that the student has mastered a substantial mathematical topic that is beyond those covered in formal foundational coursework.

Track #3: Coursework/Project (Plan B)

A second M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper, the student takes a sequence of three 5000-level courses that all address a common mathematical theme. The sequence must be approved by the

student's advisor and the mathematics graduate committee. Two of the courses must be mathematics-department offerings, and the third may be either a mathematics course (including reading/topics courses) or a course from another department in a related field.

- The student must complete an additional 6 hours of courses at the 5000 level. Thus, Track #3 requires the completion of 36 hours of graduate-level coursework.
- Within the 36 hours, the student must propose and complete with a grade of B or better an appropriate 3-course sequence
- The student will write a short paper illustrating how the common mathematical theme of the sequence manifests itself in the content of each course and give a presentation/defense of the paper.

In approving the student's proposal for this option, the graduate committee and the advisor will consider how the writing and independent study spirit of the Plan B option are fulfilled within the recommended plan.

Track #4: Qualifying Exam (Plan B)

A third M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper or taking additional coursework, the student must take and pass the department's PhD Qualifying Examination in one of the three areas: Analysis, Algebra, or Applied Mathematics. These examinations focus on the material in the required courses.

These examinations are given twice a year at the beginning of the fall and spring semesters. This option is intended for students who will continue for a PhD at UW.

- The oral component of this Track will consist of a defense of the student's written answers to qualifying exam.
- Pass one of the department's qualifying exams in:

Analysis

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

Algebra

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Applied Mathematics

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

Mathematics, M.A.T.

Applicants are required to have:

- A. A valid teaching endorsement in any state or educational requirements satisfied for secondary teaching;
- B. courses equivalent to MATH 3205, MATH 3500, MATH 4000 and MATH 4600;

C. a course in computer programming.

Students who enter the program with a deficiency in the courses listed in (b) must take them at UW, but these courses may not be counted toward the course requirements of the M.S.T./M.A.T. program.

Mathematics, M.S.

A comprehensive mathematics degree, with training in the fundamentals of analysis, abstract algebra, computation, and mathematical modeling. Provides a strong foundation for teaching, work in industry, and continued study in graduate-level programs.

Common Requirements

The following requirements are common to all four tracks:

- The student must maintain a 3.000 cumulative GPA.
- The student must complete 30 hours of formal mathematics coursework at the 5000 level.
- The student must pass the department's Foundation Exam. This exam covers material from advanced vector calculus and linear algebra at the upper-division undergraduate level and is offered before the beginning of each semester.
- Take one hour of the seminar MATH 4970: Professional Development in Mathematics and one hour of the seminar MATH 4970: Professional Development in Teaching.

5000-level Mathematics Courses

As part of the 30 hours of formal 5000-level mathematics courses, the student must complete the following courses with a grade of B or better:

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Tracks:

In addition to the common elements above, students must select and complete one of the capstone experiences described in the tracks below.

Track #1: Master's Thesis (Plan A)

Within the 30 hours of 5000-level courses, the Plan A student must complete 4 hours of MATH5960 - Thesis Research. At least 26 hours of 5000-level coursework must be mathcontent courses (not thesis research).

The student must prepare a master's thesis (Plan A) and give an oral defense of the thesis. In the mathematics program, a Plan A thesis reports on the result(s) of independent and original research completed by the student under the direction of a faculty member. The thesis should describe the research and its results and be written to the standards of the appropriate area of mathematics.

Track #2: Master's Paper (Plan B)

The student must prepare a master's paper (Plan B) and give an oral defense.

To write a Plan B paper, the student must present an expository paper on a designated mathematical subject. Students are guided by their advisor in the subject matter and in the preparation of the paper. A successful paper and defense demonstrates that the student has mastered a substantial mathematical topic that is beyond those covered in formal foundational coursework.

Track #3: Coursework/Project (Plan B)

A second M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper, the student takes a sequence of three 5000-level courses that all address a common mathematical theme. The sequence must be approved by the student's advisor and the mathematics graduate committee. Two of the courses must be mathematics-department offerings, and the third may be either a mathematics course (including reading/topics courses) or a course from another department in a related field.

- The student must complete an additional 6 hours of courses at the 5000 level. Thus, Track #3 requires the completion of 36 hours of graduate-level coursework.
- Within the 36 hours, the student must propose and complete with a grade of B or better an appropriate 3-course sequence
- The student will write a short paper illustrating how the common mathematical theme of the sequence manifests itself in the content of each course and give a presentation/defense of the paper.

In approving the student's proposal for this option, the graduate committee and the advisor will consider how the writing and independent study spirit of the Plan B option are fulfilled within the recommended plan.

Track #4: Qualifying Exam (Plan B)

A third M.A. or M.S. option exists for the Plan B student. In lieu of writing a paper or taking additional coursework, the student must take and pass the department's PhD Qualifying Examination in one of the three areas: Analysis, Algebra, or Applied Mathematics. These examinations focus on the material in the required courses.

These examinations are given twice a year at the beginning of the fall and spring semesters. This option is intended for students who will continue for a PhD at UW.

- The oral component of this Track will consist of a defense of the student's written answers to qualifying exam.
- Pass one of the department's qualifying exams in:

Analysis

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

Algebra

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Applied Mathematics

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

Mathematics, M.S.T.

Applicants are required to have:

- A. A valid teaching endorsement in any state or educational requirements satisfied for secondary teaching;
- B. courses equivalent to MATH 3205, MATH 3500, MATH 4000 and MATH 4600;
- C. a course in computer programming.

Students who enter the program with a deficiency in the courses listed in (b) must take them at UW, but these courses may not be counted toward the course requirements of the M.S.T./M.A.T. program.

Mathematics, Ph.D.

A rigorous PhD program in mathematics, culminating in an original research project. Math PhDs have excellent career prospects in a variety of settings, including academia, industry, research, engineering, economics and government.

Mathematics PhD Information

The student must maintain a 3.0 cumulative GPA.

The student must teach two semesters of college mathematics.

The student must complete a combination of 72 hours of coursework and dissertation research. Within the 72 hours, a maximum of 12 hours can be at the 4000 level, and 42 hours must be formal courses at the 5000 level. The courses must be mathematics courses or courses with significant mathematical content, as approved by the department's graduate committee.

The Student Must Complete

Within the 42 hours of 5000-level courses, the student must:

- Complete the courses distributed in three areas: algebra, analysis, and applied mathematics. The student must take at least two courses in each of two categories and at least one course from the third category. The department maintains a list of course categories.

MATH5200 - Real Variables I

Credits: 3

Develops the theory of measures, measurable functions, integration theory, density and convergence theorems, product measures, decomposition and differentiation of measures, and elements of function analysis on L_p spaces. Lebesgue theory is an important application of this development.

Prerequisite: MATH 4200.

MATH5230 - Complex Variables I

Credits: 3

Develops the function theory of holomorphic (analytic) and harmonic functions. Topics covered include the Cauchy-Riemann equations, Cauchy-Goursat theorem, Cauchy integral theorem, Morera's theorem, maximum modulus theorem, Liouville's theorem, power series representation, harmonic functions, theory of singularities of functions of one complex variable, contour integration, analytic continuation, Riemann mapping theorem and topology of spaces of holomorphic functions.

Prerequisite: MATH 4200.

MATH5310 - Computational Methods in Applied Sciences I

Credits: 3

First semester of a three-semester computational methods series. Review of iterative solutions of linear and nonlinear systems of equations, polynomial interpolation/approximation, numerical integration and differentiation, and basic ideas of Monte Carlo methods. Comparison of numerical techniques for programming time and space requirements, as well as convergence and stability. Identical to COSC 5310.

Prerequisite: COSC 1010.

MATH5400 - Methods of Applied Mathematics I

Credits: 3

First semester of a one-year survey of topics and methods of applied mathematics, with emphasis on applications from physics and engineering. The full sequence includes introductions to mathematical aspects of mechanics (e. g. , conservation laws), asymptotic expansions, systems of ODE and stability, integral equations and calculus of variations, PDE with boundary value problems and generalized solutions (including wave, heat, and potential equations), numerical methods and stability.

Prerequisite: MATH 2250, MATH 4200 or 4400, and MATH 2310 or 4430.

MATH5500 - Advanced Linear Algebra

Credits: 3

An introduction to the theory of abstract vector spaces and linear transformations from an axiomatic point of view, with applications to matrix theory. Topics include vector spaces, dimension, linear transformations, dual spaces and functionals, inner product spaces, and structure theorems.

Prerequisite: MATH 3500 and MATH 4500.

MATH5550 - Abstract Algebra I

Credits: 3

Studies the structure of groups, rings, and fields. For each, concepts of substructures, quotient structures, extensions, homomorphism, and isomorphism are discussed.

Prerequisite: MATH 3500 or MATH 5500.

Take Two Hours of

MATH5800 - Seminar in Mathematics

Credits: 1-3

Max Credit (Max. 8)

Prerequisite: consent of instructor.

In Addition

In addition, the student must:

- Pass the foundation exam, the qualifying exam in the student's research area, and the preliminary exam.
- Write a dissertation containing the student's original mathematical results and present an oral defense of the research.
- Take one hour of the seminar 4970: Professional Development in Mathematics and one hour of the seminar MATH4970 - Professional Development in Teaching.

Statistics Graduate Minor

A graduate minor in statistics can be a great way to signal your interest and skill in data analysis as it relates to your field of study.

Requirements

Twelve hours of STAT courses at the 5XXX-level, with the exception of:

STAT 5000

STAT 5185

STAT4220 - Basic Engineering Statistics

Credits: 3

Introduces probability models, properties of distributions, statistical inference and development of statistical models for physical and engineering sciences. Credit cannot be earned in more than one of the following courses: STAT 2010, STAT 2050, STAT 2070, 4220 and 5000.

Former Course Number [4020]

Prerequisite: MATH 2205, MATH 2355 or equivalent.

- STAT 5000

Statistics, M.S.

Profile

The Master's Program in Applied Statistics will give the student an extensive and broad background in statistical methods, data analysis, and written and oral presentation skills. This degree is a terminal experience in graduate statistical education and should not be viewed as preparatory for entrance into a Ph.D. program in statistics. Graduates will have the necessary background to work as data management specialists, statistical analysts, and as project managers within a wide range of research organizations.

Plan B (Option 1)

Coursework

In addition to the general requirements of the university all candidates for the MS (Plan B - Option 1) degree must successfully take and complete:

Required: 15 Credit Hours

STAT5210 - Advanced Regression

Credits: 3

Advanced methodologies, with particular focus on concepts and methods related to regression. Topics include generalized linear models, nonlinear regression, elementary linear model theory, and Data Science topics such as resampling inference, ridge regression and the lasso, and k-fold cross-validation.

Prerequisite: MATH 4265/STAT 4265/STAT 5265 and STAT 4015/STAT 5015. STAT 4025/STAT 5025 and STAT 4045/STAT 5045 are recommended.

STAT5220 - Advanced Design

Credits: 3

Advanced study of experimental designs, observational designs, and mixed models. Topics include fixed and random effects, factorial, split-plot and repeated measures designs, and hierarchical models. Linear model methodology and Data Science concepts will also be emphasized.

Prerequisite: MATH 5265/STAT 4265/STAT 5265, and at least one of STAT 4015/STAT 5015, STAT 4025/STAT 5025, or STAT 5210.

STAT5470 - Data Analysis

Credits: 3

This course is designed to develop the skill of analyzing data sets using methods of classic statistical analysis, such as analysis of variance, regression, discrete models, descriptive analysis, non-parametrics, and multivariate methods. The focus will be on understanding the various models and methods, computer assisted data analysis, and communication of results (oral and written).

Prerequisite: 12 graduate level hours in statistics (excluding STAT 5000).

STAT5380 - Bayesian Data Analysis

Credits: 3

Bayesian statistical methods for analyzing various kinds of data. Topics include basic Bayesian ideas and model formulation (priors, posteriors, likelihoods), single- and multiple-parameter models, hierarchical models, generalized linear models, multivariate models, survival models and an introduction to computation methods.

Prerequisite: STAT 5255

STAT5660 - Computationally Intensive Methods in Statistics

Credits: 3

Advanced statistical inference often relies on methods which are computationally intensive. The basic methods include Newton-Raphson; the EM algorithm; bootstrap and other resampling procedures; kernel density estimators; Laplace's method, importance sampling and MCMC, and saddlepoint and Edgeworth approximations.

Prerequisite: STAT 5520.

Electives

a minimum of 15 credit hours in other acceptable graduate courses. Acceptable courses include statistics courses numbered 5000 or higher, excepting:

- STAT 5000
- STAT 5050 - Statistical Methods for the Biological Science
- STAT 5060
- STAT 5070 - Statistical Methods for the the Social Sciences
- STAT 5080 - Statistical Methods for the Agricultural and Natural Resource Sciences
- STAT 5185 - Analysis of Data

Total Credits: 30 Hours

Graduation Requirements: (1) successful completion of coursework and (2) a data analysis project (Plan B paper).

QuickStart Program

Mathematics Quick Start BS/MS

A five-year combined Master's and Bachelor's degree in mathematics, in which six credits of graduate coursework is counted toward both degrees. UW students must apply to be considered for this degree.

Mathematics Quick Start Information

Overview

The combined BS/MS program in Mathematics is designed to afford highly qualified students in their junior or senior year the opportunity to work towards both the BS and MS degrees in Mathematics. The program allows for advanced students to jump-start the graduate portion of their education by applying credits for graduate courses to both their BS and MS requirements. The MS degree earned under the combined BS/MS program is not a new or separate category of degree. However, through careful planning and coordination, this program can result in a reduction of the time required to complete both the Mathematics, B.S. and Mathematics, M.S. degrees.

Qualification/Admission

Application for admission may be submitted to the department at any time after the student has completed 75 undergraduate credits. Graduate credits may be applied toward the MS under this program upon the completion of 90 undergraduate credits. Additional minimum requirements for admission are:

1. Minimum GPA of 3.25
2. Minimum GPA in undergraduate math courses of 3.5
3. Completion of two transition courses or their equivalents
4. Three letters of recommendation from UW faculty (at least 2 from UW-Math)

Credits

The BS/MS-Math program allows for students under the guidance of their academic advisor to take graduate courses as part of their BS degree. During their senior year, up to six graduate credits (5000+ level) can be counted simultaneously towards both the BS and MS degrees in Mathematics. In principle, this "double dipping" allows students to earn a MS after completing only 144 credits (120 to earn the BS, 6 of which are applied toward the 30 credits required to earn the MS) instead of 150 credits. In addition, students may reserve a further six credits of 5000 level credits for their MS degrees prior to earning their BS; however, these credits will not be counted toward the BS degree.

Satisfactory progress

The department's Foundation Exam must be passed by the beginning of their second semester of their 4th year. Students in the BS/MS program must have a faculty advisor, with whom they consult to complete a program of study. The Program of Study (POS) must be submitted to the Mathematics Graduate Committee for approval by the end of the midterm of the first semester in which the student has been admitted into the program. The POS must include all courses to be taken during their senior year to the end of the students MS program. Any of the tracks (plan A or B) available to our Masters students will be available to students in this program. The advisor will aid the student in determining which track is the best for completion of the Masters.

Regulations

Students in this program will be governed by the regulations applicable to any undergraduate student in Mathematics until the student has completed 120 credit hours applicable to the BS degree in Mathematics. Once those 120 credit hours have been completed, the student will be enrolled as a graduate student and be governed by graduate student

regulations in the Mathematics graduate program. To the extent possible, once the student transitions to being a graduate student, the student should complete the MS degree in 12 months.

University of Wyoming requirements:

Students must have a minimum cumulative GPA of 2.0 to graduate. • Students must complete 42 hours of upper division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. • Courses must be taken for a letter grade unless offered only for S/U. • University Studies Program (USP) Human Culture (H) and Physical & Natural World (PN) courses must be taken outside of the major subject, but can be cross-listed with the major.

College of Arts and Sciences requirements:

Students must take two "core" courses in addition to UW's University Studies Program requirements: Diversity in the United States (ASD) and Global Awareness (ASG). • No more than 60 hours in the major subject may be used toward the 120 credit hours required for graduation. • At least 30 hours in the major subject must be completed with a grade of C or better (the major may require more).

Statistics Quick Start BS/MS

An advanced degree in Statistics is powerful in its own right; statistical methods are part of the core of data science, so stands as a useful foundation for that as well. The Program in Statistics at the University of Wyoming now offers a QuickStart ("4+1") MS program, within which qualified students can obtain a **Statistics, B.S.** and a **Statistics, M.S.** degree in five years.

The program is intended for inspired, high-achieving students; the pace will be intense, as you will need to be taking courses at the graduate level in your undergraduate senior year.

The MS degree requires 30 credits; in order to make the 4+1 program work enrolled students can

1. Have two three-credit 4XXX/5XXX classes count towards both the BS and MS degrees. Enrollment must be for the 5XXX section of the course. Tuition is charged at the undergraduate rate.
2. Reserve two three-credit 4XXX/5XXX classes for graduate credit. Tuition is charged at the undergraduate rate, but these two classes *will only count towards the MS*.

With these four courses counting towards the MS, there remains 18 credits, which can be done in two semesters of three (three-credit) classes each.

Steps:

1. Apply (usually in the Spring of your Junior year) online to the QuickStart- Statistics BS/MS -College of Arts & Science program[1]. You will need (unofficial is fine) college transcripts, a statement of purpose, and three letters of recommendation[2].
2. Once you are enrolled in the program, the Admissions Office will work with you to put into play the double-dip and reserved courses mentioned above.

Acceptance into the MS is conditional until your undergraduate degree is awarded and results are in from your taking the GRE, which we recommend you take in your last undergraduate year.

[1] Instructions from the registrar: Apply at: <https://www.uwyo.edu/admissions/apply-online.html>

The log-in is different from WyoWeb. If you remember the log-in email/password form when you originally applied to UW, you can use the Returning Users option. Otherwise, use the First Time users option. When you get to the page where you select your program of study, select **QuickStart- Statistics BS/MS -College of Arts & Science**. All the Quickstart program are under Q to (hopefully) reduce confusion for non-quickstart applicants. Any questions during the application process can be directed to admissions@uwyo.edu or 766-5160.

[2] These documents are standard for applying to our graduate program; we anticipate we will have a mix of QuickStart students and regular (i.e. 2-year) MS students who are applying from elsewhere.

Department of Mechanical Engineering

2052 Engineering Building, (307) 766-2122

Web site: www.uwyo.edu/mechanical

E-mail: me.info@uwyo.edu

Department Head: Erica Belmont

Professors:

DENNIS N. COON, B.S. Alfred University New York; M.S. 1984; Ph.D. Pennsylvania State University 1986; Professor of Mechanical Engineering 1999, 1988.

DIMITRI J. MAVRIPLIS, B.S. McGill University 1982; M.Eng. 1982; Ph.D. Princeton University 1987; Professor of Mechanical Engineering 2003.

JONATHAN W. NAUGHTON, B.S. Cornell University 1986; Ph.D. Pennsylvania State University 1993; Professor of Mechanical Engineering 2012, 1997.

Associate Professors:

DILPUNEET S. AIDHY, B.E. Punjab Engineering College 2004; Ph.D. University of Florida 2009; Associate Professor of Mechanical Engineering 2021, 2015.

ERICA L. BELMONT, B.S. Tufts University 2004; M.S. 2008; Ph.D. University of Texas at Austin 2014; Associate Professor of Mechanical Engineering 2020, 2014.

RAY S. FERTIG III, B.S. University of Wyoming 2001; M.S. 2003; Ph.D. Cornell University 2010; Associate Professor of Mechanical Engineering 2017, 2011.

MICHAEL STOELLINGER, M.S. Technical University Munich 2005; Ph.D. University of Wyoming 2010; Associate Professor of Mechanical Engineering 2018, 2012.

Assistant Professors:

MAYSAM MOUSAVIRAAD, B.S. Sharif University of Technology 2002; M.S. 2004; Ph.D. University of Iowa 2010; Assistant Professor of Mechanical Engineering 2017.

XIANG ZHANG, B.S. Northeastern University (China) 2009; M.S. Beihang University (China) 2012; Ph.D. Vanderbilt University 2017; Assistant Professor of Mechanical Engineering 2019.

Instructional Professors:

RAMSANKAR VEERAKUMAR, B.S in Mechanical Engineering , University of Kerala, India, 2005. M.S. in Mechanical Engineering , Birla Institute of Technology and Science (BITS Pilani), India, 2014. Ph.D. in Aerospace Engineering, Iowa State University 2021. Instructional Assistant Professor, 2021.

Lecturers:

KARI STRUBE, BS in Electrical Engineering (bioengineering option), University of Wyoming 2007. MS in Electrical Engineering, University of Wyoming, 2009. Assistant Lecturer, 2021

Professors Emeriti:

Donald F. Adams, Paul A. Dellenback, Bruce R. Dewey, Andrew Hansen, William R. Lindberg, Kynric M. Pell, Ovid A. Plumb, David E. Walrath, Robert A. Wheasler

Mechanical Engineering B.S.

Mechanical Engineering is the broadest area of study in engineering. In contrast to other engineering disciplines, mechanical engineers are employed in significant percentages in almost all industrial and governmental organizations that employ engineers.

The spectrum of activities in which mechanical engineers are engaged continues to expand. The curriculum has in turn become flexible to allow for the education of mechanical engineering students in many diverse and allied areas, or for graduate school preparation.

The educational objectives of the of Mechanical Engineering B.S. program are to prepare students to:

- Successfully practice the profession of engineering.
- Demonstrate career growth (e.g. increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees).
- Apply Mechanical Engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts.
- Successfully serve in a range of leadership and collaborative roles in the profession in the community.
- Exhibit high professional standards and commitment to ethical action.

The undergraduate program includes a foundation in mathematics, science, and engineering sciences. The three key elements of the mechanical engineering undergraduate program include core engineering principles, laboratory experience, and development of communication skills.

The mechanical engineering curriculum affords the student the flexibility to pursue specific professional goals within the discipline. Such an opportunity needs to be carefully considered by each student, so that elective courses are chosen with these goals in mind. During the junior and senior years, the student selects 15 credit hours of technical electives.

Mechanical and Energy Systems Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in Mechanical and/or Energy Systems engineering courses completed at this university. A grade of C or better must be earned in all engineering science (ES) and required mathematics courses.

Mechanical Engineering, B.S.

Energy Systems Engineering B.S.

Energy Systems Engineering (ESE) is an ABET-accredited undergraduate degree offering in the Department of Mechanical Engineering. The ESE program was designed to train engineers to address one of this country's foremost challenges: to achieve energy independence and meet the growing demand for energy, while at the same time addressing critical environmental concerns. The program is intended to help meet these challenges by preparing students to be:

- technology leaders in energy conversion and environmental protection systems
- capable managers in the energy industry
- versatile overseers of energy development by the governmental sector
- technically-trained and environmentally-sensitive liaisons between the energy industry and the public.

ESE students will be trained in alternative and environmentally-friendly energy conversion systems, as well as more traditional technologies that will continue to play an important role for the foreseeable future.

Although the discipline of mechanical engineering has historically been responsible for the design of energy conversion cycles and equipment, issues outside the conventional realms of engineering are increasingly important to address as new and improved energy conversion systems are implemented. The engineer trained in Energy Systems will be better equipped than traditional mechanical engineers to deal with the environmental, legal, political, economic, and permitting aspects of new energy projects.

The educational objectives of the of Energy Systems Engineering B.S. program are to prepare students to:

- Successfully practice the profession of engineering.
- Demonstrate career growth (e.g. increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees).
- Apply Energy Systems Engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts.
- Successfully serve in a range of leadership and collaborative roles in the profession in the community.
- Exhibit high professional standards and commitment to ethical action.

The ESE degree has many coursework requirements in common with the Mechanical Engineering degree, particularly in the thermal, fluids, and energy conversion sciences. However, the ESE program emphasizes energy conversion aspects of Mechanical Engineering and requires coursework from UW's School of Environment and Natural Resources (ENR), course work in environmental law, and electives picked from a list of classes that focus attention on energy and the environment. The ENR courses expose students to issues related to permitting such as preparation of environmental impact studies, and related regulations such as the Endangered Species Act. In addition, technical electives allow students to choose more detailed study in personal areas of interest including, for example, courses in environmental engineering, wind engineering, solar engineering, and petroleum engineering.

Mechanical and Energy Systems Engineering degree candidates must meet the academic requirements of the college and in addition must have an average GPA of 2.000 (C) in Mechanical and/or Energy Systems engineering courses completed at this university. A grade of C or better must be earned in all engineering science (ES) and required mathematics courses.

Energy Systems Engineering, B.S.

Concurrent ME/ESE Degrees

In the event that a student desires concurrent majors in ME and ESE, University policy requires that ALL requirements for each program are met. The student must select which will be the primary major.

Graduate Study

The Department of Mechanical Engineering offers graduate study leading to the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Mechanical Engineering. Faculty in Mechanical Engineering conduct research in the areas of aerodynamics, biomaterials, composite materials, computational material science, computational fluid dynamics, combustion, continuum mechanics, heat transfer, materials reliability, mechanical behavior of materials, nanomechanics of surfaces and interfaces, and wind energy.

Department Specific Graduate Admission Requirements

Applicants should possess a Bachelor of Science (B.S.) degree or equivalent in Mechanical Engineering with a minimum GPA of 3.000 on a 4.000 grade scale or equivalent. Students that do not hold B.S.M.E. degrees may qualify as M.S. candidates by completing, without credit, certain prerequisite courses as specified by the Department. These prerequisites would depend upon the candidate's background and upon the area in which he/ she plans to specialize.

A minimum composite score of 294 (MS) or 307 (PhD) on the Verbal and Quantitative sections of the GRE is required for admission to the Mechanical Engineering Department. For international students, a minimum TOEFL score of 90 on the Internet-based test (iBT) (or a minimum IELTS score ≥ 6.5 or a DuoLingo ≥ 110) is required. If an international applicant wishes to be considered for Graduate Teaching Assistantship funding, the following minimum English Proficiency must be met: OPI \geq Advanced Mid, TOEFL Speaking ≥ 23 , IELTS Speaking ≥ 6.5 , DuoLingo Conversation & Production (average) ≥ 110 . If an international applicant wishes to be considered for Graduate Teaching Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/study-iep-esl/grad-ta-support/index.html>) if you have questions regarding the English proficiency requirements. Admittance to the graduate program is competitive, and the average applicant that is accepted with assistantship support will likely have well above the minimum qualifications.

In order to apply, please submit the following via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>): resume, copy of academic transcript, copy of GRE scores, copies of TOEFL (or IELTS or DuoLingo) scores for international non-native English speaking applicants, three letters of reference, and a Statement of Purpose indicating the applicant's technical area of interest, abilities, and objectives in completing a graduate degree in mechanical engineering. If you are applying for the BS/MS program, please choose "QuickStart - Mechanical Engineering BS/MS" as the program (no GRE score and Statement of Purpose are needed for the BS/MS application). Applicants to the joint MBA/MS-ME program should choose the MS degree program for the application. To be considered for Assistantships, applications must be submitted before March 15 for the Fall semester or October 15 for the Spring semester.

For Quickstart B.S./M.S. admissions requirement, see degree link below.

Major

Energy Systems Engineering, B.S.

Energy Systems Engineers design, develop, and test energy systems and devices with emphasis on renewables, conversion, and more, and in the context of environmental and legal considerations. The UW BS in Energy Systems Engineering is ABET accredited.

Energy Systems Engineering Success Curriculum

All undergraduate students in the B.S. Mechanical Engineering and B.S. Energy Systems Engineering programs must successfully complete the Mechanical Engineering Success Curriculum prior to enrolling in any upper-division (3000-level or above) courses taught by the Mechanical Engineering Department. The Mechanical Engineering Success Curriculum promotes successful completion of upper-division coursework by assuring a student that their foundational knowledge and skills are strong in mathematics and engineering fundamentals. AP/iB courses are excluded from the GPA calculation, but grades transferred from other institutions will be used in evaluating the ME Success Curriculum GPA.

Successful Completion

To successfully complete the Mechanical Engineering Success Curriculum, a student must earn a minimum 3.000 GPA in the following 10 courses:

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

Policy for Transfer Credit Towards Energy Systems Engineering (ESE) Core Coursework

In general, transfer of coursework toward an Energy Systems Engineering degree will follow University of Wyoming policy. A course must be shown to be equivalent to its University of Wyoming course (latitude may be given for Energy Systems Engineering electives without a direct University of Wyoming equivalent). However, three courses are considered to be the core of the Energy Systems Engineering program, and therefore credit cannot be transferred from another institution. These courses are ESE 3020, ESE 3040, and ESE 3360. Exceptions may be made for courses from approved study abroad programs or in extreme circumstances. Please note that failing a prerequisite course resulting in a delay of graduation does not constitute an extreme circumstance. Any transfer of ESE courses requires explicit written approval from the Department.

Energy Systems Engineering Curriculum

Atmospheric Science

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

Chemistry

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

Environment and Natural Resources

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making.

Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.
USP 2003-2014 Code U3WC
USP 2015 Code U5C3
Prerequisite: ENR 3000.

Math

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Energy System Engineering

ESE3005 - Engineering Experimentation

Credits: 3

A combined lecture/laboratory course introducing students to experimental methods in the context of dynamics. Written technical communication, intermediate structured programming, experimental design, fundamental statistics, and uncertainty methods (numerical and analytical) are emphasized. Collaborative writing and teamwork is introduced.

Cross Listed ME 3005.

Former Course Number [2010; 2020]

Prerequisite: Completion of the ME Success Curriculum, ES 1060; ES 2120.

ESE3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ME 3020.

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ESE3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ME 3040.

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ESE3060 - Numerical Methods for Engineers

Credits: 3

Numerical solutions of problems commonly encountered in mechanical engineering including differentiation, integration, differential equations, system of linear and nonlinear equations, and optimization. The structured programming approach will be emphasized and applications from solid mechanics, thermal fluid sciences, materials science, and dynamic systems will be covered.

Cross Listed ME 3060.

Prerequisite: Completion of the ME Success Curriculum, ES 1060 and corequisite of MATH 2310.

ESE3160 - Thermal/Fluid Science Lab

Credits: 3

A laboratory course to introduce students to experimental methods for temperature measure and pressure/flow characteristics of fluids. Continuation of experience with communication (written, oral, and digital), intermediate

programming, experimental design, data analysis, and teamwork skills is emphasized.

Cross Listed ME 3160.

Former Course Number [2140; 2160]

Prerequisite: Completion of the ME Success Curriculum, ES 2330; ME 3005/ESE 3005.

ESE3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ME 3360/ARE 3360.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310 and ES 2330.

ESE4060 - Energy Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience on an energy-related project. Multidisciplinary teams prepare a project proposal or Statement of Qualifications, generate a morphological study of their project, develop mathematical models of their design, and prepare project plans and specifications. Project management and methods are also presented.

USP 2015 Code U5C3

Prerequisite: Completion of the ME Success Curriculum, ESE 3040 and ESE 3360.

ESE4070 - Energy Systems Design II

Credits: 3

Continuation of a two-course design sequence. The design teams refine their designs, fabricate the project, test the project for compliance with the design specifications, write a comprehensive engineering design report including socioeconomic factors, and prepare and deliver a presentation of the project in a public forum.

USP 2003-2014 Code U3WC

Prerequisite: Completion of the ME Success Curriculum, ME 4060/ESE 4060 and WB.

Life Sciences

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get

duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

Physics

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

Electives

- One Math/Science Elective (min 3 CH total, select from department-approved list)
- One Business Elective (min 3 CH, select from department-approved list)

(See here for Math, Science and Business Elective options: [me_math_science_business_electives_2022_02_04.pdf](#) (uwyo.edu))

ESE Electives

Two ESE Electives (min 6 CH total) choose 2 from:

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 5350.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

PETE4000 - Environment, Technology and Society

Credits: 3

Explores relationships among technology, the environment and society. Studies social and humanistic aspects of using current and future technology to understand and solve environmental problems.

Cross Listed CHE 4000.

Prerequisite: junior standing and completion of two lab sciences.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

Technical Electives

Five Technical Electives (min 15 CH). Choose 5 from:

ARE4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ME 4430.

When Offered (Normally offered alternate spring semesters)

Former Course Number [ARE 3420, ARE 4810]

Prerequisite: Completion of the ME Success Curriculum, ARE 3400 and ARE 3360/ME 3360 or concurrent.

ARE4740 - Mechanical Systems Design Project

Credits: 3

Final course in the building mechanical systems sequence incorporating elements of previous design courses by executing design of a hypothetical building with a concentration on a detailed design of the project's mechanical systems.

Cross Listed ARE/ME 4740

Prerequisite: ARE/CE 3110 and ARE 3400

CE3400 - Introduction to Environmental Engineering

Credits: 3

An introduction to the major topics in environmental engineering. Focus areas include water supply, wastewater treatment, air pollution control and solid and hazardous waste management. Quantitative aspects and engineering solutions to problems are emphasized.

Prerequisite: MATH 2205 and CHEM 1020 or equivalent.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

ES2800 - Physical Computing

Credits: 3

Emphasizes implementing python programs on the Raspberry Pi and then interfacing with power stages, mobile platforms, sensors and input/output devices. The goal is designing systems that sense the world, make decisions based on those sensations

Prerequisite: EE 1101 or ES 2210 or concurrent enrollment in ES2210 or Consent of the Instructor

ESE4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including

thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems. Cross-listed with ME 4455 and dual-listed with ME 5455.

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ESE4461 - Computational Fluid Dynamics I

Credits: 3

Max Credit 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed ME 4461

Dual Listed ME 5461

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

ME3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/ equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ARE 3400

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ME3450 - Properties of Materials

Credits: 3

Mechanical, electrical, thermal and chemical properties of materials. Theoretical treatment of structure of solids and design for specified properties.

When Offered (Normally offered spring semester)

Former Course Number [ES 3450]

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4340 - Gas Turbine Engines

Credits: 3

Thermodynamic analysis and design of ground-based and aero-propulsion gas turbine engines.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

Universities Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Notes:

- i. Before enrolling in any upper division ESE or ME course, students must complete the ME Success Curriculum (minimum 3.000 GPA in MATH 2200, MATH 2250, MATH 2210, and the seven ES courses).
- ii. Graduates must meet all college requirements and earn a minimum GPA of 2.000 in ME and ESE courses taken at UW. A minimum of 48 hours of upper division coursework are required, so ESE, business, and technical electives should be chosen appropriately.

Program Educational Objectives

- Successfully practice the profession of engineering
- Demonstrate career growth (e.g., increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees)
- Apply energy systems engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts
- Successfully serve in a range of leadership and collaborative roles in the profession and in the community
- Exhibit high professional standards and commitment to ethical action

Energy Systems Student Outcomes

The Department's Student Outcomes are:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors

3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Mechanical Engineering, B.S.

Mechanical Engineers design, develop, build, and test mechanical and thermal systems and devices in a wide range of fields including energy, manufacturing, materials, machines, and more. The UW BS in Mechanical Engineering is ABET accredited.

Mechanical Engineering Success Curriculum

All undergraduate students in the B.S. Mechanical Engineering and B.S. Energy Systems Engineering programs must successfully complete the Mechanical Engineering Success Curriculum prior to enrolling in any upper-division (3000-level or above) courses taught by the Mechanical Engineering Department. The Mechanical Engineering Success Curriculum promotes successful completion of upper-division coursework by assuring a student that their foundational knowledge and skills are strong in mathematics and engineering fundamentals. AP/iB courses are excluded from the GPA calculation, but grades transferred from other institutions will be used in evaluating the ME Success Curriculum GPA.

Successful Completion

To successfully complete the Mechanical Engineering Success Curriculum, a student must earn a minimum 3.000 GPA in the following 10 courses:

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

Policy for Transfer Credit Towards Mechanical Engineering (ME) Core Coursework

In general, transfer of coursework towards a Mechanical Engineering degree will follow University of Wyoming policy. A course must be shown to be equivalent to its University of Wyoming course (latitude may be given for Mechanical Engineering electives without a direct University of Wyoming equivalent). However, six courses are considered to be the core of the Mechanical Engineering program, and therefore credit cannot be transferred from another institution. These courses are ME 3010, ME 3020, ME 3040, ME 3170, ME 3360, and ME 3450. Exceptions may be made for courses from approved study abroad programs or in extreme circumstances. Please note that failing a prerequisite course resulting in a delay of graduation does not constitute an extreme circumstance. Any transfer of ME courses requires explicit written approval from the Department.

Mechanical Engineering Curriculum

Chemistry

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM

1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

Engineering Science

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2210 - Electric Circuit Analysis

Credits: 3

Basic concepts of electric circuit theory, dependent sources, network theorems, first and second order circuits, phasors, three-phase circuits. Laboratory.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

ES2800 - Physical Computing

Credits: 3

Emphasizes implementing python programs on the Raspberry Pi and then interfacing with power stages, mobile platforms, sensors and input/output devices. The goal is designing systems that sense the world, make decisions based on those sensations

Prerequisite: EE 1101 or ES 2210 or concurrent enrollment in ES2210 or Consent of the Instructor

Math

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

Mechanical Engineering

ME3005 - Engineering Experimentation

Credits: 3

A combined lecture/laboratory course introducing students to experimental methods in the context of dynamics. Written technical communication, intermediate structured programming, experimental design, fundamental statistics, and uncertainty methods (numerical and analytical) are emphasized. Collaborative writing and teamwork is introduced.

Cross Listed ESE 3005

Former Course Number [2010; 2020]

Prerequisite: Completion of the ME Success Curriculum, ES 1060, ES 2120.

ME3010 - Intermediate Mechanics of Materials

Credits: 3

Expansion of the principles of solid mechanics: stress, strain, principal stresses, elastic and plastic behavior, failure theories and the use of energy methods. Analysis and design of thick-walled pressure vessels, noncircular cross sections under torsion, nonsymmetric beams under bending and curved beams.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ESE 3020

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ME3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ESE 3040

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3060 - Numerical Methods for Engineers

Credits: 3

Numerical solutions of problems commonly encountered in mechanical engineering including differentiation, integration, differential equations, system of linear and nonlinear equations, and optimization. The structured programming approach will be emphasized and applications from solid mechanics, thermal fluid sciences, materials science, and dynamic systems will be covered.

Cross Listed ESE 3060

Prerequisite: Completion of the ME Success Curriculum, ES 1060, and MATH 2310 or concurrent enrollment.

ME3160 - Thermal/Fluid Science Lab

Credits: 3

A laboratory course to introduce students to experimental methods for temperature measure and pressure/flow characteristics of fluids. Continuation of experience with communication (written, oral, and digital), intermediate programming, experimental design, data analysis, and teamwork skills is emphasized.

Cross Listed ESE 3160

Former Course Number [2140; 2160]

Prerequisite: Completion of the ME Success Curriculum, ES 2330; ME 3005/ESE 3005.

ME3170 - Machine Design

Credits: 3

Application of engineering mechanics and materials science to the analysis and design of mechanical components such as bolted connections, springs, gears, bearings and shafts. Design for dynamic loading conditions. Principles of hydrodynamic lubrication. Introduction to computer-aided design. Case studies with appropriate topics.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ARE 3360/ESE 3360

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310, and ES 2330.

ME3450 - Properties of Materials

Credits: 3

Mechanical, electrical, thermal and chemical properties of materials. Theoretical treatment of structure of solids and design for specified properties.

When Offered (Normally offered spring semester)

Former Course Number [ES 3450]

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME4060 - Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience. Student multidisciplinary teams prepare a project proposal or SOQ, generate a morphological study of their project and prepare project plans and specifications. Project management methods are also presented.

USP 2015 Code U5C3

Former Course Number [3070]

Prerequisite: Completion of the ME Success Curriculum, ME 3010 (or concurrent enrollment), ME 3170, and ME 3360/ESE 3360/ARE 3360.

ME4070 - Systems Design II

Credits: 3

Continuation of a two-course design sequence. The design teams refine their designs, fabricate the project, test the project for compliance with the design specifications, write a comprehensive engineering design report including socioeconomic factors, and prepare and deliver a presentation of the project in a public forum.

USP 2003-2014 Code U3WC

Prerequisite: Completion of the ME Success Curriculum, ME 4060/ESE 4060 and WB.

ME4150 - Mechanical Behavior of Materials

Credits: 3

Commonly encountered phenomenological and mechanistic behaviors that lead to mechanical failure are examined. Understanding the origin of mechanical failure of components allows for robust design of mechanical systems. Metallic, polymeric, and ceramic materials are covered.

Prerequisite: Completion of the ME Success Curriculum, ME 3450.

Physics

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PHYS2310 - Physics III: Waves and Optics

Credits: 4

Third-semester course primarily for majors in physics, astronomy, engineering, mathematics, and other sciences. Includes Gaussian Optics and matrix calculations, wave equations, interference, superposition principle, elementary Fourier Analysis, Fraunhofer and Fresnel Diffraction, application to optical instruments.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

OR

PHYS2320 - Physics IV: Modern Physics

Credits: 3

Fourth semester course primarily for majors in physics, astronomy, engineering, mathematics, and other physical sciences. Topics include introductory quantum mechanics, nuclear and particle physics, lasers, Planck's Blackbody Radiation, photoelectric effect, electron diffraction, wave-particle duality, deBroglie Wavelength, Bohr Atom, Heisenberg Uncertainty Principle, Schrodinger Equation, and Einstein's Special Theory of Relativity.

Prerequisite: PHYS 1220 or PHYS 1320 or equivalent.

OR

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and

organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

Electives

- Four ME Electives (min 12 CH total, any upper division ME course or EE 4620)
- Two Math/Science Electives (min 6 CH total, select from department-approved list)
- One Business Elective (min 3 CH, select from department-approved list)
- One Technical Elective (min 3 CH, any engineering, math/science or business course approved by the ME Dept)

(See here for Math, Science and Business Elective options: [me_math_science_business_electives_2022_02_04.pdf](#) (uwo.edu))

EE4620 - Automatic Control Systems

Credits: 3

Control theory and design methods focused on application. Feedback. Performance limits. Routh-Hurwitz, root locus, Nyquist. Nonminimum-phase systems. State feedback. Proportional-Integral-Derivative control. Lead/lag. High-order compensation. Discrete controllers.

Prerequisite: EE 2220 or ME 3020.

ME4010 - Mechanical Vibrations

Credits: 3

The theory of single and multi-degree-of-freedom systems with an introduction to continuous systems. Determination of equations of motion, including natural frequency for free vibration and amplitude of forced vibration. Design of discrete and continuous systems for transient and harmonic excitations.

When Offered (Normally offered fall semester)

Prerequisite: Completion of the ME Success Curriculum, ES 2120, ES 2410, and MATH 2310.

ME4020 - Design of Mechanical/Electronic Systems

Credits: 3

Theoretical and experimental study of sensors and actuators, interfacing sensors and actuators to a microcomputer, discrete and continuous controller design, analog and digital electronics, and real-time programming for control.

Prerequisite: Completion of the ME Success Curriculum, ME 3020.

ME4040 - Introduction to Finite Elements

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. The course includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 5040.

Prerequisite: Completion of the ME Success Curriculum, MATH 2310 and (CE 4200/ARE 4200 or MATH 2250 or ME 3010 or ME 3060).

ME4100 - Manufacturing Processes

Credits: 3

Details of manufacturing processes used in production of metal, plastic and ceramic components with an emphasis on science and mechanics of processes.

Prerequisite: Completion of the ME Success Curriculum, ME 3010 and ME 3450.

ME4200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 5200.

Prerequisite: ME 3450

ME4210 - Introduction to Composite Materials

Credits: 3

Applications, mechanical properties and fabrication of fiber reinforced composite materials; stress analysis of laminated, anisotropic composite structures; study of special problems unique to composites.

Prerequisite: Completion of the ME Success Curriculum, ME 3010.

ME4215 - Composite Materials Design and Manufacturing

Credits: 3

Introduction to composite material manufacturing processes. Aspects of constituent material production, as well as design, fabrication, and testing of composite materials. Laboratory exercises, such as laminating, filament winding, pultrusion and compression molding.

Prerequisite: Completion of the ME Success Curriculum, ME 4210.

ME4240 - Gas Dynamics I

Credits: 3

Thermodynamics of a compressible fluid; one-dimensional isentropic flow, normal and oblique shocks, expansion wave, flows with friction and heat transfer.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ME4340 - Gas Turbine Engines

Credits: 3

Thermodynamic analysis and design of ground-based and aero-propulsion gas turbine engines.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ME4350 - Airplane Aerodynamics and Flight

Credits: 3

Introduces students to the fundamentals of airfoil and wing design, airplane aerodynamics, and airplane stability. Links these fundamental ideas to the design and performance of real aircraft.

Prerequisite: Completion of the ME Success Curriculum, ES 2330.

ME4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ARE 4430

Prerequisite: ARE 3400/ME 3400 and ARE 3360/ME 3360 or concurrent.

ME4450 - Principles of Materials Selection

Credits: 3

A review of the economic and engineering aspects of materials selection. A detailed study of the properties, applications and limitations of engineering materials systems. Emphasis is on metal alloy systems, but non-metallics are included. Forming and joining processes are outlined.

Former Course Number [3110]

Prerequisite: Completion of the ME Success Curriculum, ME 3450

ME4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including

thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ESE 4455

Prerequisite/Corequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4461 - Computational Fluid Dynamics I

Credits: 3

Max Credit 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Cross-list with ME 4461

Dual Listed dual list with ME 5461

Prerequisite: ME Success Curriculum; ME/ESE 3060 - Numerical Methods; ME/ESE 3360 - Transport Phenomena

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

Universities Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Notes:

- i. Before enrolling in any upper division ESE or ME course, students must complete the ME Success Curriculum (minimum 3.000 GPA in MATH 2200, MATH 2250, MATH 2210, and the seven ES courses).
- ii. ES 2800 is NOT a part of the MESC
- iii. Graduates must meet all college requirements and earn a minimum GPA of 2.000 in ME and ESE courses taken at UW. A minimum of 48 hours of upper division coursework are required, so ME, business, and technical electives should be chosen appropriately.

Mechanical Engineering Program Educational Objectives

- Successfully practice the profession of engineering
- Demonstrate career growth (e.g. increasing complexity of job assignment, career promotions, professional registration, patents, publications, and completion of advanced degrees).
- Apply Mechanical Engineering knowledge to find creative solutions to evolving challenges with global, economic, environmental, and societal impacts.
- Successfully serve in a range of leadership and collaborative roles in the profession in the community.
- Exhibit high professional standards and commitment to ethical action.

Mechanical Engineering Program Student Outcomes

The Department's Student Outcomes are:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors
3. An ability to communicate effectively with a range of audiences

4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Graduate

Mechanical Engineering, M.S.

The UW Mechanical Engineering MS program offers two options: thesis (Plan A) or non-thesis (Plan B). Both tracks offer opportunities to take graduate coursework in topics of thermal fluids, materials, experimentation, computational tools, and more.

Program Specific Degree Requirements

Plan A (Thesis)

A thesis project is chosen in consultation with an ME faculty member, and constitutes 4 credit hours of ME 5960 in the 30-hour Plan A program. ME 5478 (Seminar) is to be taken during the final semester when the thesis is presented and defended, and constitutes 2 credit hours of the 30-hour Plan A program. Classes must meet the following constraints:

- ME courses (5000-level): minimum of 15 hours
- A maximum of 9 credits at the 4000 level outside of ME may be taken
- Thesis research (ME 5960): 4 credit hours
- Seminar (ME 5478): 2 credit hours
- Total: Minimum of 30 CH.

Courses outside of ME must be chosen with the approval of the academic adviser. They can be in mathematics, statistics, science, or other engineering disciplines. Up to two courses may be from the fields of business, ENR, or public policy. Special topic credits may be earned using ME 5475 (maximum of 6 credits).

Plan B (Non-Thesis)

The Plan B M.S. degree can be completed by earning a minimum of 31 credits beyond the baccalaureate degree. Classes must meet the following constraints:

- ME courses (5000-level): minimum of 15 hours
- A maximum of 9 credits at the 4000 level outside of ME may be taken
- Graduate Project (ME 5961): minimum of 1 hour
- Total: minimum of 31 hours

Courses outside of ME must be chosen with the approval of the academic adviser. They can be in mathematics, statistics, science, or other engineering disciplines. Special topic credits may be earned using ME 5475 (maximum of 6 credits). Research credits earned through ME 5960 as part of an unfinished M.S. Plan A program may not be

counted. Although the Plan B M.S. degree is not research-oriented, the program must contain an "element of discovery," documented by completing ME 5961 (Graduate Project). This could be a special project performed as independent study or as part of a graduate course.

MS-ME/MBA Dual Program

The UW Mechanical Engineering MS/MBA program offers the opportunity to pursue MS and MBA degrees simultaneously and reduce course requirements by applying course credit towards both degrees. There are thesis and non-thesis options for the MS degree.

MS-ME/MBA Program Requirements

The MS-ME component is typically a non-thesis option. An additional 21 credits in engineering, science or mathematics must be earned beyond the BS degree. At least 15 credits of graduate course work must be at the 5000-level from ME. The following MBA courses will be counted towards the MS-ME degree and constitute 9 credit hours of the 30 hours MS-ME program

Choose two of the following courses:

MBAM5103 - Business Research Methods

Credits: 3

An overview of the scientific research process applied in the context of business. Topics include problem definition, selection of a methodological approach, design and implementation of field work (qualitative and survey methods), analysis techniques (thematic analysis for qualitative research and statistical analysis for survey research, and communicating results.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5301 - MBA Summer Project

Credits: 3

Serves as an externship for individual MBA students or MBA teams to work with a client on a business issue under the supervision of a qualified faculty member in the College of Business.

Prerequisite: Completion of the first-year (Fall & Spring semester) on campus MBA courses.

MBAM5501 - Energy Economics and Policy

Credits: 3

Applies the tools of economic analysis to attain and understanding of energy markets and energy policy analysis. Sec. 1 Overviews the major energy and environmental policy issues facing the United States and the world. Sec 2 Determinants of energy demand. Sec. 3 Technologies and costs to produce and deliver energy. Sec. 4 Determinants of energy price.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5503 - Fundamentals of Accounting in the Energy Industry

Credits: 3

Introduces students to basic financial accounting and reporting issues related to energy producing activities. Specifically, the course will investigate current accounting practices of energy producing companies related to exploration, acquisition, development, and delivery of energy products. The course will also cover financial requirements of the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and the Securities and Exchange Commission (SEC).

Cross Listed ACCT 5503.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MBAM5506 - Energy Finance: Securities, Hedging, and Trading

Credits: 3

Overview of security analysis applied to energy firms, hedging strategies, and trading activities in energy markets. Trading activities covered include the use of forward and futures contracts, swaps, options, and related derivatives.

Prerequisite: Permission of MBA Program Director.

MBAM5508 - Marketing and Sustainable Consumption

Credits: 3

Focuses on understanding household and business energy consumption. Emphasizes the environmental, economic, social and psychological influences on consumer decision making and sustainable consumption. Course deals with developing customer value propositions, and for marketing strategy development in branding, product-line offerings, pricing, retailing and distribution, and public policy.

Prerequisite: Permission of MBA Program Director, or student's graduate program coordinator in consultation with MBA Program Director.

MGT5504 - Energy Industry Value Chain

Credits: 3

Examines the overall energy industry with detailed exploration of the major energy subsectors and supply chains. Students will develop knowledge of the energy industry value chain including coverage of market dynamics, prevalent strategies, finance, operations, externalities and network effects, environmental and ethical considerations, and associated policy issues.

Restricted Admitted to CERT-MBAE or MBA-MBA.

Prerequisite: Admission to the MBA or Energy Business certificate program, or permission of the MBA Program Director

Required course:

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MS-ME/MBA Thesis Option

For a thesis option, students will only count one MBAM course from the above list and are required to complete 4 credits of ME 5960 and 2 credits for ME 5478, similar to the Plan A option.

Mechanical Engineering Graduate Level Courses

ME5040 - Introduction to Finite Element Analysis

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. Includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 4040

Prerequisite: MATH 2310 and (CE 4200 or ARE 4200 or ME 3010)

ME5045 - Advanced Finite Element Analysis

Credits: 3

Advanced topics in finite element analysis with emphasis on mathematical foundations of the method, numerical algorithms for software implementation, and analysis of problems with material and geometric nonlinear behavior.

Cross Listed CE 5045

Prerequisite: ME 4040 or ME 5040 or CE 5040.

ME5200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 4200

Prerequisite: ME 3450

ME5432 - Advanced Materials Science

Credits: 3

An analysis of the relationships between the structures of materials and their mechanical and physical properties, leading to the application of these relationships to the design of materials for advanced engineering systems. Topics include crystallography, lattice defects, transport phenomena, phase transformations, fracture, environmental effects, and control of microstructure by processing.

Prerequisite: ME 3450

ME5434 - Computational Materials Science

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: graduate standing.

ME5435 - Failure of Engineering Materials

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: ME 3450 or equivalent.

ME5438 - Plasticity and Viscoelasticity

Credits: 3

Analysis of stress and deformation of idealized plastic and viscoelastic solids. Limit theorems in plasticity. Time-dependent behavior of viscoelastic materials.

Prerequisite: ME 5472 or equivalent.

ME5440 - Fluid Mechanics

Credits: 3

Lagrangian and Eulerian descriptions, conservation laws, stress and rate-of-stress tensors, Navier-Stokes equations,

energy equations, vorticity and circulation inviscid and potential flows, laminar flows, turbulent flows, boundary-layer theory.

Cross Listed CHE 5440.

ME5442 - Advanced Fluid Mechanics

Credits: 3

Introduction to inviscid and viscous hydrodynamic stability; closure in turbulent flows; vorticity and vortex dynamics, theoretical aerodynamics, numerical simulations of viscous flows, experimental methods in fluid flows.

Prerequisite: ME 5440.

ME5446 - Turbulence

Credits: 3

Basic notions, properties and scales in turbulent flows. Transport equations; Reynold's stresses, mixing and phenomenological theories. Turbulence dynamics; mean and fluctuating kinetic energy balances, vorticity and temperature fluctuations. Statistical description of turbulence; correlations and spectra, transport, isotropy and homogeneity. Shear flows; plane jets, wakes and boundary layers (including planetary). Turbulent diffusion.

Cross Listed CHE 5446.

Prerequisite: ME 5440.

ME5448 - Experimental Fluid Dynamics.

Credits: 3

Provides an introduction to the design of fluid dynamics experiments. Specific instrumentation will be discussed and methods of analyzing and assessing data will be presented.

Prerequisite: graduate standing.

ME5452 - Convection Heat Transfer

Credits: 3

Convection, including heat and momentum transfer. Boundary layer theory. Laminar and turbulent flows, steady and unsteady formulations including differential and integral descriptions. High velocity, compressible systems.

Cross Listed CHE 5452.

Prerequisite: ES 3360 or consent of instructor.

ME5461 - Computational Fluid Dynamics I

Credits: 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical

stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Dual list with ME 4461 and ESE 4461

Prerequisite: graduate standing

ME5462 - Computational Fluid Dynamics II

Credits: 3

A study of advanced techniques in modern-day scientific computing as applied to Computational Fluid Dynamics. These include unstructured mesh generation using Delaunay triangulation, searching and sorting techniques, and efficient data structures. Other topics cover efficient hardware implementation including cache-effects and parallel computing and sensitivity analysis for design optimization.

Prerequisite: ME 5461

ME5472 - Continuum Mechanics

Credits: 3

The basic laws of the physical behavior of continuous media. Stress and deformation at a point; fundamental equations of balance of mass, momentum, and energy; second law of thermodynamics; curvilinear coordinate analysis. Applications to linear elasticity and fluid mechanics.

Prerequisite: graduate standing.

ME5478 - Seminar in Mechanical Engineer

Credits: 2

Prerequisite: graduate standing in engineering.

ME5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

ME5961 - Graduate Projects

Credits: 1-4

Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly

activities in support of their Plan B project. Prerequisites: enrollment in Plan B program and have departmental approval.

ME5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Mechanical Engineering, Ph.D.

The UW Mechanical Engineering PhD program includes coursework and a substantial research component. Research is performed with an advisor, and a dissertation is produced. Program requirements include Qualifying, Preliminary, and Final Examinations.

Program Requirements

For students of outstanding academic ability and with demonstrated capacity for undertaking independent research on advanced engineering problems, the Ph.D. program in mechanical engineering is offered. The Ph.D. requires a minimum of 72 graduate hours, at least 42 of which must be earned in formal coursework. In addition to coursework requirements, graduate students pursuing a Ph.D. in Mechanical Engineering must complete three examinations: Qualifying, Preliminary, and Final.

Classes must meet the following constraints:

- A minimum of 24 in-resident coursework hours is required
- ME courses (5000-level): minimum of 15 hours
- A maximum of 9 credits at the 4000 level outside of ME may be taken

All graduate students in Mechanical Engineering are expected to follow the graduate education policies of the College of Engineering and Applied Sciences.

Qualifying Exam

In consultation with their advisor, students are allowed to take the Qualifying Exam after declaring pursuit of a Ph.D. degree. Graduate students do not require a M.S. to take the Qualifying Exam. The format is a knowledge-based examination consisting of three subject areas, each with both a written and an oral component. The candidate will be evaluated for each subject area, based on the cumulative performance in both (written and oral) components. Should the student fail a single subject area, at the discretion of the committee, they may repeat the failed portion at the next available opportunity. A third attempt is not permitted. The successful completion of the Qualifying Exam is required before the Preliminary Exam.

Preliminary & Final Exam

The purpose of the Preliminary Exam is to evaluate the aptitude of the Ph.D. candidate to perform research based on preliminary results, and to assess the student's plan for completing the research necessary for the Final Exam. The

Preliminary Exam follows university regulations and, at a minimum, consists of a seminar attended by the student's committee members.

The purpose of the Final Exam is to ensure the Ph.D. candidate has sufficient accomplishments to be awarded a Ph.D. The Final Exam consists of an oral defense of the dissertation in accordance with university policy.

Mechanical Engineering Graduate Level Courses

ME5045 - Advanced Finite Element Analysis

Credits: 3

Advanced topics in finite element analysis with emphasis on mathematical foundations of the method, numerical algorithms for software implementation, and analysis of problems with material and geometric nonlinear behavior.

Cross Listed CE 5045

Prerequisite: ME 4040 or ME 5040 or CE 5040.

ME5040 - Introduction to Finite Element Analysis

Credits: 3

An introduction to the theory and application of finite elements to the solution of various problems with emphasis on structural mechanics. Includes development of the underlying matrix equations, the treatment of element generation and properties, and implementation of boundary conditions.

Dual Listed ME 4040

Prerequisite: MATH 2310 and (CE 4200 or ARE 4200 or ME 3010)

ME5200 - Thermo/Kinetics of Materials

Credits: 3

Introduction to the foundations of thermodynamics and kinetics of materials, including Gibbs free energy, ideal solutions, alloy ordering, phase diagrams, atomistic mechanisms of diffusion, interfaces and microstructure, grain growth, solidification, and diffusional and diffusionless transformation in solids.

Dual Listed ME 4200

Prerequisite: ME 3450

ME5432 - Advanced Materials Science

Credits: 3

An analysis of the relationships between the structures of materials and their mechanical and physical properties, leading to the application of these relationships to the design of materials for advanced engineering systems. Topics include crystallography, lattice defects, transport phenomena, phase transformations, fracture, environmental effects, and control of microstructure by processing.

Prerequisite: ME 3450

ME5434 - Computational Materials Science

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: graduate standing.

ME5435 - Failure of Engineering Materials

Credits: 3

Fundamentals of quantum and statistical physics with application to modeling and simulation of engineering materials at the atomic scale. Course includes simulation of structural and mechanical properties of nanostructured materials.

Prerequisite: ME 3450 or equivalent.

ME5438 - Plasticity and Viscoelasticity

Credits: 3

Analysis of stress and deformation of idealized plastic and viscoelastic solids. Limit theorems in plasticity. Time-dependent behavior of viscoelastic materials.

Prerequisite: ME 5472 or equivalent.

ME5440 - Fluid Mechanics

Credits: 3

Lagrangian and Eulerian descriptions, conservation laws, stress and rate-of-stress tensors, Navier-Stokes equations, energy equations, vorticity and circulation inviscid and potential flows, laminar flows, turbulent flows, boundary-layer theory.

Cross Listed CHE 5440.

ME5442 - Advanced Fluid Mechanics

Credits: 3

Introduction to inviscid and viscous hydrodynamic stability; closure in turbulent flows; vorticity and vortex dynamics, theoretical aerodynamics, numerical simulations of viscous flows, experimental methods in fluid flows.

Prerequisite: ME 5440.

ME5446 - Turbulence

Credits: 3

Basic notions, properties and scales in turbulent flows. Transport equations; Reynold's stresses, mixing and phenomenological theories. Turbulence dynamics; mean and fluctuating kinetic energy balances, vorticity and

temperature fluctuations. Statistical description of turbulence; correlations and spectra, transport, isotropy and homogeneity. Shear flows; plane jets, wakes and boundary layers (including planetary). Turbulent diffusion.

Cross Listed CHE 5446.

Prerequisite: ME 5440.

ME5448 - Experimental Fluid Dynamics.

Credits: 3

Provides an introduction to the design of fluid dynamics experiments. Specific instrumentation will be discussed and methods of analyzing and assessing data will be presented.

Prerequisite: graduate standing.

ME5452 - Convection Heat Transfer

Credits: 3

Convection, including heat and momentum transfer. Boundary layer theory. Laminar and turbulent flows, steady and unsteady formulations including differential and integral descriptions. High velocity, compressible systems.

Cross Listed CHE 5452.

Prerequisite: ES 3360 or consent of instructor.

ME5455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ME 4455 ESE 4455

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME5461 - Computational Fluid Dynamics I

Credits: 3

An introduction to the fundamental techniques, theory, and application of computational fluid dynamics. Topics include the process for practical CFD problem solving using a commercial CFD software, discretization methods, numerical stability, consistency and convergence, solution techniques (explicit and implicit methods), and verification and validation procedures.

Cross Listed Dual list with ME 4461 and ESE 4461

Prerequisite: graduate standing

ME5462 - Computational Fluid Dynamics II

Credits: 3

A study of advanced techniques in modern-day scientific computing as applied to Computational Fluid Dynamics. These include unstructured mesh generation using Delaunay triangulation, searching and sorting techniques, and efficient data structures. Other topics cover efficient hardware implementation including cache-effects and parallel computing and sensitivity analysis for design optimization.

Prerequisite: ME 5461

ME5472 - Continuum Mechanics

Credits: 3

The basic laws of the physical behavior of continuous media. Stress and deformation at a point; fundamental equations of balance of mass, momentum, and energy; second law of thermodynamics; curvilinear coordinate analysis. Applications to linear elasticity and fluid mechanics.

Prerequisite: graduate standing.

ME5474 - Energy Methods

Credits: 3

Introduction to variational calculus with applications in solid mechanics. The basic theorems of virtual work, minimum potential energy, and complementary energy are developed. Direct methods such as Castigliano's theorem as well as the approximate methods of Ritz and Galerkin are developed and used to obtain solutions for a variety of problems in solid mechanics.

Prerequisite: ME 3010

ME5478 - Seminar in Mechanical Engineer

Credits: 2

Prerequisite: graduate standing in engineering.

ME5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

QuickStart Program

Mechanical Engineering Quick Start, B.S./M.S.

The UW Mechanical Engineering BS/MS QuickStart program offers Mechanical Engineering and Energy Systems Engineering undergraduate students the opportunity to start on MS graduate coursework early and gain credit towards BS and MS degree requirements.

Requirements for Admission

Through judicious choice of undergraduate electives, this program allows double-counting up to two 5000-level courses from the B.S. program toward M.S. degree requirements, thus reducing the time requirement for completing an M.S. degree. Students can apply for admission to the B.S./M.S. program by achieving junior status and meeting the following requirements for admission:

- completion of the four core ME courses (listed below),
- a minimum overall GPA of 3.250,
- a minimum GPA of 3.250 in ME courses, and
- a minimum of three letters of recommendation (at least two must be from ME faculty at UW).

Core Mechanical Engineering Courses

Completion of the following four ME courses is required for admission.

ME3010 - Intermediate Mechanics of Materials

Credits: 3

Expansion of the principles of solid mechanics: stress, strain, principal stresses, elastic and plastic behavior, failure theories and the use of energy methods. Analysis and design of thick-walled pressure vessels, noncircular cross sections under torsion, nonsymmetric beams under bending and curved beams.

Prerequisite: Completion of the ME Success Curriculum, ES 2410.

ME3020 - System Dynamics

Credits: 3

Theoretical and experimental study of the dynamics of linear and non-linear lumped parameter models of mechanical, electrical, electronic, fluid, thermal and mixed systems.

Cross Listed ESE 3020

Prerequisite: Completion of the ME Success Curriculum, ES 2210 and MATH 2310.

ME3040 - Thermodynamics II

Credits: 3

Consideration of advanced thermodynamic topics including Maxwell's relations, compressible flow, and combustion. Applications to design of refrigeration cycles, humidification systems, and Rankine cycles.

Cross Listed ESE 3040

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3360 - Fundamentals of Transport Phenomena

Credits: 3

Basic concepts of heat and mass transfer and their applications to problems involving engineering analysis and design. Topics include steady-state and transient conduction, free and forced convection (heat and mass), radiation and heat exchangers.

Cross Listed ARE 3360/ESE 3360

Prerequisite: Completion of the ME Success Curriculum, MATH 2310, ES 2310, and ES 2330.

Additional Information

Students must maintain a GPA of at least 3.250 in their undergraduate and at least 3.000 in their graduate coursework in order to remain in good standing in the program. Not meeting the GPA requirement places a student on probation for one semester. If the GPA requirement is not met after that semester, the student will be dismissed from the Quick Start program. Transfer students must have taken courses equivalent to the ME core courses. Transfer students must have also completed at least 15 credit hours of courses at UW in order to be eligible for admission.

Until a student in this program has completed a total of 131 credit hours of courses applicable to the B.S. degree in Mechanical Engineering, or a total of 129 credit hours of courses applicable to the B.S. degree in Energy Systems Engineering, he/she will be governed by the regulations applicable to undergraduate students in the Department. After a student has accumulated a total of 131 or 129 applicable credit hours, he/she will be governed by the regulations applicable to any graduate student in the ME department. These regulations include the requirement that every student must take the GRE general examination. It is the intention of the department that, to the degree possible, a student in this program is treated on the same basis as any other student in the department at a comparable stage of his/her academic career.

As many as 6 credit hours of ME department courses at the 5000 level may be counted towards both the undergraduate degree requirements and the requirements for the MS degree. In principle, therefore, the minimum number of course credit hours required for the BS/MS degrees will be 151 for Plan A students (+ 4 additional hours of thesis research) or 156 for Plan B students (non-thesis option).

Department of Petroleum Engineering

4015 Engineering Building, (307) 766-4258

Web site: www.uwyo.edu/petroleum

Department Head: Dennis Coon, Ph.D., Interim

Professors:

HERTANTO ADIDHARMA, B.Sc. Institute of Technology, Surabaya 1987; Ph.D. Louisiana State University 1999; Professor of Chemical Engineering 2019.

MAOHONG FAN, B.S. Wuhan University of Science and Engineering 1984; M.S. Beijing University of Science and Tech. 1992; Ph.D. Chinese Academy of Sciences 1997; Ph.D. Iowa State University 2000; Ph.D. Osaka University 2003; Professor of Chemical Engineering 2014.

KHALED A.M. GASEM, B.Sc. University of California at Berkeley 1976; M.Sc. Colorado School of Mines 1979; Ph.D. Oklahoma State University 1986; Professor of Chemical Engineering 2014.

LAMIA GOUAL, B.Sc. Ecole Nationale Polytechnique 1993; M.Sc. Imperial College, London 1998; Ph.D. 2003; Professor of Petroleum Engineering 2021.

MOHAMMAD PIRI, B.Sc. Azad University, Arak 1995; M.Sc. Azad University, Tehran 1998; M.Sc. Imperial College, London 2000; Ph.D. 2004; Professor of Petroleum Engineering 2018.

Associate Professors:

PEJMAN TAHMASEBI, B.S. Sahand University of Technology 2007; M.Sc. Amirkabir University 2009; Ph.D. University of Southern California/Amirkabir University 2012; Associate Professor of Petroleum Engineering 2021.

MORTEZA DEJAM, B.Sc. Petroleum University of Technology 2007; M.Sc. Sharif University of Technology 2009; Ph.D. University of Calgary 2016; Associate Professor of Petroleum Engineering 2022.

SOHEIL SARAJI, B.S. Petroleum University of Technology 2004; M.Sc. Sharif University of Technology 2007; Ph.D. University of Wyoming 2013; Associate Professor of Petroleum Engineering 2022.

Academic Professionals:

TAWFIK ELSHEHABI, B.Sc. Suez Canal University 2003; M.Sc. 2007; Ph.D. West Virginia University 2017; Senior Lecturer of Petroleum Engineering 2019.

Instructional Professors:

REZA TAHERI, B.Sc. Amirkabir University 1997; M.S. University of Twente, Netherlands 2001; Ph.D. Curtin University 2008; Assistant Instructional Professor of Petroleum Engineering 2020.

Professors of Practice:

DOUGLAS CUTHBERTSON, B.S. University of Wyoming 1985; Professor of Practice in Petroleum Engineering 2016.

BRIAN TOELLE, B.S. Texas A&M University 1978; M.S. Austin State University 1981; Ph.D. West Virginia University 2013; Professor of Practice in Petroleum Engineering 2015.

Professors Emeriti:

Jack Evers
H. Gordon Harris
Norman R. Morrow
Mrityunjai P. Sharma
Brian Towler

Petroleum Engineering trains students for Wyoming's largest industries, the production of crude oil and gas. With the recognition of the state's and nation's vast reserves of natural gas, the curriculum emphasizes the production and

processing of this important resource. Because of American predominance in petroleum technology, career opportunities are available throughout most of the world.

The curriculum in petroleum engineering is based upon sound preparation in fundamental sciences, mathematics, physics, chemistry, and geology. The essentials of engineering are added to this foundation: computer programming, statics, dynamics, materials science, hydraulics, and thermodynamics. To aid in developing individuals' social potential and broaden their educational background, an integrated program in humanities and social sciences is included in the curriculum. Petroleum engineering courses, which are primarily concerned with application of previously acquired knowledge to problems of the oil and gas industry, are concentrated in the junior and senior years.

Petroleum Engineering degree candidates must meet the academic requirements of the college and must have a GPA of 2.000 or greater in Petroleum Engineering (PETE) courses attempted at UW that are applied toward graduation for the B.S. degree from the department. For approved electives, students must have prior approval of their advisor and department head. Elective courses must be chosen from a list provided by the department. Students must complete a minimum of 48 upper division (junior/senior) or graduate-level credit hours for this program.

Program Vision

As a highly respected community of scholars and practitioners, we are committed to providing outstanding petroleum engineering education, conducting internationally recognized research in key focus areas, and improving the well-being of the people of Wyoming and the world through education, technical innovation and economic development.

Program Mission

Provide outstanding, contemporary, ABET-accredited education in petroleum engineering to highly qualified undergraduates who will serve as an economic resource for Wyoming and the world.

Provide excellent, research-based graduate educations at the master's and doctoral levels in petroleum engineering to top students who will drive technical and economic innovation for Wyoming and the world.

Conduct internationally recognized research in key focus areas that leads to new technologies while also enhancing economic development for Wyoming and the world.

Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Petroleum Engineering should:

- (PETE-OB1) Successfully practice the profession/field of petroleum engineering or related discipline.
- (PETE-OB2) Demonstrate successful career accomplishment and civic engagement.

Program Outcomes

During the course of study in Petroleum Engineering, the student should develop:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors.
3. An ability to communicate effectively with a range of audiences.

4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Undergraduate "Major Only" Courses

Upper division PETE core courses are restricted to petroleum engineering majors only.

Technical Electives Policy

The technical electives in the petroleum engineering curriculum can be used to complete a curriculum emphasis option or a minor. The number of credits of upper division courses must be satisfied, therefore, 13 elective credits must be 3000-level courses or higher.

Note: Technical Electives must be selected with your advisor's documented approval.

Transfer Credit Limit

To graduate with a degree in Petroleum Engineering from UW, students must successfully complete at least 20 credit hours of required PETE courses at UW.

1. Once a student has transferred to UW's Department of Petroleum Engineering from another institution, they may transfer no more than 9 additional credits from other institutions.
2. Non-transfer students may transfer up to 18 credits from other institutions.

Repeating a Course

Students who fail a PETE class three times can no longer enroll in that class.

Academic Suspension

Students who have been academically suspended from UW twice are no longer eligible to enroll in PETE courses.

Curriculum Emphases

The Department of Petroleum Engineering has established curriculum emphases that could shape your interest further or acquire useful transferable skills. A curriculum emphasis is not a minor or concentration and will not be stated on your diploma. If you choose to follow a curriculum emphasis option, you should discuss it with your academic advisor so they can assist you in planning your courses.

Petroleum Engineering offers the following curriculum emphasis options:

- Unconventional Reservoirs
- Chemical Engineering
- Mechanical Engineering

- Graduate School Preparation

BS/MS Quick Start Program

The BS/MS Quick Start program in Petroleum Engineering (PETE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their Bachelor of Science (B.S.) degree in Petroleum Engineering. These students may apply for admission to the Quick Start program during the first or second semester of their junior year or *before* starting their senior year.

This program allows for early planning of the graduate portion of a student's education and provides more flexibility in the number of required courses and the order in which they are taken. The more efficient and better planned use of time should result in reduction of the time required for obtaining the Master of Science in Petroleum Engineering degree. Students who enter the Quick Start program must accept primary responsibility for actively planning their Programs of Study to assure timely completion of their course work and research programs.

The Quick Start program contains two essential elements:

1. Qualified students may receive provisional admission to the Petroleum Engineering graduate program by submitting a quick start application through the online graduate application system. This provisional admission will permit students to make their long-term educational plans earlier in their studies and before graduating the B.S. program, thus providing enhanced opportunities for course selection and involvement in research.
2. Students in the program may apply up to 6 credit hours of graduate-level courses toward both the B.S. and M.S. degree programs. By successfully completing up to 6 credit hours of graduate classes during their senior year, these students will have demonstrated their ability to do graduate-level course work as undergraduates, easing their transition to the Petroleum Engineering graduate program.

For additional information, visit our website for admissions information

<http://www.uwyo.edu/petroleum/undergraduate/current-students/quickstart.html> or contact our graduate admissions coordinator at pete-info@uwyo.edu.

Graduate Study

The Department of Petroleum Engineering offers graduate programs leading to the M.S. and Ph.D. degrees in petroleum engineering. The M.S. degree is offered with Plan A and Plan B options.

In addition, the Department offers an M.B.A./M.S. in Petroleum Engineering Dual Degree Program, in conjunction with the College of Business M.B.A. Program. Students pursuing this option must apply to and be offered admission from both programs.

Admission Process and Requirements

Graduate admission is open to students with at least a B.S. degree in petroleum engineering or closely related field and who meet the minimum requirements as shown below. Please note that test scores must be dated within the previous two years to be considered valid.

- A GPA of 3.000, or equivalent;
- A GRE score;
- A TOEFL score of 600 (paper-based), 250 (computer-based), or 80 (Internet based) **or** an IELTS score of 6.5 in each category for international applicants. We are also accepting the DuoLingo exam with a minimum score of 110 required.

Applications must include the following documents uploaded with the online application:

1. Complete official transcripts of all prior college-level coursework,

2. Current resume or curriculum vitae,
3. Recommendations from at least three academic or professional references,
4. A statement of purpose, and
5. Unofficial test score certificates for both GRE and English proficiency exams.

Applications will not be reviewed or accepted until all required documents have been submitted.

The deadlines to submit applications are February 1 each year (to be considered for Fall semester), and September 15 each year (to be considered for Spring semester).

For additional information, visit our website for admissions information <http://www.uwyo.edu/petroleum/graduate/prospective/index.html> or contact our graduate admissions coordinator at pete-info@uwyo.edu.

Graduate Courses of Study

Incoming graduate students, not preselected by a faculty member, must meet with Petroleum faculty members to obtain information regarding research areas and current availability. The student must formally request a Petroleum faculty member of their choosing to oversee their degree study program.

Masters Program

1. All Petroleum M.S. students with a B.S. in Petroleum Engineering from an accredited program must take the following courses:

Required Courses	Hrs.
PETE 5355.....	3
PETE 5890.....	2
At least three Core Courses from the following:	
PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3
Plan A Thesis Additional Course Requirements:	
4000-level or above approved electives.....	12
PETE 5960.....	4
Total Credits 30	

Plan B Non-Thesis Additional Course Requirements:	
4000-level or above approved electives.....	14
PETE 5970.....	2
Total Credits 30	

2. All Petroleum M.S. students with a B.S. in Chemical or Mechanical Engineering from an accredited program must take the following courses:

Required Courses	Hrs.
PETE 5055	3
PETE 5340	3

PETE 5355	3
PETE 5715	3
PETE 5890	2

At least four Core Courses from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3

Plan A Thesis Additional Course

Requirements:

4000-level or above approved electives.....	7
GEOL 5190.....	3
PETE 5960.....	4

Total Credits 40

Plan B Non-Thesis Additional Course

Requirements:

4000-level or above approved electives.....	7
GEOL 5190.....	3
PETE 5970.....	4

Total Credits 40

Dual Degree Program - M.B.A./M.S. degree in Petroleum Engineering

3. All Dual Degree M.S. students with a B.S. in Petroleum Engineering from an accredited program must take the following required courses:

Required Courses	Hrs.
PETE 5355.....	3
PETE 5890.....	2

At least three Core Courses from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3

Plan A Thesis Additional Course

Requirements:

4000-level or above approved electives.....	3
M.B.A. approved electives: MBAM 5XXX, MBAM 5301, MBAM 5305.....	9
PETE 5960.....	4

Total Credits 30

Plan B Non-Thesis Additional Course

Requirements:

4000-level or above approved electives.....	5
M.B.A. approved electives:	
MBAM 5XXX, MBAM 5301, MBAM 5305.....	9
PETE 5970.....	2

Total Credits 30

4. All Dual Degree students with a B.S. in Chemical or Mechanical Engineering from an accredited program must take the following required courses:

Required Courses	Hrs.
PETE 5055	3
PETE 5340	3
PETE 5355	3
PETE 5715	3
PETE 5890	2

At least four Core Courses from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5310.....	3
PETE 5350.....	3

Plan A Thesis Additional Course

Requirements:

4000-level or above approved electives.....	3
M.B.A. approved electives:	
MBAM 5XXX, MBAM 5301, MBAM 5305.....	9
PETE 5960.....	4

Total Credits 42

Plan B Non-Thesis Additional Course

Requirements:

4000-level or above approved electives.....	5
M.B.A. approved electives:	
MBAM 5XXX, MBAM 5301, MBAM 5305.....	9
PETE 5970.....	2

Total Credits 42

Note: For a student with a B.S. in another discipline, upon acceptance into the M.S. program, the Graduate Program Committee will develop a plan of study with the consent of the advisor.

Doctoral Program

1. All Petroleum Ph.D. students with a B.S. in Petroleum Engineering must take the following required courses:

Required Courses	Hrs.
PETE 5090.....	3
PETE 5355.....	3
PETE 5890.....	6

At least four Core Courses* from the following:

PETE 5010.....	3
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PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5255.....	3
PETE 5310.....	3
PETE 5350.....	3

Electives**
4000-level or above approved electives.....18

Research
PETE 5980..... 30

Total Credits 72

2. All Petroleum Ph.D. students with an B.S. in Other Majors must take the following required courses:

Required Courses	Hrs.
PETE 5090.....	3
PETE 5355.....	3
PETE 5890.....	6

At least five Core Courses* from the following:

PETE 5010.....	3
PETE 5020.....	3
PETE 5060.....	3
PETE 5080.....	3
PETE 5255.....	3
PETE 5310.....	3
PETE 5350.....	3

Electives**
4000-level or above approved electives.....15

Research
PETE 5980..... 30

Total Credits 72

*Transferable from MS degree if applicable.

**Up to 14 credits of electives transferable from MS degree if applicable.

Graduate Seminar Requirements

All petroleum engineering graduate students must enroll in PETE 5890, Petroleum Engineering Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Graduate students enrolled in continuous registration are exempt from having to enroll in PETE 5890 in their final semester.

Graduate Teaching Requirement

All Petroleum Engineering graduate students must complete at least one semester as a teaching assistant within the Petroleum Engineering curriculum. Students receiving a state-funded graduate assistantship will be required to serve as a teaching assistant every semester of their award. Students funded by any source other than state funds will work with their supervisor or faculty mentor to determine an appropriate time to complete this requirement.

Program of Study Requirement

All Petroleum Engineering graduate students must complete their Program of Study worksheet at the beginning of their second academic year of study or 3rd semester of enrollment, and PhD students must submit it prior to their preliminary examination.

Ph.D. Preliminary Examination

Candidacy in the doctorate occurs upon certification of successful completion of the preliminary examination. The preliminary examination will be held at least 15 weeks prior to the final examination. The preliminary examination may not be given before: (a) the research tool requirements, if any, have been met and certification approved; (b) at least 30 hours of coursework have been completed; and (c) the doctoral program of study has been approved.

The goal of the preliminary exam is for the student to present the research proposition that is being investigated and will lead to the final dissertation, and demonstrate progress to-date. The preliminary exam consists of three components:

- a written document provided to each member of the student's graduate committee at least three weeks prior to the oral presentation;
- a public oral presentation; and
- a private examination by the student's graduate committee immediately following the oral presentation.

The written document may be in any format but must concisely provide a survey of the relevant literature, a summary of the student's progress to-date, and a clear, detailed plan for the successful completion of the proposed work. The preliminary exam oral presentation should be consistent with the written document. It should provide an appropriate literature background, demonstrate proficiency with proposed experimental/computational techniques, identify details of the experiments to be performed, and provide a timeline to final defense.

The student's committee will pass or fail the student on the strength of the preliminary examination, with an option to conditionally pass the student while requiring an interim committee meeting prior to the final Ph.D. examination. The Report on Preliminary Examination for Admission to Candidacy form sent to the Office of the Registrar reports the results of the examination.

M.S. and Ph.D. Final Examination (Thesis or Dissertation Defense)

All M.S. and Ph.D. students must orally defend their final report, thesis, or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public defense in oral presentation format. At least three weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis or dissertation and provide the department an announcement of their defense for public advertisement. The results of the defense are reported by the committee on the Report of Final Examination form. Often, graduate committee members request changes in the final thesis or dissertation, and they may postpone signing this form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Registrar's web site. This copy will be rejected if the format standards specified by the Thesis or Dissertation Format Guide are not met. This guide allows for a publication-ready format. An electronic copy must also be submitted to the department for the departmental library. Most students will want copies for their own use. Students should consult with their chair to determine if they also want a copy of the final paper or other research documentation.

Major

Petroleum Engineering, B.S.

Petroleum engineers combine fundamentals of science & math with computer programming, materials science, fluid mechanics and thermodynamics to develop and apply new technology to recover hydrocarbons from conventional and unconventional reservoirs.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Undergraduate Curriculum

*Course meets USP requirement.

Applies to all undergraduate PETE programs.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

ES2110 - Statics

Credits: 3

Vector statics of particles and rigid bodies, including equilibrium in two and three dimensions, center of gravity, centroids, distributed loads, truss analysis, simple structures and machines, friction, and internal actions.

Prerequisite: MATH 2205 or concurrent enrollment.

ES2120 - Dynamics

Credits: 3

Vector dynamics of particles and rigid bodies, including impulse-momentum and work-energy.

Prerequisite: ES 2110 and MATH 2205; PHYS 1210 or concurrent enrollment.

ES2310 - Thermodynamics I

Credits: 3

Macroscopic systems involving energy and its various forms. Fundamental concepts including energy, mass and entropy balances. Pure substances and availability. Reversible and irreversible processes.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2330 - Fluid Dynamics

Credits: 3

Incompressible flow of ideal and real fluids. Potential and stream functions; similitude and dimensional analysis.

Prerequisite: MATH 2210 and either ES 2120 or PHYS 1210.

ES2410 - Mechanics of Material I

Credits: 3

Mechanics of deformable bodies, including energy methods.

Prerequisite: ES 2110 and MATH 2205 .

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

- GEOL Technical Elective Credits: 3

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

MATH2205 - Calculus II

Credits: 4

Continues MATH 2200. Includes elementary functions, derivatives, integrals, analytical geometry, infinite series and applications.

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 2200 or Advanced Placement credit in MATH 2200.

MATH2210 - Calculus III

Credits: 4

Applies calculus to situations described by more than one variable. Includes vectors, multivariable equations and functions, parameterization of curves and surfaces, partial derivatives, directional derivatives, the gradient, optimization methods, integration over curves and surfaces using Cartesian, polar, cylindrical, and spherical coordinates, vector fields, and Green's, Stokes's, and the Divergence Theorems.

Prerequisite: grade of C or better in MATH 2205 or Advanced Placement credit in MATH 2205.

MATH2310 - Applied Differential Equations I

Credits: 3

Includes solution of ordinary differential equations, integral transforms. Emphasizes construction of mathematical models arising in physical science and other areas.

Prerequisite: grade of C or better in MATH 2205.

PHYS1220 - Engineering Physics II

Credits: 4

Follows PHYS 1210 and continues introduction to physics with calculus for engineering students. Includes electricity, magnetism and heat. Laboratories illustrate principles studied. Students receiving credit for PHYS 1220 cannot receive credit for PHYS 1050, 1120, or 1320.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: grades of C or higher in MATH 2200, 2205 and concurrent enrollment in MATH 2210.

PETE1060 - Introduction to Petroleum Engineering Problem Solving

Credits: 1

Covers elements of Petroleum Engineering calculations associated with typical computations in Drilling, Production, and Reservoir Engineering, Rock and Fluids properties, to simultaneously train the student on basic computing skills as well as basic language of Petroleum Engineering. The preferred computing tool is Matlab, which will be introduced through simple calculations on the computer. Notions of the petroleum engineering curriculum will also be provided through examples of the different subjects.

Prerequisite: Math placement 5 or concurrent enrollment in MATH 2200.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

PETE2060 - Introduction to Petroleum Engineering Computing

Credits: 3

Introduces Petroleum Engineering problems and principles, develops computational skills needed to solve them, and reinforces a computational tool that will be useful for other Petroleum Engineering classes.

Prerequisite: C or better in PETE 1060, and either a D or better in MATH 2310 or concurrent enrollment in MATH 2310.

PETE3015 - Multicomponent Thermodynamics

Credits: 3

Introduces mixture properties, such as chemical potentials, excess properties, partial molar properties, heats of mixing, fugacities, and practical tools for estimating them from solution theories and equations of state. These tools and concepts are applied to phase and chemical equilibria.

Prerequisite: C or better in ES 2310 and concurrent enrollment in PETE 2060. Student must be a Petroleum Engineering major.

PETE3025 - Heat and Mass Transfer

Credits: 3

Introduces energy and mass transfer concepts and the development of mathematical models of physical phenomena, including convection, conduction, radiation, and mass diffusion and convection.

Prerequisite: C or better in ES 2330 and MATH 2310. Student must be a Petroleum Engineering major.

PETE3100 - Rock and Fluids Lab

Credits: 2

Provides understanding of principles of rock and fluid properties and their measurement as part of conventional and special core analysis, as well as PVT characteristics of reservoir fluids. Students are expected to understand how to measure important rock and fluid properties using laboratory equipment, as part of reservoir characterization routines, formation damage evaluations and well log calibration protocols. Students are also expected to learn how to write succinct and organized reports.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3200 - Reservoir Engineering

Credits: 3

Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: PETE 3025, C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3255 - Basic Drilling Engineering

Credits: 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hole deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE3265 - Drilling Fluids Laboratory

Credits: 3

Measurement of physical and chemical properties of drilling fluids, including experiments on mud density control, viscosity control, rheological properties, mud hydraulics, filtration properties, mud contaminants and their treatments. Includes design of experiments, data processing, interpretation and writing technical reports.

Prerequisite: PETE 3255, C or better in both ES 2310 and ES 2330. Student must be a Petroleum Engineering major.

PETE3715 - Production Engineering

Credits: 3

Provides elements for calculating the production rate of oil or gas wells, including reservoir inflow performance, which is determined by the reservoir rock and fluids properties and calculated based on Darcy's law, and tubing performance, which is determined by tubing parameters and calculated based on Newtonian dynamics. Basic design of artificial lift systems, reservoir stimulations and optimization of production systems are also included.

Prerequisite: C or better in ES 2310, ES 2330 and PETE 2050. Student must be a Petroleum Engineering major.

PETE3725 - Well Completions

Credits: 3

Covers many facets of completion and intervention in oil and gas wells, including design and procedures to meet deliverability, safety, and integrity, starting with completion, stimulation, workover, and intervention, ending with plug

and abandonment requirements.

Prerequisite: C or better in both PETE 2050 and ES 2410. Student must be a Petroleum Engineering major.

PETE4225 - Well Test Analysis

Credits: 3

Covers knowledge of well test interpretation techniques. Theory for well testing include drawdown and buildup tests, single-rate and multi-rate testing, derivative analysis, wellbore storage, type curve matching, fall off and injectivity, fractured wells, fractured reservoirs, interference and pulse testing, and horizontal well analysis.

Prerequisite: PETE 3200. Student must be a Petroleum Engineering major.

PETE4320 - Well Log Interpretation

Credits: 3

Studies use of various types of open hole logs for quantitative evaluation of formations.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.

PETE4340 - Petroleum Economics

Credits: 3

Applies principles of economics to petroleum properties. Studies taxation, present worth, rate of return, payout and decisions under uncertainty.

Prerequisite: PETE 3200. Student must be a Petroleum Engineering major.

PETE4736 - Petroleum Engineering Design

Credits: 4

Design and development of petroleum reservoirs using principles and skills learned in the Petroleum Engineering program. Application of software for design and analysis of the drilling, reservoir and production of petroleum.

USP 2015 Code U5C3

Prerequisite: PETE 3200, PETE 3255, PETE 3715, PETE 3725, and C or better in COM2. Student must be a Petroleum Engineering major.

- PETE Technical Electives Credits: 15

Technical Electives Policy

The technical electives in the PETE curriculum can be used to complete a curriculum emphasis option or a minor. The number of credits of upper division courses must be satisfied, therefore, 13 elective credits must be 3000-level courses or higher.

Notes: Technical Electives must be selected with your advisor's documented approval.

Minimum Grade Requirements

A grade of C or better is required for the following courses:

- USP designated courses: FYS, COM1, COM2, COM3
- All Engineering Science (ES) courses
- MATH courses that are prerequisites to ES & PETE courses

PETE1060 - Introduction to Petroleum Engineering Problem Solving

Credits: 1

Covers elements of Petroleum Engineering calculations associated with typical computations in Drilling, Production, and Reservoir Engineering, Rock and Fluids properties, to simultaneously train the student on basic computing skills as well as basic language of Petroleum Engineering. The preferred computing tool is Matlab, which will be introduced through simple calculations on the computer. Notions of the petroleum engineering curriculum will also be provided through examples of the different subjects.

Prerequisite: Math placement 5 or concurrent enrollment in MATH 2200.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

PETE4736 - Petroleum Engineering Design

Credits: 4

Design and development of petroleum reservoirs using principles and skills learned in the Petroleum Engineering program. Application of software for design and analysis of the drilling, reservoir and production of petroleum.

USP 2015 Code U5C3

Prerequisite: PETE 3200, PETE 3255, PETE 3715, PETE 3725, and C or better in COM2. Student must be a Petroleum Engineering major.

Total Upper Division Credits Required

48

Total Hours Required for B.S. Degree

129

Petroleum Engineering Program Educational Objectives

Three to six years after graduation, graduates who choose to practice in Petroleum engineering should:

- (PETE-OB1) Successfully practice the profession/field of petroleum engineering or related discipline.
- (PETE-OB2) Demonstrate successful career accomplishment and civic engagement.

Petroleum Engineering Program Outcomes

During the course of study in Petroleum Engineering, the student should develop:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Graduate

Petroleum Engineering, M.S.

Petroleum M.S. Students With a B.S. In Petroleum Engineering

All Petroleum M.S. students with a B.S. in Petroleum Engineering from an accredited program must take the following required courses:

Required Courses

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least three Core Courses from the following:

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

Total Credits: 14 Hours

Plan A Thesis Additional Course Requirements:

- 4000-level or above approved electives Credits: 12

PETE5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Total Credits: 30 Hours

Plan B Non-Thesis Additional Course Requirements:

4000-level or above approved electives

PETE5970 - MS Plan B Research Project

Credits: 1-2
Max Credit 2

Students complete a non-thesis capstone project on a topic of choice within the petroleum or energy field, under the guidance of their graduate committee. Students must produce at least one final paper and present their results in a public forum (Final Examination). Must complete a minimum of two credit hours for the M.S. degree.

Prerequisite: Graduate Standing.

Total Credits: 30 Hours

Petroleum M.S. Students With a B.S. In Chemical or Mechanical Engineering

All Petroleum M.S. students with a B.S. in Chemical or Mechanical Engineering from an accredited program must take the following required courses:

Required Courses:

PETE5055 - Drilling Engineering

Credits: 3
Max Credit 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hole deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: Graduate Standing

PETE5340 - Reservoir Engineering.

Credits: 3
Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: Graduate standing.

PETE5715 - Production Engineering

Credits: 3
Provides elements for calculating production rate of oil/ gas wells, including reservoir inflow performance, determined

by reservoir rock and fluids properties using Darcy's law, and tubing performance, determined by tubing parameters and using Newtonian dynamics. Basic design of artificial life systems, reservoir stimulations and optimization of production systems are included.

Prerequisite: graduate standing.

Core Courses

At least five Core Courses from the following:

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

Total Credits: 26 Hours

Plan A Thesis Additional Course Requirements:

- 4000-level or above approved electives Credits: 7

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

PETE5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

Total Credits: 40 Hours

Plan B Non-Thesis Additional Course Requirements:

- 4000-level or above approved electives Credits: 9

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

PETE5970 - MS Plan B Research Project

Credits: 1-2

Max Credit 2

Students complete a non-thesis capstone project on a topic of choice within the petroleum or energy field, under the guidance of their graduate committee. Students must produce at least one final paper and present their results in a public forum (Final Examination). Must complete a minimum of two credit hours for the M.S. degree.

Prerequisite: Graduate Standing.

Total Credits: 40 Hours

Graduate Seminar Requirements

All petroleum engineering PhD students must enroll in PETE5890 - Petroleum Engineering Graduate Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Graduate students enrolled in continuous registration are exempt from having to enroll in PETE 5890 in their final semester. MS students are required to take PETE 5890 for at least two semesters.

Graduate Teaching Requirement

All Petroleum Engineering graduate students must complete at least one semester as a teaching assistant within the Petroleum Engineering curriculum. Students receiving a state-funded graduate assistantship will be required to serve as a teaching assistant every semester of their award. Students funded by a faculty mentor will work with their mentor to determine an appropriate time to complete this requirement.

Program of Study Requirement

All Petroleum Engineering graduate students must complete their Program of Study worksheet at the beginning of their second academic year of study or 3rd semester of enrollment, and PhD students must submit it prior to their preliminary examination.

M.S. and Ph.D. Final Examination (Thesis or Dissertation Defense)

All M.S. and Ph.D. students must orally defend their final report, thesis, or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public defense in oral presentation format. At least three weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis or dissertation and provide the department an announcement of their defense for public advertisement. The results of the defense are reported by the committee on the Report of Final Examination form. Often, graduate committee members request changes in the final thesis or dissertation, and they may postpone signing this form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Registrar's web site. This copy will be rejected if the format standards specified by the Thesis or Dissertation Format Guide are not met. This guide allows for a publication-ready format. An electronic copy must also be submitted to the department for the departmental library. Most students will want copies for their own use. Students should consult with their chair to determine if they also want a copy of the final paper or other research documentation.

Petroleum Engineering, Ph.D.

Students with a B.S. in Petroleum Engineering

All Petroleum Ph.D. students with a B.S. in Petroleum Engineering must take the following required courses:

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution

techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least three Core Courses from the following:

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 21

Research

PETE5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 72

Students with an M.S. in Petroleum Engineering

All Petroleum Ph.D. students with an M.S. in Petroleum Engineering from UW must take the following required courses:

Plan A MS Courses Credits: 26

See Petroleum Engineering, M.S. program

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 9

Research

PETE5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 72

Students with an M.S. in Petroleum Engineering

All Petroleum Ph.D. students with an M.S. in Petroleum Engineering from another institution must take the following required courses:

Transferred MS Courses Approved by Student's Committee Credits: 14

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least four Core Courses from the following:*

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 9

Research

PETE5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 72 Hours

*Some or all of these credit hours can be transferred by petition, provided they are non-degree credits.

Students with an M.S. Degree in a Geoscience

All Petroleum Ph.D. students with an M.S. degree in a geoscience from another accredited institution must take the following required courses:

Transferred MS Courses Approved by Student's Committee Credits: 12

Required Courses

PETE5090 - Graduate Research Methods

Credits: 3

A general approach to scientific research and graduate school. Topics include: purpose of graduate school, career options with graduate degrees, communication basics, literature search skills, presentations, research instrumentation, the scientific method, developing hypotheses, grant proposals, paper writing, research ethics, copyrights, patents, research notebooks, and classroom teaching techniques.

Prerequisite: graduate standing.

PETE5890 - Petroleum Engineering Graduate Seminar

Credits: 1

Max Credit (Max. 9)

Departmental seminar on current research with formal training for student presentation of technical papers.

Prerequisite: graduate standing.

Core Courses

At least six Core Courses from the following:*

PETE5010 - Transport Phenomena

Credits: 3

Examines the modeling of momentum, heat and mass transport.

Cross Listed CHE 5010.

Prerequisite: graduate standing.

PETE5020 - Thermodynamics

Credits: 3

Utilizing the laws of thermodynamics to a wide variety of process applications. Evaluating current methods for predicting thermodynamic properties of pure fluids and mixtures. Modeling multiphase, multicomponent equilibria.

Cross Listed CHE 5020.

Prerequisite: graduate standing.

PETE5060 - Flow through Porous Media

Credits: 3

Review of properties of porous media. Relationships of permeability to porosity. Formulation of the Fundamental Flow equation. Constant Rate solutions. Constant Pressure Solutions. The Principle of Superposition. Transient well testing of oil and gas reservoirs, including drawdown, build-up, faulted systems, interference, drillstem tests, and isochronal test analysis.

Cross Listed CHE 5060

Dual Listed PETE 4060.

Prerequisite: graduate standing.

PETE5080 - Interfacial Phenomena

Credits: 3

Introduction to surface and colloid chemistry, coagulation and flocculation, surface energy and thermodynamics of surfaces, adsorption at interfaces, surface tension, capillarity and wetting, spontaneous imbibition, applications to hydrocarbon reservoirs and oil recovery.

Prerequisite: graduate standing.

PETE5310 - Fundamentals of EOR

Credits: 3

The application of physical principles to increasing the recovery from reservoirs. Miscible fluid flooding in-situ combustion, and thermal recovery.

Dual Listed PETE 4310.

Prerequisite: graduate standing.

PETE5350 - Advanced Reservoir Engineering

Credits: 3

Covers high-level understanding of modern reservoir engineering. Provides knowledge of scientific principles to formulate fluid flow, heat and mass transport in permeable media. Use analytical and computational tools to resolve research-oriented problems. Develop competence in interpreting results of modeling.

Prerequisite: graduate standing.

PETE5355 - Mathematical Methods

Credits: 3

Covers mathematical modeling: conservation laws and constitution relationships; partial differential equations (PDEs): the types and analytical solution techniques; applied linear algebra; matrices and Eigen-analysis; numerical solution techniques: finite difference and finite element methods, Newton-Raphson method, and temporal discretization techniques, and linear solution techniques: direct and iterative methods.

Cross Listed CHE 5355.

Prerequisite: graduate standing.

At Least Eight Additional Courses:

- Six (6) credits in advanced mathematics
- 18 credits in petroleum engineering

Petroleum Engineering Credits Include:

- PETE 5340
- PETE 5055

PETE5715 - Production Engineering

Credits: 3

Provides elements for calculating production rate of oil/ gas wells, including reservoir inflow performance, determined by reservoir rock and fluids properties using Darcy's law, and tubing performance, determined by tubing parameters and using Newtonian dynamics. Basic design of artificial life systems, reservoir stimulations and optimization of production systems are included.

Prerequisite: graduate standing.

Electives

- 4000-level or above approved electives Credits: 9

Research

PETE5980 - Dissertation Research

Credits: 1-12

Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Total Credits: 100 Hours

*Some or all of these credit hours can be transferred by petition, provided they are non-degree credits.

Graduate Seminar Requirements

All petroleum engineering graduate students must enroll in PETE5890 - Petroleum Engineering Graduate Seminar, every semester. All seminars, including the required presentations described below, must be scheduled by the seminar coordinator. Graduate students enrolled in continuous registration are exempt from having to enroll in PETE 5890 in their final semester.

Graduate Teaching Requirement

All Petroleum Engineering graduate students must complete at least one semester as a teaching assistant within the Petroleum Engineering curriculum. Students receiving a state-funded graduate assistantship will be required to serve as a teaching assistant every semester of their award. Students funded by a faculty mentor will work with their mentor to determine an appropriate time to complete this requirement.

Program of Study Requirement

All Petroleum Engineering graduate students must complete their Program of Study worksheet at the beginning of their second academic year of study or 3rd semester of enrollment, and PhD students must submit it prior to their preliminary examination.

Ph.D. Preliminary Examination

Candidacy in the doctorate occurs upon certification of successful completion of the preliminary examination. The preliminary examination will be held at least 15 weeks prior to the final examination. The preliminary examination may not be given before: (a) the research tool requirements, if any, have been met and certification approved; (b) at least 30 hours of coursework have been completed; and (c) the doctoral program of study has been approved.

The goal of the preliminary exam is for the student to present the research proposition that is being investigated and will lead to the final dissertation, and demonstrate progress to-date. The preliminary exam consists of three components:

- a written document provided to each member of the student's graduate committee at least three weeks prior to the oral presentation;
- a public oral presentation; and
- a private examination by the student's graduate committee immediately following the oral presentation.

The written document may be in any format but must concisely provide a survey of the relevant literature, a summary of the student's progress to-date, and a clear, detailed plan for the successful completion of the proposed work. The preliminary exam oral presentation should be consistent with the written document. It should provide an appropriate literature background, demonstrate proficiency with proposed experimental/computational techniques, identify details of the experiments to be performed, and provide a timeline to final defense.

The student's committee will pass or fail the student on the strength of the preliminary examination, with an option to conditionally pass the student while requiring an interim committee meeting prior to the final Ph.D. examination. The Report on Preliminary Examination for Admission to Candidacy form sent to the Office of the Registrar reports the results of the examination.

M.S. and Ph.D. Final Examination (Thesis or Dissertation Defense)

All M.S. and Ph.D. students must orally defend their final report, thesis, or dissertation at a public final examination. If, for any reason, a student's Ph.D. research goals are substantially changed after successful completion of the preliminary examination, the student must arrange a subsequent meeting to provide their committee with an accurate and current overview of their proposed work. The final examination consists of a public defense in oral presentation format. At least three weeks before the examination, the student must provide each member of the graduate committee with a copy of the written thesis or dissertation and provide the department an announcement of their defense for public advertisement. The results of the defense are reported by the committee on the Report of Final Examination form. Often, graduate committee members request changes in the final thesis or dissertation, and they may postpone signing this form until they are satisfied that those changes have been made.

Publication of Thesis or Dissertation

After the defense, an electronic copy (in PDF format) of the thesis or dissertation must be uploaded in accordance with the directions provided on the Registrar's web site. This copy will be rejected if the format standards specified by the Thesis or Dissertation Format Guide are not met. This guide allows for a publication-ready format. An electronic copy must also be submitted to the department for the departmental library. Most students will want copies for their own use. Students should consult with their chair to determine if they also want a copy of the final paper or other research documentation.

QuickStart Program

Petroleum Engineering Quick Start, B.S./M.S.

The BS/MS Quick Start program is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their BS degree in Petroleum Engineering. These students may apply for admission during their junior year.

Quick Start Program Requirements

The BS/MS Quick Start program in Petroleum Engineering (PETE) is designed to present highly qualified UW students with the opportunity to begin graduate study while they complete their Bachelor of Science (B.S.) degree in Petroleum Engineering. These students may apply for admission to the Quick Start program during their junior year or before starting their senior year.

This program allows for early planning of the graduate portion of a student's education and provides more flexibility in the number of required courses and the order in which they are taken. The more efficient and better planned use of time should result in reduction of the time required for obtaining the Master of Science in Petroleum Engineering degree. Students who enter the Quick Start program must accept primary responsibility for actively planning their Programs of Study to assure timely completion of their course work and research programs.

The Quick Start program contains two essential elements:

1. Qualified students may receive provisional admission to the Petroleum Engineering graduate program prior to completing the normal application process. This provisional admission will permit students to make their long-term educational plans earlier in their studies, thus providing enhanced opportunities for course selection and involvement in research.
2. Students in the program may apply up to 6 credit hours of 5000-level courses toward both the B.S. and M.S. degree programs. By completing successfully up to 6 credit hours of graduate classes during their senior year, these students will have demonstrated their ability to do graduate-level course work as undergraduates, easing their transition to the Petroleum Engineering graduate program.

For additional information, visit our website for admissions information <http://www.uwyo.edu/petroleum/undergraduate/current-students/quickstart.html> or contact our graduate admissions coordinator at pete-info@uwyo.edu.

Quick Start Prerequisites

Cumulative GPA of 3.25.

PETE GPA of 3.50

3 letters of recommendation, at least 2 from PETE faculty at UW.

PETE3200 - Reservoir Engineering

Credits: 3

Covers rock and fluid properties, reserve estimation using volumetric and material balance methods, discussion of different reservoir drive mechanisms, aquifer models, Darcy's law and single-phase flow through porous media, introduction to well testing, solution of radial diffusivity equation, immiscible displacement, decline rate analysis, and reservoir simulation.

Prerequisite: PETE 3025, C or better in PETE 2050. Student must be a Petroleum Engineering major.

Prerequisite courses: PETE 2050 and PETE 3025

PETE3255 - Basic Drilling Engineering

Credits: 3

Principles and practices of oil and gas well rotary drilling, including rock mechanics, drilling hydraulics, drilling fluids, and hole deviation. Drilling equipment analysis, casing design, and drilling fluid properties. Application of modern computer-based analysis and design methods.

Prerequisite: C or better in PETE 2050. Student must be a Petroleum Engineering major.
Prerequisite courses: ES 2330 and PETE 2050

PETE3715 - Production Engineering

Credits: 3

Provides elements for calculating the production rate of oil or gas wells, including reservoir inflow performance, which is determined by the reservoir rock and fluids properties and calculated based on Darcy's law, and tubing performance, which is determined by tubing parameters and calculated based on Newtonian dynamics. Basic design of artificial lift systems, reservoir stimulations and optimization of production systems are also included.

Prerequisite: C or better in ES 2310, ES 2330 and PETE 2050. Student must be a Petroleum Engineering major.
Prerequisite courses: ES 2310, ES 2330 and PETE 2050

Transfer Students' Requirements

Must have taken at least two of the three required PETE courses listed above at UW.

Transfer course work must be from an accredited institution and deemed equivalent to current UW PETE core courses.

Must have completed at least 15 credit hours of PETE course work at UW prior to starting the Quick Start program.

Quick Start Program Retention

Prior to completion of the BS degree, students must:

- Complete all requirements for admission to UW graduate school and the PETE graduate program.
 - The Graduate Records Examination (GRE) requirement will be waived.
 - Additional English proficiency testing for admission is also waived for international students.
- Maintain a cumulative GPA of at least 3.25 in their overall undergraduate program.
- Maintain a GPA of 3.5 in their PETE courses.
- Maintain a GPA of at least 3.0 in 5000-level (graduate) courses.

- Failure to complete graduate admission requirements prior to the start of the final year of undergraduate study will result in immediate suspension from the program.
- Failure to meet any GPA requirements places a student on academic probation for one semester.
- If the GPA requirement is still not met after academic probation, the student will be suspended from the program.

School of Computing

College of Health Sciences

College of Health Sciences

235 Health Sciences Center

David Jones, Dean

Phone: (307)766-6556 FAX: (307)766-6608

Web site: www.uwyo.edu/hs

The College of Health Sciences is the place for students interested in improving and maintaining the physical, mental, and social health of others. We offer challenging degree programs in the "helping professions" and serve as the gateway to schools of medicine, dentistry, physical and occupational therapy, physician's assistant study, optometry, and more.

Health sciences students receive not only a superior education from knowledgeable and caring faculty but also precise and personal guidance from conscientious advising personnel. Students benefit, too, from practicums and internships that help them refine and test the skills acquired in lectures and labs as well as opportunities to participate in dynamic, interdisciplinary research projects.

The college is also the home of the Wyoming Institute for Disabilities (WIND); two Family Medicine Residency Centers; and the WWAMI Medical Education Program.

We serve as the state certifying office for the Wyoming, Washington, Alaska, Montana, and Idaho (WWAMI) medical education contract program with the University of Washington School of Medicine; WYDENT, the dental education contract program with the University of Nebraska and Creighton University; and two programs for the Western Interstate Commission of Higher Education (WICHE): the Professional Student Exchange Program (PSEP) and the Western Regional Graduate Program (WRGP). Refer to the sections on WWAMI, WYDENT, and WICHE in this catalog for program descriptions or go to www.uwyo.edu/certwy.

Any student seeking admission to programs in the College of Health Sciences will be required to obtain a background check as specified by college policy. Please contact your school or division for specific information.

The College of Health Sciences retains the right to deny or revoke admission to any of its programs for academic, disciplinary, ethical, or professional standards reasons.

Programs of Study

Undergraduate Degrees

Bachelor of Science

Kinesiology and Health Promotion
Medical Laboratory Science
Physical Education Teacher Education K-12
Speech, Language and Hearing Sciences

Bachelor of Science in Dental Hygiene

Bachelor of Science in Nursing

Bachelor of Social Work

Graduate Degrees

Master of Science

Health Services Administration
Nursing

Kinesiology and Health
Speech-Language Pathology

Master of Social Work

Professional Degrees

Doctor of Nursing Practice

Doctor of Pharmacy

Minor in the College of Health Sciences

Disability Studies

Disability studies is a diverse interdisciplinary field that investigates broad questions about the nature, meanings, and consequences of disability from interrelated social, historical, cultural, and political perspectives. Students will gain a broad understanding of disability issues for working with people with disabilities rather than specific disciplinary skills and techniques. The minor complements any major and consists of 18 credit hours. See www.uwyo.edu/hs/divisions-and-programs/minor-indisability-studies.html.

Undergraduate and Pre-Health Advising Office

Health Sciences Center, 110

The Undergraduate and Pre-Health Advising Office (UPHAO) in the College of Health Sciences (www.uwyo.edu/preprof/) provides pre-professional health advising to all UW students regardless of their academic majors, who are interested in pursuing future study in athletic training, chiropractic, dentistry, medicine, optometry, occupational therapy, physical therapy, physician assistant, or other health care careers such as public health. A bachelor's degree is usually required for admission to a professional school. The University of Wyoming does not offer degrees in pre-professional areas. Students may pursue any UW degree program in which they have an interest and at the same time complete the admission requirements for the professional schools they wish to attend. The UPHAO advises students for their professional program prerequisites as well as other aspects of becoming solid candidates. Each student will also have an advisor in his/her major.

Through this office, pre-health students can access current information about admission requirements, entrance examinations, application process, professional school curriculums, interviewing skills, and test preparation. Specific schools may have additional requirements; students are urged to check with the schools they wish to attend.

Information and Wyoming state residency applications for the WICHE PSEP program, the WWAMI medical education program, and the WYDENT dental education program, may be found online at <http://www.uwyo.edu/certwy>.

Please view individual division and program pages list for full course and curriculum listings

Division of Communication Disorders

265 Health Sciences, (307) 766-6427

FAX: (307) 766-6829

Web site: www.uwyo.edu/comdis

Director: Mark Guiberson

Professors:

MARK GUIBERSON, B.A. University of Colorado 1997; M.A. 1999; Ph.D. Colorado State University 2006; Professor of Speech-Language Pathology 2019, 2011.

Assistant Professors:

KATELYN J. KOTLAREK, B.S. University of Wisconsin-Madison 2012; M.S. Florida State University 2014; Ph.D. East Carolina University 2019; Assistant Professor 2019.

BREANNA KRUEGER, B.A. University of Wyoming 2007; M.A. University of Kansas 2011; M.A. 2013; Ph.D. 2017; Assistant Professor 2017.

Lecturers:

SHELLEY BARTON, B.A. University of Wyoming 2005; M.S. 2008; Instructor 2018.

ESTHER HARTSKY, B.A. Adams State University 2000; A.A.S. Pikes Peak Community College 2004; Assistant Lecturer 2017.

KARLEE SMITH, B.S. University of Wyoming 2014; M.S. University of Wyoming 2013; Lecturer 2020.

Clinical Professors:

TERESA J. GARCIA, B.S. University of Wyoming 1989; M.S. 1991; Clinical Professor 2020, 2016, 1995.

Assistant Clinical Professors:

CORRI SANDOVAL, B.S. University of Wyoming 2000; M.S. 2010; Assistant Clinical Professor 2020.

HEIDI CLARK, B.S. University of Virginia 1998; M.A. Kent State University 2000; Assistant Clinical Professor 2020.

Adjunct Clinical Instructor:

Melissa Denker, M.S., CCC-SLP

Professors Emeriti:

Janis A. Jelinek, Douglas W. Laws, Michael A. Primus, Mary Hardin-Jones, David L. Jones

About the Division of Communication Disorders

The Division of Communication Disorders offers three academic programs: a certificate in American Sign Language Studies, a Bachelor's of Science (B.S.) degree in Speech, Language and Hearing Science, and a Master of Science (MS) degree in Speech-Language Pathology. Information on these programs can be found on the links on the bottom of this page. In addition, the College of Education's Curriculum and Instruction, Ph.D., Concentration in Literacy Education, is a doctorate degree in which affiliated Division of Communication Disorders faculty can offer doctorate coursework, advising, and other involvement. See the College of Education website for details. The Division is also home to the University of Wyoming Speech & Hearing Clinic. Information about the Division's Vision, Mission, and Strategic Plan can be found on the Division website, as well as important information about the Division's Diversity, Equity, and Inclusion statement (<http://www.uwyo.edu/comdis/>).

Speech and Hearing Clinic

The UW Speech and Hearing Clinic is a training center for students from the Division of Communication Disorders, including B.S. students in the Speech, Language, and Hearing Sciences program and M.S. students in the Speech-Language Pathology program. Student clinical experiences occur under the direct supervision of state licensed and ASHA-certified speech-language pathologists (CCC-SLP). The clinic also provides audiology services from a ASHA-certified and state licensed audiologists (CCC-A). In addition to on-campus services, the clinic provides telepractice speech-language pathology services. Clinical services are available to students, faculty as well as the larger community. More information can be found on the UW Speech and Hearing Clinic website <http://www.uwyo.edu/comdis/uw-speech-and-hearing-clinic/index.html>.

Major

Speech, Language and Hearing Science, B.S.

Learn about working with people to improve their speech, language, and hearing. Study American Sign Language. This pre-professional degree is preparation for application to a graduate studies in speech-language pathology, audiology, or other areas.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate and are not covered by the Speech, Language and Hearing Science major:

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

Courses required for major

PSYC1000 - General Psychology

Credits: 3
Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

MATH1400 - College Algebra

Credits: 3
Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

FCSC2121 - Child Development

Credits: 4

Incorporates classroom instruction with laboratory application of child development research and theory in physical, intellectual and social/emotional domains. Emphasizes early childhood years.

USP 2003-2014 Code U3CS

Prerequisite: PSYC 1000 or SOC 1000 or EDST 2450.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

SPPA1010 - Introduction to Communication Disorders

Credits: 3

Introduces information regarding basics of speech and hearing. Discusses disorders of speech and hearing by defining the problem, etiology or theories of cause, classifications and controversies, evaluation techniques and therapies to correct the disorder.

USP 2003-2014 Code U3I,U3L

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

SPPA2210 - Phonetics

Credits: 3

Articulatory and acoustic description of speech sound production. Introduction to the International Phonetic Alphabet and phonetic transcription.

Former Course Number [3210]

Prerequisite: SPPA 1010 or consent of instructor.

SPPA3160 - Speech and Language Development

Credits: 4

Deals with the development of speech sound production, phonology, semantics, syntax, morphology, discourse, and pragmatics for typically-developing children from infancy to adolescence. Includes prelinguistic and paralinguistic communication, the cognitive correlates of communication, and written language. Considers the effects of sociocultural context and multiple language acquisition. Application component provides weekly experience in language sample analysis.

Former Course Number [4160]

Prerequisite: SPPA 2210 or instructor permission.

SPPA3265 - Anatomy and Physiology of Speech, Swallowing and Hearing

Credits: 4

Introduces the student to the anatomy of the normal speech and hearing systems as well as the physiologic underpinnings of the speech (respiration, phonation, articulation), swallowing, and hearing (external, middle, and inner ear) systems. Theories of speech production and speech perception are presented.

Former Course Number [3400]

Prerequisite: KIN 2040 or consent of instructor.

SPPA4240 - Speech and Language Disorders Across the Lifespan

Credits: 3

The nature and causes of developmental and acquired speech and language disorders across the lifespan are examined. Principles of assessment and intervention are introduced.

Prerequisite: SPPA 3160 or consent of instructor.

SPPA4340 - Basic Audiology

Credits: 3

An introduction to audiology as a profession, with primary focus on screening and diagnostic methods for the clinical evaluation of hearing loss in children and adults.

When Offered (Normally offered spring semester)

Prerequisite: SPPA 3265 or concurrent enrollment.

SPPA4150 - Aural Rehabilitation

Credits: 3

Examines basis for and characteristics of communication problems created by hearing loss and management procedures to facilitate communication and adjustment to hearing loss. Includes acoustic and visual properties of speech, amplification devices and hearing loss in school children.

Prerequisite: SPPA 4340 or consent of instructor.

SPPA4250 - Clinical Methods

Credits: 4

Introduction to clinical procedures, such as: collecting data, clinical writing and documentation, reviewing practice regulations, interviewing, and counseling. Students will obtain initial clinical experience (i. e. observation, simulation and/ or clinical assignment). Requirements (e. g. , background check, TB screen) must be met for involvement in the Speech & Hearing Clinic.

Prerequisite: SPPA 3265

SPPA4380 - Neurological Basis of Communication

Credits: 3

Studies details of human nervous system, including central and peripheral nervous systems, major motor and sensory pathways and special senses. Emphasizes neurology of various communication disorders.

Prerequisite: SPPA 3265 or consent of instructor.

Notes:

A grade of C or better must be earned in all SPPA courses; courses in the major must be taken for a letter grade unless offered for S/U only. Also note that speech, language, and hearing topic courses from community colleges do not transfer or count as course equivalents.

Elective Courses

Upper-Division Social Behavior Credits (choose one)

Choose one from the list below (students are responsible for knowing prerequisites for these courses).

CNSL4520 - Fundamentals of Counseling (B)

Credits: 3

Students learn some of the skills of counseling and develop an understanding of elementary principles of counseling theory, as well as a better understanding of themselves in relation to other people.

Dual Listed CNSL 5520.

When Offered (Offered on campus and online all semesters)

Prerequisite: junior standing; 6 hours of education or psychology and graduate standing to receive graduate credit.

PSYC4310 - Developmental Psychopathology

Credits: 3

Provides basic understanding of developmental psychopathology. Examines characteristics, etiology, assessment and treatment of psychological disorders in children including autism, mental retardation, anxiety, depression, attention, learning, and conduct problems.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or FCSC 2121 or EDST 2450.

PSYC4320 - Intellectual Disability

Credits: 3

Acquaints students with all aspects of intellectual disability including assessment, diagnosis and classification, etiology, and associated health and mental health difficulties. Prevention, educational and psychological intervention, family adaptation, and community involvement are also addressed.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 4300 or FCSC 2121 or EDST 2450.

Electives

Lower division (1/2000) open electives (student choice - any course that does not meet another university or major requirement): 24 credits

Upper division (3/4000) open elective (student choice - any course that does not meet another university or major requirement): 12 credits

Additional Information

The BS degree prepares students for graduate study in communication disorders disciplines. Students study the normal processes associated with understanding and producing speech and language. These include anatomy, physiology, and neurology. Students also learn about normal development of speech and language in children, and they are introduced to disorders and clinical methods. Courses in related areas, such as anatomy, psychology, child development, statistics, and linguistics are also part of the program. Students obtain initial clinical experiences through observing clinical practice in the UW Speech & Hearing Clinic as part of coursework.

The B.S. degree is considered pre-professional preparation for entrance into a graduate program in speech-language pathology, audiology, or related fields. A clinical graduate degree is required in order to become a speech-language pathologist or an audiologist. The B.S. degree at UW is not designed to meet requirements to become a speech-language pathology assistant (SLP-A), additional practicum and some coursework at another institution would be required to become an SLP-A. For information on SLP-A technical programs please visit ASHA.org.

Student Learning Objectives

The BS degree provides students with a broad-based foundation in the sciences and humanities, fundamental knowledge of human communication, communication development, and the nature of communication disorders across the lifespan. Specific learning objectives can be found on the BS program website.

<http://www.uwyo.edu/comdis/undergraduate/bachelors-of-speech-language-and-hearing-science.html>

Criminal Background Check

Eligibility for the B.S. degree is contingent upon passing a criminal background check. Usually during the senior year, each student will be required to obtain, pay for, and pass a criminal background check as part of enrollment in advanced courses. These background checks are required in order to participate in any aspect of the UW Speech & Hearing Clinic. The results of the background check may impact a student's ability to complete the required coursework and obtain the degree. Please see the College of Health Sciences website for the policy and procedures document.

National Student Speech Language Hearing Association

Students can join the UW chapter of the National Student Speech Language Hearing Association (NSSLHA) to become a part of a community of students interested in communication sciences and disorders. Objectives are to promote and recognize scholastic achievement and to support clinical, research, and service endeavors.

Graduate

Speech-Language Pathology, M.S.

Earn a Master of Science (M.S.) in speech-language pathology, our program is accredited by ASHA's CAA and includes 3 semesters of on-campus coursework and clinic work followed by 3 semesters of distance education and external clinical placements.

Accreditation

The Master of Science in Speech-Language Pathology is a professional degree program that includes 61-64 semester credit hours of enrollment (see typical programs below). Students may pursue either a thesis or non-thesis track during their graduate studies. Both tracks lead to eligibility for the Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP), granted by the Council for Clinical Certification in Audiology and Speech-Language-Pathology (CFCC), which is a council serving the American Speech-Language Hearing Association. Graduates are also eligible for the Wyoming license in speech-language pathology. A supervised Clinical Fellowship Year (CFY) is required beyond the graduate degree for certification.

Accreditation. The Master's of Science (MS) education program in speech-language pathology {residential} at the University of Wyoming is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association, 2200 Research Boulevard, #310, Rockville, MD 20850, 800-498-2071 or 301-296-5700.

Typical Programs of Study

There are two programs of study for the MS SLP program. The Plan A is the thesis option (64-credit hour program), and Plan B is the non-thesis option (61-credit hour program). The Plan A (thesis) option requires and 38 credits of graduate academic work (including 4 credits of SPPA 5960 Thesis Research) and 26 credits of graduate clinical practicum. The Plan B (non-thesis) option requires 35 credits of graduate academic work (including 1 credit of SPPA 5961 Graduate Projects/Oral Comprehensive Exam) and 26 credits of graduate clinical practicum.

35-38 Hours of Graduate Academic Work Usually Includes:

SPPA5020 - Phonological Assessment and Intervention

Credits: 3

Emphasis on normal phonetic and phonologic development, diagnosis and clinical management of articulatory and phonological disorders.

Prerequisite: SPPA 3210.

SPPA5140 - EBP and Evaluation Procedures in Communication Disorders

Credits: 4

Focuses on research and evaluation procedures in speech-language pathology. Topics include evidence-based practice, evaluating research, an overview of models of disability across applied settings, assessment and evaluation processes including interviewing, understanding tool psychometrics, and using norm-based referenced tools, criterion-based measurements, and dynamic assessment.

Prerequisite: Acceptance to the University of Wyoming's graduate SLP program.

SPPA5280 - Early Language Intervention

Credits: 3

Principles and techniques of language assessment and intervention for preschoolers, infants, and low-functioning individuals.

Prerequisite: SPPA 3160.

SPPA5220 - Voice Disorders

Credits: 3

Study of the etiology, assessment, and remediation of voice disorders. Includes a discussion of preventing disorders, maintaining a healthy voice, and normal changes in voice. Presentation of rehabilitation options for laryngectomized speaker.

Prerequisite: SPPA 3265.

SPPA5130 - Adult Neurogenic Disorders

Credits: 4

This course will cover acquired neurogenic communication disorders. Topics include language disorders (focusing on Aphasia) as well as cognitive-communication disorders (i. e. , traumatic brain injury, Right Hemisphere Dysfunction, and Neurocognitive disorder). This graduate course provides 1) a basic understanding of the neuroanatomical/physiological basis and 2) instruction regarding evaluation and treatment methods.

Prerequisite: SPPA 4380.

SPPA5330 - School-Age Language Intervention

Credits: 3

Principles and techniques of language assessment and intervention for school-age children and adolescents with particular attention to service delivery issues in schools.

Prerequisite: SPPA 3160.

SPPA5120 - Stuttering

Credits: 2

Theories of etiology, symptoms of the problem, diagnosis and treatment of childhood non-fluency and various approaches to therapy for the adult stutterer.

Prerequisite: graduate level standing.

SPPA5110 - Craniofacial Disorders

Credits: 2

Studies communication disorders related to cleft lip and palate disorders and associated craniofacial sequences and syndromes. Assessment and treatment of these communication disorders is presented in the context of interdisciplinary management. Surgical and nonsurgical treatment procedures employed to manage speech problems associated with velopharyngeal insufficiency are included.

Prerequisite: SPPA 3265, SPPA 2210.

SPPA5230 - Dysphagia

Credits: 3

Provides information regarding the anatomy and physiology of the adult and pediatric swallowing mechanisms, the diagnosis of dysphagia and feeding disorders using clinical and instrumental approaches, the medical diagnoses for which dysphagia is a common symptom, and methods that are commonly used to treat dysphagia and feeding disorders.

Prerequisite: SPPA 3265.

SPPA5100 - Motor Speech Disorders

Credits: 2

Evaluation and treatment of motor speech disorders. Topics will include characteristics of disordered speech associated with neurological impairments/diseases; methods for evaluating communication disorders associated with dysarthria, apraxia of speech, and other neurological and acquired conditions, and treatment approaches.

Prerequisite: SPPA 4380 or a course covering neuroanatomy/physiology of normal and disordered communication.

SPPA5210 - Augmentative and Alternative Communication

Credits: 2

Selection, design, and application of augmentive and alternative communication (AAC) systems to enhance communication, education, and quality of life for individuals with development and acquired disorders.

SPPA5380 - Professional Practice

Credits: 3

Max Credit (Max. 9)

Emphasizes issues related to professional practice of speech-language pathology, such as professional ethics, scope of practice, professional standards, and techniques of counseling clients. This course applies to speech-language pathologists working in either the medical or school setting. This course prepares the speech-language pathologist to collaborate with other professional in the workplace through discussion and activities of inter-professional practice and education (IPP and IPE).

Prerequisite: graduate standing in Communication Disorders and consent of instructor.

SPPA5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Graduate level course designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

SPPA5961 - Graduate Projects

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have departmental approval.

26 Hours of Graduate Clinical Practicum Include:

SPPA5030 - Clinical Practicum

Credits: 1-4
Max Credit (Max. 12)

Supervised clinical experience with speech, language, and hearing disordered children and adults under supervision of University of Wyoming Speech and Hearing Clinic faculty.

Prerequisite: matriculating graduate students only.
(14 credits total required)

SPPA5270 - Educational Practicum

Credits: 1-12
Max Credit (Max. 12)

Under supervision, the student is given increased responsibility for performing speech and language assessments, hearing screenings, and treatment of children in an educational setting. Students will relate to other educational personnel and counsel teachers and families about communication disorders.

Prerequisite: completion of at least two semesters (including summer) of approved graduate coursework and clinical practicum (SPPA 5030); and approval of faculty.
(6 credits total required)

SPPA5290 - Medical Practicum

Credits: 1-12
Max Credit (Max. 12)

Under supervision, the student is given increased responsibility for performing speech and language assessments, hearing screenings and treatment of children and adults in a medical setting. Students relate to other medical and clinical personnel and counsel professionals and families about communication disorders.

Prerequisite: Completion of at least two semesters (including summer) of approved graduate coursework and clinical practicum; and approval of faculty.
(6 credits total required)

Note:

Note: Specific degree requirements (course name and content), may change based on departmental decisions or requirement changes from accreditation and licensure bodies.

Additional Information

Admissions to the M.S. Degree Program in Speech-Language Pathology

Admission to the master's program in speech-language pathology is made on a competitive basis. We accept students to start in the fall of each year. For application, admission, and a description of the program, see the division website. Applicants must have completed a bachelor's degree or equivalent from a regionally accredited institution. All applicants should have at least a 3.000 cumulative GPA (scale of 4.000).

Additional required undergraduate coursework and discipline specific coursework.

Admitted students must also have taken required coursework in the 4 Foundational Areas (Biological Sciences, Physical Sciences, Social/Behavioral Sciences, and Statistics). For the UW M.S. SLP program, admitted students must also have completed coursework in phonetics; speech & language development; anatomy and physiology of speech, hearing, and swallowing; audiology; neural basis of communication; and aural rehabilitation. Coursework in each of these areas is needed in order to meet the requirements of the Council for Clinical Certification in Audiology and Speech-Language-Pathology (CFCC) certification requirements and/or in order to graduate from the UW MS SLP program. Students missing any of these courses must complete requirements in order to be considered eligible for the M.S. in SLP degree.

Application Procedure

Applications to our master's program must be made through an electronic, centralized application service: the Communication Sciences and Disorders Centralized Application Service for Clinical Education in Audiology and Speech Language Pathology (CSDCAS). Instructions and application procedures are available at <https://csdcas.liasoncas.org/>. Check the division web site in September for instructions.

Applicants will be notified of the division's decision on acceptance, alternate, or denial by mid-March. Applicants must respond to the offer by April 15. Alternates may be offered positions that become available after April 15.

International Students

For all International students, the university must determine whether financial resources are sufficient for study here.

International students from non-English speaking countries need a TOEFL score of 600 to show English proficiency. Additional sources of evidence may be requested by the division to make a final decision. English proficiency must be sufficient for success in graduate school and certification as a speech-language pathologist in the United States, even if the applicant intends to return to the native country.

Conditional Status

An applicant may be admitted conditionally if he or she does not meet the GPA requirements for full admission, and the Division determines that there are sufficient areas of strength for success in graduate school in comparison to other applicants. Conditions will be placed on admission such as graduate grade point average, performance criteria, or completion of certain courses.

Requirements Following Offer of Admission

Students who accept an offer of admission to the program must then provide numerous pieces of required documentation for admission to UW and program, and will also need to be responsive to emails from the Division and faculty throughout onboarding.

Criminal Background Check

Admission to the graduate program in speech-language pathology is contingent upon passing a criminal background check. Each student recommended for admission into program will be required to obtain, pay, and pass a criminal background check. Additional background checks are routinely required by schools, hospitals, and other agencies that participate in the clinical education of our students. The results of the background checks may determine admission and/or ability to complete the UW M.S. SLP program. Please see the College of Health Sciences web site for the policy and procedures document.

Vaccination Requirements

Students' admission to our program is contingent on verification of vaccinations, including COVID-19 vaccination. Other medical information (TB test) will also be requested. Admitted students can request a COVID-19 vaccination exemption from the University, but keep in mind that external clinical placements have their own processes and are not bound to accept University of Wyoming determinations. Students who are not vaccinated may be at risk for extended programs of study and/or inability to complete the degree by completing required and approved externships.

Graduate Student Outcome Data

As of September 2021, 98.04% of MS SLP students completed the program "on-time" over the last three years, 100% obtained employment, and reported Praxis Exam pass rate was 100%.

Program Specific Graduate Assistantships

Financial help for graduate students is available each year through the department with assistantships and other funding. Typically, graduate assistantships include one-half tuition support and a monthly stipend. These assistantships require the student to spend 10 hours per week assisting faculty members in teaching and research. Graduate Assistantships and scholarship awards are competitive and based on past academic performance, evidence of professional promise, and letters of recommendation.

Differential Tuition

The graduate program in speech-language pathology has a differential tuition rate. See the Division website and/or fee book for details.

Certificate

American Sign Language Studies Certificate

Gain basic foundational skills in American Sign Language (ASL), understand sociocultural aspects of Deaf communities, teach other students the basics of ASL.

The American Sign Language Studies (ASL Studies) certificate provides a basic or beginning understanding of ASL and an introduction to Deaf sociocultural issues. The ASL Studies certificate may be helpful to anyone in the health and education fields in learning to communicate with and understand individuals who are Deaf. The certificate is a nominal recognition for students who wish to pursue more education in the fields of speech-language pathology, sign language interpreter, teacher of the deaf, preschool and K-12 education, audiology, nursing, counseling and other areas. The ASL Studies Certificate is not designed or adequate to meet educational requirements for any specific professional license or certification. The ASL Studies certificate from UW is a nominal recognition of basic or beginning ASL skills and Deaf culture. It does not prepare or entitle a student or recipient for any certification or licensure from any state or national associates, agencies or governmental bodies. For more information on the ASL Studies learning objectives, see the website: <http://www.uwyo.edu/comdis/american-sign-language/index.html>.

ASL Studies Certificate Requirements:

Students must have earned a grade of A for all three language courses (SPPA 2110, SPPA 2120, and SPPA 4130) in order to be eligible for the certificate. ASL coursework needs to have been completed within the last 5 years in order to pursue the ASL Studies Certificate, exceptions can be granted if the student demonstrated adequate skills during a structured interview with a UW ASL instructor.

Course sequence for the certificate, 16 credits total:

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

SPPA4070 - Deaf Studies

Credits: 3

Studies deaf culture and deaf history in the United States. Culture topics will include deaf community dynamics, humor, behavior, emotional and social interaction, besides issues involving deaf children as a linguistic minority. History will be discussed from the 1700s to the present in the U. S.

USP 2003-2014 Code U3CS,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: SPPA 2110.

SPPA4130 - Advanced ASL

Credits: 4

Third level of ASL comprehension and expression. Addresses increased fluency in ASL; register variation for different conversational participants; and specialized vocabulary, including sexuality and religion. Translation from English to ASL is addressed.

Prerequisite: SPPA 2120.

SPPA4140 - Undergraduate Teaching Assistant

Credits: 1

Max Credit (Max. 2)

Students assist instructor in major courses that they have successfully completed, including assisting with lab or practice sessions, providing individual student assistance, and participating in other student outreach activities on behalf of the Division. One semester credit hour requires 4 hours of work per week.

Prerequisite: consent of instructor/department and junior standing.

Division of Kinesiology and Health

Corbett Building, (307) 766-5284

FAX: (307) 766-4098

Web site: www.uwyo.edu/kandh

Director: Derek Smith

Professors:

TAMI BENHAM DEAL, B.S. Indiana University 1981; M.S. 1988; P.E.D. 1989; Professor of Kinesiology and Health 2012.

CHRISTINE M. PORTER, B.S. University of Maryland 1993; M.A. University of London 2002; Ph.D. Cornell University 2010; Professor of Kinesiology and Health 2021, 2016, 2010.

TRISTAN WALLHEAD, B.S. Loughborough University 1994; M.S. Leeds Metropolitan University 2000; Ph.D. Ohio State University 2004; Professor of Kinesiology and Health 2017, 2010, 2004.

QIN ZHU, B.S. Shanghai University of Sports 1999; M.Ed. 2002; Ph.D. Indiana University 2008; Professor of Kinesiology and Health 2020, 2014, 2008.

Associate Professors:

BOYI DAI, B.Ed. Beijing Sport University 2007; M.S. Iowa State University 2009; Ph.D. University of North Carolina at Chapel Hill 2012; Associate Professor of Kinesiology and Health 2017, 2012.

EVAN C. JOHNSON, B.A. The George Washington University 2004; M.A. University of Connecticut 2008; Ph.D. 2014; Associate Professor of Kinesiology and Health 2020, 2015.

R. TUCKER READDY, B.A. University of California, Berkeley 2000; M.A. San Diego State University 2004; Ph.D. Oregon State University 2009; Associate Professor of Kinesiology and Health 2016, 2010.

DEREK SMITH, B.S. Colorado State University 1997; M.S. Wake Forest University 1999; Ph.D. University of Colorado 2003; Associate Professor of Kinesiology and Health 2009, 2003.

Assistant Professors:

DANIELLE BRUNS, B.S. Linfield College-McMinnville 2008; M.S. Colorado State University 2010; Ph.D. 2013; Assistant Professor of Kinesiology and Health 2018.

BEN KERN, B.A. Western Colorado University 1999; M.A. Adams State University 2002; Ph.D. University of Illinois Urbana-Campaign 2017; Assistant Professor Kinesiology and Health 2020.

EMILY E. SCHMITT, B.S. Elon University 2007; M.S. University of North Carolina at Charlotte 2009; Ph.D. Texas A&M University 2015; Assistant Professor of Kinesiology and Health 2018.

KELLY SIMONTON, B.S. University of Wyoming 2014; M.S. Louisiana State University 2016; Ph.D. Louisiana State University 2018; Assistant Professor of Kinesiology and Health 2021.

Academic Professional:

MARCI SMITH, B.S. Colorado State University 1995; M.S. Wake Forest University 1998; Senior Lecturer in Kinesiology and Health 2015, 2003.

Adjunct Faculty:

Laurence Deal, Shane Tweeter

Professors Emeriti:

Paul Dunham, Ward Gates, Charles W. Huff, Donna Marburger, D. Paul Thomas, Mark Byra, Jayne Jenkins

The Division of Kinesiology and Health offers the Kinesiology and Health Promotion (K&HP) major and the Physical Education Teacher Education (PHET) major. These two majors prepare students in kinesiology and health promotion for a variety of clinical and nonclinical settings including teaching physical and health education in schools K-12. Students enrolled in these programs must meet academic standards as determined by the Division of Kinesiology and Health, College of Health Sciences, and the University of Wyoming.

The K&HP major prepares students well for admission to physical therapy school and occupational therapy school, as well as other health professions (e.g., physician, physician assistant, dentist, chiropractor, optometrist, etc.). Approximately 60% of students majoring in K&HP apply to one of these health professional schools once they have completed their B.S. degree in Kinesiology and Health. Other students majoring in training, fitness, recreation, and leisure, and health promotion with state agencies enter a very diverse job market.

The PHET program prepares students to teach physical and health education (PHET) in K-12 schools. The PHET major is a nationally recognized program for meeting the NASPE/NCATE Initial Physical Education Teacher Education Accreditation Standards. This program offers individuals opportunity to combine certifications/endorsements in health education K-12, adapted physical education K-12, and coaching.

A graduate program leading to a Master of Science degree in Kinesiology and Health is offered by the Division.

Professional Program

Students who meet University of Wyoming entry requirements are admitted to the university in one of the two undergraduate majors that leads to the Bachelor of Science degree. The Division's undergraduate majors are open at the freshman level to all graduates of accredited high schools. Advanced placement for students with previous college credit is based on evaluation of transcripts of previous academic work.

Students in the Kinesiology & Health Promotion (K&HP) program are ready to move forward in the junior year of the program when they complete the pre-requisite requirements to enroll in KIN 3021 and KIN 3022, Physiology of Exercise lecture and laboratory. To be eligible for the K&HP Professional Program (junior/senior years), students must have completed all program course prerequisites and have a minimum cumulative grade point average of 2.750, preferred GPA of 3.000. Advancement in the K&HP Professional Program is complete once prerequisite criteria is met.

The entry course for admission to the Physical Education Teacher Education (PHET) program is KIN3012 - Teaching Laboratory I. To be eligible, for the PHET professional program, students must have completed all program course prerequisites and have a minimum cumulative grade point average of 2.750, preferred GPA of 3.000. Admission to the last two years of the PHET major is a competitive process. Application to the PHET majors is conducted only for fall. The application deadline is early April.

Undergraduate Majors

Kinesiology and Health Promotion, B.S.

Physical Education Teacher Education K-12, B.S.

Additional School Endorsements K-12

Adapted Physical Education K-12 Endorsement

School Health Education K-12 Endorsement (For Physical Education Teacher Education Majors)

Affiliated Options

The Division of Kinesiology and Health offers two options for the general undergraduate population. They require course work beyond degree requirements.

Athletic Coaching Endorsement / Permit

School Health Education K-12 Endorsement (For non-Physical Education Teacher Education Majors)

Graduate Study

Program Specific Admission Requirements

Admissions into the M.S. degree program is open to people who have obtained an undergraduate degree with a major program of study in exercise and sport science, health, kinesiology, physical education, or other area in human movement sciences. Students who do not have a bachelor's degree in kinesiology, physical education or health are required to complete four undergraduate courses in kinesiology and/or health in addition to the courses required for the graduate program of study. Individuals interested in applying are encouraged to contact the Graduate Program Coordinator, Dr. Tucker Readdy (tucker.readdy@uwyo.edu) for more information.

In order to apply, please submit the following via the University of Wyoming's online application system (www.uwyo.edu/admissions/apply.html): K&H supplemental application, copies of GRE scores, transcripts, a sample of professional writing, and three letters of recommendation. Applications must be submitted no later than February 1 to be considered for Fall admission; Spring admissions are also considered on a case by case basis.

GRE scores are required for admission but can be waived in specific situations. A minimum of a 3.000 undergraduate cumulative GPA is also necessary for admission. International students who are not native English speakers must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (www.uwyo.edu/ele/) if you have questions regarding English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies in the front section of the UW Catalog for more information.

Program Specific Graduate Assistantships

Graduate assistantships are available on a competitive basis. Teaching opportunities exist within the laboratory portions of the human anatomy and exercise physiology courses, the teaching laboratory portions of the pedagogy practical courses, and HLED1006 - Personal Health. A graduate assistantship also involves some research opportunities with assigned graduate faculty advisors.

A stipend for a full time graduate assistant is \$12,333.00 per academic year. Tuition and fees are covered according to the percentage of assistantship allocated to the student.

Program Specific Degree Requirements Master's Programs

Kinesiology and Health, Exercise and Sport Science Emphasis, M.S. *Plan A (thesis)*

Kinesiology and Health, Health Emphasis, M.S. *Plan A (thesis)*

Kinesiology and Health, Physical Education Teacher Education Emphasis, M.S. *Plan A (thesis)*

Kinesiology and Health, M.S. *Plan B (paper and experiential learning option)*

Kinesiology and Health Distance Education, M.S. *Plan B (paper)*

Major

Kinesiology and Health Promotion, B.S.

The B.S. in Kinesiology and Health Promotion degree prepares students for careers in clinical exercise physiology, health and movement coaching, biomechanics, nutrition, basic science, and behavioral science. The program is also excellent for students seeking to enter the field of medicine.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate and are not covered by the Kinesiology and Health Promotion major. These courses should be taken before KIN 3021 & 3022, except the Communications III (USP-C3) course.

First Year Seminar (3 credits)

Communications I (3 credits)

ENGL 1010 English Composition

Communications II (3 credits)

Communications III (3 credits)

U.S. & Wyoming Constitution (3 credits)

Human Culture

Any USP-H course (not HLED) (3 credits, meets 3 out of 6 credits of Human Culture USP requirement)

Courses required for major

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring,

theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.
OR CHEM 1020 - General Chemistry I

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health,

human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

KIN1006 - Introduction to Kinesiology and Health

Credits: 1

A survey of the disciplines of kinesiology and health and exposure to foundational literature in the field.

Prerequisite: Declared Kinesiology & Health Promotion major or permission of instructor.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.
OR STAT 2070 Introductory Statistics for the Social Sciences

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.
OR PHYS 1110 General Physics I

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

HLED3020 - Community and Public Health

Credits: 3

Public health aim to create the conditions where people can be healthy. This course introduces goals and applications of community and public health work in the US, illustrated with case studies from the most urgent health issues facing our nation.

Former Course Number [4050]

Prerequisite: HLED 1006, completion of a COM2 course, and minimum 2.750 GPA.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH

1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

A minimum cumulative GPA of 2.750 (preferred 3.000) is required before taking KIN 3021

KIN3022 - Lab Exp in Exercise Physiology

Credits: 1

An in-depth examination of the measurement of physiological principles and mechanisms related to human movement. Lab exercises emphasize skills necessary for basic morphological through advanced exercise performance testing variables. Laboratory writing exercises focus on improving students' ability to read and comprehend scientific articles and produce scientific writing based on their own experiments and data.

Prerequisite: KIN 3021 or concurrent enrollment.

KIN3024 - Fundamentals of Health and Fitness Assessment

Credits: 3

Fundamental concepts of health appraisal, assessment of health-related fitness levels, individual and group exercise programming and leadership, and methods of behavioral change. Theory and practical application of fitness presented with an emphasis on adults. Has lecture and lab components. Completion of KIN 3021 highly recommended.

Former Course Number [PEPR 3010]

Prerequisite: completed or concurrent enrollment in KIN 3021; 2.750 GPA.

KIN3034 - Lifespan Motor Development

Credits: 3

Studies lifespan motor development. Emphasizes developmental periods of infancy through adolescence. Gives attention to observation and analysis of motor behavior and movement performance of individuals across lifespan.

Former Course Number [PEPR 3034]

Prerequisite: grade of C or better in PSYC 1000; junior standing; 2.750 GPA.
OR KIN 4020 Motor Behavior

KIN3037 - Sport Psychology

Credits: 3

Studies psychological theories and techniques applied to sport to enhance the performance and personal growth of athletes and coaches. Emphasizes the influence of personality, anxiety, motivation, social factors, and psychological skills training.

Former Course Number [PEPR 3037]

Prerequisite: Admitted to the last two years of one of the programs in DK&H.
OR KIN 3038 Exercise Psychology

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

Minimum of 6 hours total in:

KIN4015 - Internship Experience in Kinesiology

Credits: 1-12

Variable-credit (1-12) and S/U course required of Kinesiology and Health undergraduate majors to provide experiential learning in kinesiology and health in a real world setting. Intended to integrate theory and technique with practical application to expose students to areas of professional/career interest and assist with building professional careers. Must have CPR/ AED/1st Aid Certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed HLED 4015.

Former Course Number [PEPR 4015]

Prerequisite: Grade of C or better in KIN 3024;
OR

HLED4015 - Internship Experience in Health

Credits: 1-12

Max Credit (Max. 12)

Variable-credit (1-12) and S/U course required of Kinesiology and Health undergraduate majors to provide experiential learning in kinesiology and health in a real world setting. Intended to integrate theory and technique with practical application to expose students to areas of professional/career interest and assist with building professional careers. Must have CPR/AED/1st Aid Certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed KIN 4015.

Prerequisite: Grade of C or better in KIN 3024; 2.750 GPA; completion of a minimum of 18 credits in KIN/HLED upper division coursework.

OR

KIN4016 - Research Experience in Kinesiology and Health

Credits: 1-6
Max Credit (Max. 6)

Offered to students who wish to gain a research experience in Kinesiology and Health. Meant for students who are interested in pursuing an advanced degree. Students may choose to complete KIN/ HLED 4016 instead of KIN/HLED 4015. Must have CPR/AED/1st Aid certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed HLED 4016.

Prerequisite: minimum sophomore standing; declared KHP major; permission of instructor; 2.750 GPA.
OR

HLED4016 - Research Experience in Kinesiology and Health

Credits: 3-6
Max Credit (Max. 6)

Offered to students who wish to gain a research experience in Kinesiology and Health. Meant for students who are interested in pursuing an advanced degree. Students may choose to complete KIN 4016/HLED 4016 instead of KIN 4015/HLED 4015. Must have CPR/AED/1st Aid certification prior to enrollment. Background check must be completed prior to start of course.

Cross Listed KIN 4016.

Prerequisite: minimum sophomore standing; declared KHP major; permission of instructor; and minimum 2.750 GPA.

Elective Courses

KIN/HLED Upper-Division Elective Coursework (15 credits)

15 credits of 3000-4000 level KIN/HLED elective coursework is required in addition to the required KIN & HLED courses listed above.

Consult with your advisor to see list of possible courses.

General Electives (25 credits)

Degree must include 120 credits, at least 48 of which must be upper-division credits.

KIN and HLED electives (i.e., non required courses) from above may be counted towards these 25 credits. KIN 2050 is recommended as one elective course.

Consult with your academic advisor and your pre-health advisor (if applicable). Pre-health students will need to take additional professional prerequisite courses as electives.

Additional Requirements

Students must complete 48 credit hours of upper division coursework (3000- or 4000-level courses) to meet the Division's minimum 48 credit hour requirement for the B.S. degree in Kinesiology and Health Promotion.

NOTE: Students should complete CPR & first aid certification and the certification should remain current throughout the program. Cards can be presented to the division registrar in Corbett 119 to be cleared of the requirement on the degree evaluation.

PRE-HEALTH ANNOUNCEMENT

This degree is great preparation for various careers in health care and allied health. If you are interested in becoming a strong applicant to graduate school for a career in these fields, please tell your primary advisor and connect with the Pre-Health Advising Office on campus as soon as possible: <https://www.uwyo.edu/preprof/> or hsadvise@uwyo.edu Your career of choice will determine which math and science courses you need to take in your first years, so talk to them early!

Physical Education Teacher Education K-12, B.S.

The Physical Education program is a nationally accredited program where students learn the content and teaching methods required to be certified to teach physical education K-12 in the public schools of Wyoming.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate. Many of these requirements are covered by the Physical Education Teacher Education K-12 major. All USP courses except the Communications II (USP-C2) and Communications III (USP-C3) courses must be completed prior to admission into the Physical Education Teacher Education Program.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Prerequisites for Admission

Prerequisites for admission into the Physical Education Teacher Education program:

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

OR MATH 1405 Trigonometry

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR CHEM 1020 - General Chemistry

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

KIN2000 - Movement Core I: Striking/Fielding and Invasion Games

Credits: 2

Exposes students to skill and tactical themes comprising striking/fielding and invasion games. Course aims for students' ability to understand, demonstrate and analyze the different offensive and defensive tactics that facilitate game play success in invasion (soccer, tag rugby, basketball) and striking/fielding (softball, cricket) games.

Former Course Number [PEPR 2000]

Prerequisite: sophomore standing.

KIN2001 - Movement Core II: Net and Target Games

Credits: 2

Exposes students to skill and tactical themes comprising net and target games. Course aims for students' ability to understand, demonstrate and analyze different offensive and defensive tactics facilitating game play success in net (volleyball, tennis, badminton) and target (archery) games.

Former Course Number [KIN 1025, PEPR 1025]

Prerequisite: sophomore standing.

KIN2003 - Move Core IV: Adv. & Otrd. Ed.

Credits: 2
Max Credit 2

Movement Core IV: Adventure and Outdoor Education - To provide prospective pre-service physical education teachers (PTs) with the skills and knowledge necessary to teach adventure and outdoor education curricula to K-12 learners.

Former Course Number [KIN 1000, PEPR 1000]**Restricted** Sophomore standing

Prerequisite: sophomore standing.

KIN2004 - Move Core V: FMS & Ind. Act.

Credits: 3
Max Credit 3

Movement Core V: Fundamental Movement Skills, Gymnastics, Dance, and Swimming - To provide prospective pre-service physical education teachers (PTs) with the skills and knowledge necessary to teach fundamental motor skills, gymnastics, dance, and swimming to K-12 learners.

USP 2003-2014 Code U3CA

Former Course Number [KIN 3025, PEPR 3025]**Restricted** Sophomore standing

KIN2005 - Movement Core VI: Physical Fitness and Physical Activity

Credits: 2

Designed for prospective school-based physical and health education teachers K-12. Focuses on five primary content areas: what is fitness education and why do we need it; development of content-based fitness curriculum; teaching cognitive aspects of fitness education; teaching physical aspects of fitness education; and promoting fitness education.

Former Course Number [KIN 2025, PEPR 2025]

Prerequisite: sophomore standing.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

PHYS1050 - Concepts of Physics

Credits: 4

Introduces the physical world. For students whose background in math and science is minimal; recommended for students in paramedical sciences and medical technology. Three lecture hours per week are supplemented by two hours per week of laboratory work.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: MATH 1000 or equivalent, or passing the Mathematics Placement examination at Level 2.
OR PHYS 1110 General Physics I

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.
OR STAT 2070 Introductory Statistics for the Social Sciences

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

EDSE3540 - Teaching Reading and Study Strategies in the Content Areas

Credits: 2-4

Provides students majoring in secondary education programs with a knowledge of reading factors as they relate to various disciplines. Content includes estimating students' reading ability, techniques for vocabulary development, questioning strategies, and developing reading related study skills.

Former Course Number [EDCI 3540]

Prerequisite: junior standing and minimum 12 hours in discipline area.

Required Courses After Admission

Required courses after admission into the professional program.

Consult with your academic advisor for the order in which these courses must be taken, or if you have any questions.

KIN3011 - Teaching Methods in Physical Education K-12

Credits: 3

Develops knowledge, skills and understandings appropriate to successful participation in a class setting when functioning in the teaching role.

Former Course Number [PEPR 3011]

Prerequisite: grade of C or better in KIN 3012; concurrent enrollment in KIN 3015 and KIN 4080.

KIN3012 - Teaching Laboratory I

Credits: 3

Provides the opportunity to develop skills and acquire knowledge needed to teach physical education. Allows the opportunity for students to evaluate the motor status and progress of a preschool aged child, as well as plan and implement a developmentally appropriate motor program.

When Offered (Offered fall semester)

USP 2015 Code U5C2

Former Course Number [PEPR 3012]

Prerequisite: Admitted to PHET program.

KIN3015 - Teaching Laboratory II

Credits: 3

Provides pre-service physical education teacher with skills, knowledge and principles of teaching through application of peer teaching and small group elementary school teaching. Emphasizes and practices program development, lesson planning and development of a physical education teaching unit.

When Offered (Offered spring semester)
USP 2003-2014 Code U3WC
Former Course Number [PEPR 3015]

Prerequisite: grade of C or better in KIN 3012; concurrent enrollment in KIN 3011, KIN 4080.

KIN3021 - Physiology of Exercise

Credits: 3

Applies physiological principles to human physical activities. Emphasizes interaction of neuromuscular circulatory, and respiratory mechanisms as affecting, and affected by, immediate exercise situations and physical training. Students who are not K&H or PHET majors may be allowed to register with permission of the instructor.

Former Course Number [PEPR 3021]

Prerequisite: 2.750 GPA. For Kinesiology & Health majors: grade of C or better in MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115. Or declared PHET major with the following courses completed: MATH 1400/MATH 1405/MATH 1450, KIN 2040, KIN 2041, and ZOO 3115.

KIN3022 - Lab Exp in Exercise Physiology

Credits: 1

An in-depth examination of the measurement of physiological principles and mechanisms related to human movement. Lab exercises emphasize skills necessary for basic morphological through advanced exercise performance testing variables. Laboratory writing exercises focus on improving students' ability to read and comprehend scientific articles and produce scientific writing based on their own experiments and data.

Prerequisite: KIN 3021 or concurrent enrollment.

KIN3034 - Lifespan Motor Development

Credits: 3

Studies lifespan motor development. Emphasizes developmental periods of infancy through adolescence. Gives attention to observation and analysis of motor behavior and movement performance of individuals across lifespan.

Former Course Number [PEPR 3034]

Prerequisite: grade of C or better in PSYC 1000; junior standing; 2.750 GPA.

KIN3037 - Sport Psychology

Credits: 3

Studies psychological theories and techniques applied to sport to enhance the performance and personal growth of athletes and coaches. Emphasizes the influence of personality, anxiety, motivation, social factors, and psychological skills training.

Former Course Number [PEPR 3037]

Prerequisite: Admitted to the last two years of one of the programs in DK&H.
OR KIN 3038 Exercise Psychology

KIN3042 - Biomechanics of Human Movement

Credits: 3

Introduces fundamental principles of human movement. Includes study and elementary analysis of human motion based on anatomical and mechanical principles.

Former Course Number [PEPR 3042]

Prerequisite: grade of C or better in PHYS 1050 or PHYS 1110 or PHYS 1210 or PHYS 1310; completion of KIN 2040; and minimum 2.750 GPA.

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

KIN3060 - Understanding Skill Acquisition for Teaching

Credits: 3

Addresses practical questions specific to teaching physical activity

Prerequisite: C or better in PSYC 1000; junior standing; declared major in KHP or PHET; 2.750 GPA; or permission of instructor.

KIN4012 - Curriculum Development in Physical Education

Credits: 3

Focuses on the design of K-12 school physical education programs. It provides opportunities to study alternative curriculum models, engage in the process of curriculum design, and examine policy and theoretical issues of concern to curriculum designers.

When Offered (Offered fall semester)

Former Course Number [PEPR 4012]

Prerequisite: grade of C or better in KIN 3011, KIN 3015 and KIN 4080.

KIN4013 - School Administration for the Health Sciences

Credits: 2

Provides teaching majors with information about staff-administrator relationships in school settings. Topics include principles of leadership, school organization and culture, legal issues, financial issues, building and facilities management.

Prerequisite: grade of C or better in KIN 3011, KIN 3015, KIN 4080.

KIN4017 - Teaching Laboratory III

Credits: 3

Focuses on the application of teaching skills and the effective utilization of sport-based curricular and instructional models in the secondary public school setting.

When Offered (Offered fall semester)

Former Course Number [PEPR 4017]

Prerequisite: grade of C or better in KIN 3011, KIN 3015, and KIN 4080; 2.750 minimum cumulative GPA; concurrent enrollment in KIN 4012.

KIN4055 - Adapted Physical Education

Credits: 2

Presents skills necessary to plan, implement and evaluate individualized physical education programs in the least restrictive environment. Acquaints students with current laws, characteristics, assessment instruments and nationally validated programs in physical education for the disabled child.

When Offered (Offered spring semester)

Former Course Number [PEPR 4055]

Prerequisite: KIN 3012.

KIN4080 - Assessment in Physical Education

Credits: 3

Provides prospective teachers with a thorough knowledge of learner assessment as applied to physical education K-12.

When Offered (Offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Former Course Number [PEPR 4080]

Prerequisite: grade of C or better in KIN 3012.

KIN4099 - Student Teaching in Physical Education

Credits: 1-16

Student teaching is the culminating experience required of all students in teacher education for graduation and recommendation for certification. Consists of full-time assignment of 16 weeks in an approved school station in Wyoming under supervision of an experienced, approved supervising teacher.

Former Course Number [PEPR 4099]

Prerequisite: grade of C or better in KIN 4017.

Note(s):

*** Note: Students must be certified in first aid and CPR prior to enrollment in KIN 4099.

Additional Requirements

Students must complete 48 credit hours of upper-division coursework (3000- or 4000-level courses) to meet the Division's requirement for the B.S. in Physical Education Teacher Education. For any elective coursework, it is recommended that these courses are selected from the Affiliated Options on this page.

In order to advance into the professional program, students must be admitted through a competitive application process. The entry course for admission to the Physical Education Teacher Education (PHET) program is KIN 3012, Teaching Lab 1. To be eligible for the PHET professional program, students must have completed all program course prerequisites and have a minimum cumulative grade point average of 2.750, preferred GPA of 3.000.

NOTE: Students should complete CPR certification and the certification should remain current throughout the program. Cards can be presented to the division registrar in Corbett 119 to be cleared of the requirement on the degree evaluation.

Affiliated Options

The Division of Kinesiology and Health offers two options for the general undergraduate population. They require course work beyond degree requirements.

Athletic Coaching Endorsement/Permit

Students who wish to qualify for an athletic coaching permit to coach in Wyoming public schools must complete four courses. Note: Endorsements are for current teachers. Permits are for those who are not a licensed educator.

- CPR Certification

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

- Foundations of Coaching KIN 4090 /KIN 5090 - 3 Credit Hours
- Students completing the Physical Education Teacher Education undergraduate degree are exempt from the KIN 4090/5090 requirement.
- Coaching in... Experience (completed at a community college or complete a coaching experience in a specific sport for one season or more with a letter written by your supervising coach to submit with your PTSB endorsement application form).

School Health Education K-12

In addition to completing a bachelor's degree in teaching at the secondary level from an approved university program, 25 credit hours are required to be endorsed to teach health education K-12 in the public schools of Wyoming.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

- CPR Certification

HLED4120 - Assessment in Health

Credits: 3

Provide students with an understanding of components of a balanced assessment system in school health education. Students review the basics of standards-based health education and explore innovations in assessment that provide teachers and students with a more complete and authentic picture of student learning.

Prerequisite: Minimum 2.500 GPA; concurrent enrollment in KIN 4099 or certified K-12 teacher.

HLED4025 - Teaching Sensitive Issues In Human Sexuality

Credits: 3

Prepares educators and other helping professionals whose work involves promoting healthy sexuality in children, young people, and adults. It also provides detailed investigation into important aspects of teaching sensitive issues related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 5025.

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4110 - Teaching Health in Schools K-12

Credits: 3

Presented appropriate knowledge and skills to become health literate. Explore ways to teach health skills and knowledge and use assessment strategies for health education.

When Offered (Offered fall semester)

Prerequisite: Grade C or better in KIN 3015 or certified K-12 teacher.

HLED4130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 5130.

When Offered (Offered fall semester)

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

HLED4030 - Teaching About Alcohol and Substance Abuse

Credits: 3

Introduces students to the issues of societal and personal attitudes towards alcohol and substance use, misuse and abuse. Prepares an educator to teach about alcohol and substance abuse in the classroom and out of the school setting.

Prerequisite: Sophomore standing; minimum 2.750 GPA; or permission of instructor.

Adapted Physical Education K-12 Endorsement

In addition to completing the Bachelor of Science degree in physical education teacher education from the University of Wyoming, students can qualify for K-12 endorsements in adapted physical education and/or health education by completing the following course requirements:

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

KIN4055 - Adapted Physical Education

Credits: 2

Presents skills necessary to plan, implement and evaluate individualized physical education programs in the least restrictive environment. Acquaints students with current laws, characteristics, assessment instruments and nationally validated programs in physical education for the disabled child.

When Offered (Offered spring semester)

Former Course Number [PEPR 4055]

Prerequisite: KIN 3012.

KIN4065 - Resources in Adapted Physical Education

Credits: 2-3

Max Credit (Max. 3)

Offers flexible credit for students interested in pursuing intensive study of resources for adapted physical education. Required for state endorsement in Adapted Physical Education.

Former Course Number [PEPR 4065]

Prerequisite: grade of C or better in KIN 4055.

KIN4075 - Assessment in Adapted Physical Education

Credits: 3

Designed to provide an overview of the assessment process in adapted physical education. Developmentally and disability appropriate psychomotor assessments and procedures for administering them are examined.

Prerequisite: grade of C or better in KIN 4055 and KIN 4080.

Graduate

Kinesiology and Health Distance Education, M.S.

Master of Science Distance Education Program is designed for teachers, coaches, and other health professionals to fit into their busy schedules. Students can complete the Master of Science degree via synchronous or online modalities in a three, four, or five year period of time.

Plan B (Paper)

General Information

Teachers of health and physical education typically teach throughout the day and coach during the evenings and weekends. Therefore, traditional on campus Master's degree programs that require students to attend the University of Wyoming in Laramie are often simply impossible for teachers and other health professionals to fit into their busy schedule.

The Division of Kinesiology and Health offers the Master of Science degree in Kinesiology and Health as an off-campus, distance education program. All courses are delivered via synchronous or online modalities. The distance education program is designed such that you can complete the Master of Science degree in a three, four, or five year period of time.

This program involves a minimum of thirty (30) total credit hours of coursework and a culminating paper or case study presentation (experiential learning option) that is developed on a topic selected by the student in conjunction with her or his graduate faculty advisor. The process for composing the culminating paper or case study includes the development of a prospectus and final presentation of the paper or case study. Students who elect the experiential learning option will also be required to complete three (3) credits of KIN 5990 (Internship) . At least twenty-one (21) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the nine (9) hours of general required courses.

General Required Courses (9 Credits)

¹ May substitute EDRE 5530

KIN5080 - Investigations in Kinesiology and Health

Credits: 1-3
Max Credit (Max. 3)

Designed to develop Master of Science level graduate students into critical consumers of research. An additional purpose is to develop research skills to the level necessary to complete a master of science Plan B paper.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

EDRE5600 - Introduction to Quantitative Research

Credits: 3

Basic concepts of educational survey research design, statistics, and measurement. The focus is on descriptive statistics (measures of central tendency, variability, percent and frequency distribution, bivariate correlation, graphical displays, testing hypotheses about proportions). Students develop questionnaires and plan, conduct, and report on a survey study.

OR

EDRE5640 - Introduction to Qualitative Research

Credits: 3

This course introduces qualitative research. Students will explore the foundations, social science theories, methods, and processes of qualitative research and will learn to critically evaluate published research. Emphases will include basic design principles, trustworthiness, and analysis. Students will engage in original data collection and will produce a mini report.

Prerequisite: EDRE 5530.

Kinesiology and Health Electives (15 Credits)

12 credits selected from the following KIN courses:

KIN5011 - Teacher Socialization in PE

Credits: 3

Max Credit 3

This course provides students with understanding of how physical educators are recruited into, professionally trained, and function in the workplace. Students will have the opportunity to analyze, critique, and evaluate empirical evidence related to socialization in physical education, as well as conduct research on given topics from the socialization literature.

Prerequisite: Graduate standing or permission from instructor

KIN5014 - Teaching Tactics in Sport-Based Physical Education

Credits: 3

Introduces students to the instructional strategy of the Tactical Games Approach (Mitchell, Oslin, & Griffin, 2006) of teaching sport-based activities in physical education. Emphasis is on planning, implementing, assessing and evaluating the tactical approach within the K-12 physical education context.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5016 - Analysis and Supervision of Teaching in Physical and Health Education

Credits: 3

Introduces various evaluative and supervisory techniques which are designed to improve teaching effectiveness and student learning. Emphasis will be placed on utilizing various strategies of evaluation in instructional settings.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5018 - Psychology of Teaching Physical Education

Credits: 3

Weaves together theory, research, and practical information related to the psychological aspects of teaching physical education. It shows how you can use psychological principles and strategies to manage behavior, motivate students, achieve program goals, and establish a positive learning environment.

Prerequisite: graduate standing in KIN or permission of instructor.

- KIN 5019 - Instructional Models for Physical Education Credits: 3

KIN5090 - Foundations of Coaching

Credits: 3

Coaches must be effective teachers, trainers, fund-raisers, recruiters, motivators, administrators, and counselors. The major purpose of this course is to provide future coaches with current information about the eight domains of essential coaching skills identified in the NSSC. These domains include philosophy and ethics, safety and injury prevention, physical conditioning, growth and development, teaching and communication, sport skills and tactics, organization and administration, and evaluation.

Dual Listed KIN 4090.

Prerequisite: graduate standing in KIN or permission of instructor.

Elective Courses (6 Credits)

Students are encouraged to complete at least one course from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Investigation in Kinesiology and Health: Maximum of 3 credit hours of Investigation in Kinesiology and Health (KIN 5080) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Thesis Research: No credit hours of Thesis Research (KIN 5960) may contribute to the Plan B Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097 /KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

- Practicum/Internship Coursework: Maximum of 3-credit hours of Practicum in College Teaching (HLED 5900 /KIN 5900) or KIN 5990 - Internship may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, Exercise and Sport Science Emphasis, M.S.

Master of Science with Emphasis in Exercise and Sport Science is designed for students who want to pursue doctoral degrees and careers in exercise physiology, biomechanics, exercise and sport psychology, motor learning and control, physical activity and lifespan development, etc.

Plan A (Thesis)

The Plan A option of the Master of Science degree in ESS is designed to prepare students for careers in one of the subdisciplines (e.g., exercise physiology, biomechanics, exercise and sport psychology, motor learning and control, physical activity and lifespan development, etc.).

All students complete a series of general required courses and a concentration of courses in their specific ESS subdiscipline. The ESS area of emphasis involves a minimum of thirty (30) total credit hours of coursework, a thesis, and a final oral examination. At least twenty-five (25) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the ten (10) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070, STAT 5080; or EDRE 5600 or EDRE 5640. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Specialized Required Courses (9-15 Credits)

Area of specialization will include three to five courses (9-15 hours) within the student's chosen ESS subdiscipline. Your advisor will identify courses to be taken specific to the selected area of emphasis.

Elective Courses (Minimum 6 Credits)

Students are encouraged to complete at least one of their elective course selections from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

1. Thesis Research: Maximum of 4 credit hours of Thesis Research (KIN 5960) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
2. Investigations in Kinesiology and Health: No credit hours of Investigations in Kinesiology and Health (KIN 5080) may contribute to the Plan A (Thesis) Degree Program.
3. Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097/KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
4. Practicum/Internship Coursework: Maximum of 3-credit hours of Practicum in College Teaching (KIN 5900) or Internship (KIN 5990) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
5. 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, Health Emphasis, M.S.

Master of Science with Emphasis in Health is designed to prepare students for careers in public and community health settings.

Plan A (Thesis)

The Plan A option of the Master of Science degree in the area of HLED is designed to prepare students for careers in public and community health settings. All students complete a series of general required courses and a concentration of courses in the area of HLED.

The HLED area of emphasis involves a minimum of thirty (30) total credit hours of coursework, a thesis, and a final oral examination. At least twenty-one (21) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the ten (10) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070 or STAT 5080 ,EDRE 5640 or EDRE 5660. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Specialized Required Courses (9-15 Credits)

Coursework will include three to five courses (9-15 hours). Your advisor will identify courses to be taken.

Elective Courses (Minimum 6 Credits)

Students are encouraged to complete at least one of their elective course selections from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Thesis Research: Maximum of 4 credit hours of Thesis Research (KIN 5960) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Investigations in Kinesiology and Health: No credit hours of Investigations in Kinesiology and Health (KIN 5080) may contribute to the Plan A (Thesis) Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097/KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Practicum Coursework: Maximum of 3-credit hours of Practicum in College Teaching (HLED 5900) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 21 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, M.S.

Master of Science, Plan B, is designed for students who are seeking a terminal degree in Kinesiology and Health. This option is not designed for students seeking to pursue a doctoral degree at the completion of the Master of Science degree.

Plan B (Paper and Experiential Learning Option)

The Plan B option of the Master of Science degree in Kinesiology and Health is designed to prepare students who are seeking a terminal degree. This option is not designed for students seeking to pursue a doctoral degree at the completion of the Master of Science degree in Kinesiology and Health.

This program involves a minimum of thirty (30) total credit hours of coursework and a culminating paper or case study presentation (experiential learning option) that is developed on a topic selected by the student in conjunction with her or his graduate faculty advisor. The process for composing the culminating paper or case study includes the development of a prospectus and final presentation of the paper or case study. Students who elect the experiential learning option will also be required to complete three (3) credits of KIN 5990 - Internship . At least twenty-four (24) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the nine (9) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070, STAT 5080 , EDRE 5600 or EDRE 5640. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5080 - Investigations in Kinesiology and Health

Credits: 1-3
Max Credit (Max. 3)

Designed to develop Master of Science level graduate students into critical consumers of research. An additional purpose is to develop research skills to the level necessary to complete a master of science Plan B paper.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5085 - Research Methods

Credits: 3
Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3
General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Elective Kinesiology and Health Courses (Minimum of 15 Credits)

Elective Courses (Minimum of 6 Credits)

Students are encouraged to complete at least one course from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Investigation in Kinesiology and Health: Maximum of 3 credit hours of Investigation in Kinesiology and Health (KIN 5080) may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Thesis Research: No credit hours of Thesis Research (KIN 5960) may contribute to the Plan B Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097 /KIN 5097) or Special Problems (HLED 5587/KIN 5587) may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

- Practicum/Internship Coursework: Maximum of 3-credit hours of Practicum in College Teaching (HLED 5900 /KIN 5900) or KIN 5990 - Internship may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 24 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Kinesiology and Health, Physical Education Teacher Education Emphasis, M.S.

Master of Science with Emphasis in Physical Education Teacher Education is designed for teachers who have attained their licensure for teaching physical education and want to pursue an advanced degree to further develop their professional knowledge of teaching.

Plan A (Thesis)

The Plan A option of the Master of Science degree in the area of PETE is for teachers who have attained their licensure for teaching physical education and want to pursue an advanced degree to further develop their professional knowledge of teaching.

The PETE program of studies involves a minimum of thirty (30) total credit hours of coursework, a thesis, and a final oral examination. At least twenty-five (25) credit hours of coursework is required from the Division of Kinesiology and Health (i.e., HLED and KIN courses), which includes the ten (10) hours of general required courses.

General Required Courses (10 Credits)

¹ May substitute STAT 5060, STAT 5070, STAT 5080; or EDRE 5600 or EDRE 5640. Decision made in conjunction with the advisor.

- Two semesters of KIN 5588 - Kinesiology and Health Intellectual Seminar Credits: 0

KIN5085 - Research Methods

Credits: 3

Focuses on methods and techniques for evaluating and conducting research. Potential and completed research problems are analyzed and evaluated. Research processes are reviewed with emphasis on application. Standards for writing literature reviews and research proposals are also emphasized.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5960 - Thesis Research

Credits: 1-12

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: graduate standing in KIN or permission of instructor.

STAT5050 - Statistical Methods for the Biological Science

Credits: 3

General statistical analyses and their application to the biological and behavioral sciences. Analysis of variance, regression and correlation methods are studied from a data analytic perspective, emphasizing the conceptual understanding of where and when these techniques should be used and the interpretation of their results. Available computer programs will be utilized. Credit cannot be earned in more than one of the following courses: STAT 3050, 5050, 5060, STAT 5070.

Cross Listed ZOO 5050.

Prerequisite: one course in statistics (all introductory courses except 2000).

Specialized Required Courses

(12 Credits Selected from The Following KIN Courses)

KIN5011 - Teacher Socialization in PE

Credits: 3

Max Credit 3

This course provides students with understanding of how physical educators are recruited into, professionally trained, and function in the workplace. Students will have the opportunity to analyze, critique, and evaluate empirical evidence related to socialization in physical education, as well as conduct research on given topics from the socialization literature.

Prerequisite: Graduate standing or permission from instructor

KIN5014 - Teaching Tactics in Sport-Based Physical Education

Credits: 3

Introduces students to the instructional strategy of the Tactical Games Approach (Mitchell, Oslin, & Griffin, 2006) of teaching sport-based activities in physical education. Emphasis is on planning, implementing, assessing and evaluating the tactical approach within the K-12 physical education context.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5016 - Analysis and Supervision of Teaching in Physical and Health Education

Credits: 3

Introduces various evaluative and supervisory techniques which are designed to improve teaching effectiveness and student learning. Emphasis will be placed on utilizing various strategies of evaluation in instructional settings.

Prerequisite: graduate standing in KIN or permission of instructor.

KIN5018 - Psychology of Teaching Physical Education

Credits: 3

Weaves together theory, research, and practical information related to the psychological aspects of teaching physical education. It shows how you can use psychological principles and strategies to manage behavior, motivate students, achieve program goals, and establish a positive learning environment.

Prerequisite: graduate standing in KIN or permission of instructor.

- KIN 5019 - Instructional Models for Physical Education Credits: 3

KIN5090 - Foundations of Coaching

Credits: 3

Coaches must be effective teachers, trainers, fund-raisers, recruiters, motivators, administrators, and counselors. The major purpose of this course is to provide future coaches with current information about the eight domains of essential coaching skills identified in the NSSC. These domains include philosophy and ethics, safety and injury prevention, physical conditioning, growth and development, teaching and communication, sport skills and tactics, organization and administration, and evaluation.

Dual Listed KIN 4090.

Prerequisite: graduate standing in KIN or permission of instructor.

Elective Courses (Minimum 8 Credits)

Students are encouraged to complete at least one course from outside the Division of Kinesiology and Health. All elective course decisions must be made in conjunction with your advisor.

Contributions of Coursework to M.S. Degree Program

- Thesis Research: Maximum of 4 credit hours of Thesis Research (KIN 5960) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Investigations in Kinesiology and Health: No credit hours of Investigations in Kinesiology and Health (KIN 5080) may contribute to the Plan A (Thesis) Degree Program.
- Independent Study Coursework: Maximum of 3-credit hours of Individual Problems (HLED 5097/KIN 5097) or Special Problems (HLED 5587/HLED 5587) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- Practicum/Internship Coursework: Maximum of 3-credit hours of KIN 5900 - Practicum in College Teaching or KIN 5990 - Internship may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.
- 4000 Level Coursework: Maximum of two 4000 level courses (3 or 4 credit hours each) may contribute to the 25 credit hours from the Division of Kinesiology and Health and the 30 total credit hours.

Certificate

Community and Public Health

This certificate covers foundational public health concepts, use of epidemiological data, designing evidence-based projects and community collaborations, and building public, political and financial support for public health.

Required Courses

Students must earn a B or better (an A or a B) in all four classes to earn the certificate.

HLED5021 - Creating Conditions for Community Health

Credits: 3

In this course we will analyze and discuss how local, national and international environments impact individual and community health and how to improve health through changes in policy, economic, social, cultural and physical environments. The focus is primarily in the U. S. , though students can choose to focus assignments in other contexts.

Dual Listed HLED 4021.

Prerequisite: graduate standing.

HLED5022 - Unlocking the Potential of Public Health

Credits: 3

Introduces core concepts in community and public health. Using practical exercises and problem based learning, students will investigate how social structures shape our health and how to alter them to improve community.

Prerequisite: Graduate standing or permission of the instructor.

HLED5023 - Using Epidemiology to Build Health

Credits: 3

Focusing on epidemiological questions generated by the student, this course introduces concepts essential to understanding epidemiology, the foundational science of public health. It is focused on using existing epidemiologic data to inform your work.

Prerequisite: Graduate standing or permission from the instructor.

HLED5024 - Increasing Support for PH

Credits: 3

Students learn how to effectively build support for improving the health of their communities. Support includes funding, coalition and partnership building, effective communications with the public and policy makers, and participatory project planning with community stakeholders. In addition, this course will cover how to establish project evaluation frameworks.

Prerequisite: Graduate standing or permission from instructor.

Students may either earn a 12-credit *University Graduate Certificate in Community & Public Health* or a 15-credit *University Graduate Certificate in Community & Public Health, Specializing in [Specialization Name]*.

Approved specialization courses include:

HLED5020 - Food, Health, and Justice

Credits: 3

Maps ways our dominant national and global food systems affect health and equity in health, largely though not only negatively. Students will critically assess practiced and potential strategies for creating alternative food systems that support health and equity, particularly at the U. S. community level.

Dual Listed HLED 4020.

Prerequisite: graduate standing or permission of the instructor.

HLED5026 - Rural Community Health

Credits: 3

Max Credit 3

This course invites students to apply principles of community and public health in rural and frontier United States settings. It outlines challenges and assets that a rural or frontier setting brings to improving community health. It is designed to assist students to bridge gaps that rural settings face and create a plan for improvement within their chosen community or state.

Prerequisite: Graduate standing or permission from instructor.

HLED5027 - Emergency Prep and Response

Credits: 3

Max Credit 3

This class provides an overview of emergency management. It teaches students skills that will help them prepare themselves, their families, and their community for natural and human made disasters. The class emphasis will be on active learning via role-playing assignments, communication planning, and personal preparedness plans.

Prerequisite: HLED 3020, OR Senior Standing, OR permission of the instructor

Additional specialization courses may be approved by Community & Public Health faculty.

Endorsement

Adapted Physical Education K-12 Endorsement

In addition to completing the Bachelor of Science degree in physical education teacher education from the University of Wyoming, students can qualify for K-12 endorsements in adapted physical education and/or health education by completing the following course requirements:

Course Requirements

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

KIN4055 - Adapted Physical Education

Credits: 2

Presents skills necessary to plan, implement and evaluate individualized physical education programs in the least restrictive environment. Acquaints students with current laws, characteristics, assessment instruments and nationally validated programs in physical education for the disabled child.

When Offered (Offered spring semester)

Former Course Number [PEPR 4055]

Prerequisite: KIN 3012.

KIN4065 - Resources in Adapted Physical Education

Credits: 2-3

Max Credit (Max. 3)

Offers flexible credit for students interested in pursuing intensive study of resources for adapted physical education. Required for state endorsement in Adapted Physical Education.

Former Course Number [PEPR 4065]

Prerequisite: grade of C or better in KIN 4055.

KIN4075 - Assessment in Adapted Physical Education

Credits: 3

Designed to provide an overview of the assessment process in adapted physical education. Developmentally and disability appropriate psychomotor assessments and procedures for administering them are examined.

Prerequisite: grade of C or better in KIN 4055 and KIN 4080.

Athletic Coaching Endorsement/Permit

Students who wish to qualify for an athletic coaching permit to coach in Wyoming public schools must complete four courses. Note: Endorsements are for current teachers. Permits are for those who are not a licensed educator.

Course Requirements

- CPR Certification

KIN3050 - Prevention and Care of Athletic Injuries

Credits: 2

Encompasses theory and practical work in the field of athletic training. Strongly emphasizes prevention and care of athletic injuries, including wrapping and taping techniques.

Former Course Number [PEPR 3050]

Prerequisite: junior standing; C or better in KIN 2040; minimum 2.750 GPA.

- Foundations of Coaching KIN 4090 /KIN 5090 Credits: 3
- Students completing the Physical Education Teacher Education undergraduate degree are exempt from the KIN 4090/5090 requirement.
- Coaching in... Experience (completed at a community college or complete a coaching experience in a specific sport for one season or more with a letter written by your supervising coach to submit with your PTSB endorsement application form).

School Health Education K-12 Endorsement (For non-Physical Education Teacher Education Majors)

In addition to completing a bachelor's degree in teaching at the secondary level from an approved university program, 21 credit hours are required to be endorsed to teach health education K-12 in the public schools of Wyoming.

Course Requirements

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

HLED1006 - Personal Health

Credits: 3

Introduces multiple concepts of personal health (e. g. , physical activity, diet, stress, social pressure, public health, human behavior, disease prevention, healthcare access, and health-oriented citizenship) in relation to improving individual health and understanding the health of a society and cultural differences in human health and health behavior.

USP 2015 Code U5H

- CPR Certification

HLED4120 - Assessment in Health

Credits: 3

Provide students with an understanding of components of a balanced assessment system in school health education.

Students review the basics of standards-based health education and explore innovations in assessment that provide teachers and students with a more complete and authentic picture of student learning.

Prerequisite: Minimum 2.500 GPA; concurrent enrollment in KIN 4099 or certified K-12 teacher.

HLED4025 - Teaching Sensitive Issues In Human Sexuality

Credits: 3

Prepares educators and other helping professionals whose work involves promoting healthy sexuality in children, young people, and adults. It also provides detailed investigation into important aspects of teaching sensitive issues related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 5025.

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4110 - Teaching Health in Schools K-12

Credits: 3

Presented appropriate knowledge and skills to become health literate. Explore ways to teach health skills and knowledge and use assessment strategies for health education.

When Offered (Offered fall semester)

Prerequisite: Grade C or better in KIN 3015 or certified K-12 teacher.

HLED4130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 5130.

When Offered (Offered fall semester)

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

HLED4030 - Teaching About Alcohol and Substance Abuse

Credits: 3

Introduces students to the issues of societal and personal attitudes towards alcohol and substance use, misuse and abuse. Prepares an educator to teach about alcohol and substance abuse in the classroom and out of the school setting.

Prerequisite: Sophomore standing; minimum 2.750 GPA; or permission of instructor.

School Health Education K-12 Endorsement (For Physical Education Teacher Education Majors)

In addition to completing the Bachelor of Science degree in physical education teacher education from the University of Wyoming, students can qualify for K-12 endorsements in adapted physical education and/or health education by completing the following course requirements:

Course Requirements

HLED4025 - Teaching Sensitive Issues In Human Sexuality

Credits: 3

Prepares educators and other helping professionals whose work involves promoting healthy sexuality in children, young people, and adults. It also provides detailed investigation into important aspects of teaching sensitive issues related to human sexuality. Students practice, critique, develop, and evaluate sexuality education processes and resources.

Dual Listed HLED 5025.

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

HLED4110 - Teaching Health in Schools K-12

Credits: 3

Presented appropriate knowledge and skills to become health literate. Explore ways to teach health skills and knowledge and use assessment strategies for health education.

When Offered (Offered fall semester)

Prerequisite: Grade C or better in KIN 3015 or certified K-12 teacher.

HLED4120 - Assessment in Health

Credits: 3

Provide students with an understanding of components of a balanced assessment system in school health education. Students review the basics of standards-based health education and explore innovations in assessment that provide teachers and students with a more complete and authentic picture of student learning.

Prerequisite: Minimum 2.500 GPA; concurrent enrollment in KIN 4099 or certified K-12 teacher.

HLED4130 - Management of Coordinated School Health Programs

Credits: 3

Reviews the coordinated school health program (CSHP) model and identifies research that supports the eight components of the model. Prepares students to advocate for CSHP and to develop the school infrastructure necessary to carry out such a program. Also prepares individuals to work with school from job settings outside the school.

Dual Listed HLED 5130.

When Offered (Offered fall semester)

Prerequisite: Minimum 2.500 GPA; Junior class standing or certified K-12 teacher.

PSYC2210 - Drugs and Behavior

Credits: 3

Surveys drugs which affect behavior, emphasizing both psychotherapeutic agents and drugs with abuse potential. Includes brief introduction to the chemistry of the brain and how drugs may have their effects. Behavioral, social, historical and medical aspects of each major class of psychoactive drugs are discussed.

Prerequisite: A grade of C or better in PSYC 1000.

OR

HLED4030 - Teaching About Alcohol and Substance Abuse

Credits: 3

Introduces students to the issues of societal and personal attitudes towards alcohol and substance use, misuse and abuse. Prepares an educator to teach about alcohol and substance abuse in the classroom and out of the school setting.

Prerequisite: Sophomore standing; minimum 2.750 GPA; or permission of instructor.

Division of Medical Education

Family Medicine Residency Programs

Designated Institutional Officer: Beth Robitaille
(307) 234-6161

Casper: Brian Veauthier, Director
(307) 234-6161

Cheyenne: Evan Norby, Director
(307) 777-7911

Professors:

JAIME HORNECKER, B.S. Texas Tech University 1999; PharmD University of Wyoming 2003; Clinical Professor of Pharmacy Practice, School of Pharmacy, Family Medicine, Casper.

MICHAEL MILLER, B.A. Wheaton College 1992; D.O. Kirksville College of Osteopathic Medicine 2000, Clinical Professor of Family Medicine, Cheyenne.

BETH ROBITAILLE, B.A. University of Notre Dame 1991; M.D. Creighton University School of Medicine 1995; Clinical Professor of Family Medicine, Casper.

BRIAN M. VEAUTHIER, B.S. University of Notre Dame 1996; M.D. Georgetown University School of Medicine 2001; Clinical Professor of Family Medicine, Casper.

Associate Professors:

ZACH DEISS, B.A. University of Wyoming 1979; M.D. Creighton University School of Medicine 1987; Clinical Associate Professor of Family Medicine, Casper.

RONALD L. MALM, B.S. University of Wyoming 1988; D.O. The University of Health Sciences, College of Osteopathic Medicine 1992; Clinical Associate Professor of Family Medicine, Cheyenne.

LEENA MYRAN, B.S. University of Wyoming 2012; PharmD. University of Wyoming School of Pharmacy 2012; Clinical Associate Professor of Pharmacy Practice, Family Medicine, Casper.

SHARON KARNES, B.S. University of Washington School of Medicine 1997; M.D. University of Washington School of Medicine 2001; Clinical Associate Professor of Family Medicine, Casper.

CAROLINE KIRSCH, B.S. University of Wyoming 1993, 2002; M.S. University of Wyoming 1996; D.O. New York College of Osteopathic Medicine 2007; Clinical Associate Professor of Family Medicine, Casper.

DOUGLAS S. PARKS, B.S. Baker University 1978; M.D. University of Kansas 1984; Associate Professor of Family Medicine, Cheyenne.

CYNTHIA WORKS, B.A. Creighton University 1981; M.D. University of Arizona College of Medicine 1985; Clinical Associate Professor of Family Medicine, Casper

Assistant Professors:

RACHELLE BOND, B.S. University of Arizona 2005; D.O. A.T. Still University School of Osteopathic Medicine 2012; Clinical Assistant Professor of Family Medicine, Cheyenne.

GENOMARY KRIGBAUM-PE'REZ, B.A. Carroll College 2003; M.A. Arizona School of Professional Psychology 2007; PsyD. Arizona School of Professional Psychology 2009; Clinical Assistant Professor of Family Medicine, Casper.

BLAINE LEVY, B.S. Midwestern University 2008; D.O. Arizona College of Osteopathic Medicine of Midwestern University 2012; Clinical Assistant Professor of Family Medicine, Casper.

EVAN NORBY, B.S. Brigham Young University 2007; D.O. Arizona College of Osteopathic Medicine 2012; Clinical Assistant Professor of Family Medicine, Cheyenne.

TABITHA THRASHER, B.S. University of Central Missouri 2001; D.O. Rocky Vista College of Osteopathic Medicine 2012; Clinical Assistant Professor of Family Medicine, Cheyenne.

Lecturers

LAURA CAPASSO, B.A. University of Wyoming 2012; M.S. University of Wyoming 2014; Ph.D. University of Northern Colorado, 2019; Assistant Lecturer, Family Medicine, Cheyenne.

PAMELA OILER, B.S.W. University of Wyoming 1999; M.S.W. Colorado State University 2005; Associate Lecturer, Family Medicine, Cheyenne.

To address the need for broadly trained primary care physicians in Wyoming, the Wyoming Legislature established two residency programs in the specialty of family medicine. These two accredited, university-administered, community-hospital based family medicine residency programs are located in Casper and Cheyenne. They enroll up to 42 residents (14 in each of three years). The two family medicine centers maintain a 1:4 faculty to resident ratio. The program at Casper began in 1976 and is affiliated with Wyoming Medical Center. The program utilized the services and facilities provided by the Educational Health Center of Wyoming. The Rural Training Track Program is a partnership with the Casper core program and Hot Springs County Memorial Hospital that provides a unique, hands-on experience for rural practice by training in the rural community of Thermopolis, Wyoming. It enrolls up to 3 residents (1 in each of three years). Casper's Geriatric fellowship is Wyoming's only post-graduate medical education training program. The fellowship provides training specialized in geriatrics to produce Board-certified geriatricians to care for the state's aging population. The Cheyenne program became active in 1980 and is affiliated with Cheyenne Regional Medical Center. The program utilizes the services and facilities provided by the Educational Health Center of Wyoming and has a close working relationship with the Veterans Administration Hospital. Both centers include spacious examining rooms; treatment and casting rooms; x-ray facilities; offices for faculty, residents and staff; complete laboratories; multiphasic research areas; conference rooms; business offices and roomy waiting rooms with play areas in the clinical component. In the educational component, both include large auditoriums; learning resource centers and administrative offices. Particular emphasis in both centers is placed on preparing physicians for rural practice and other facets of medical practice that are unique to Wyoming.

WWAMI Medical Education Program

Laramie: Brant Schumaker, Director
(307) 766-2497
John Willford, Assistant Director
(307) 766-4249
Web site: www.uwyo.edu/wwami

Associate Professors

BRANT SCHUMAKER, B.S. University of California, Davis 2001; D.V.M. University of California, Davis 2005; Master of Preventative Veterinary Medicine University of California, Davis 2006; Ph.D. University of California, Davis 2010; Associate Professor, Division of Kinesiology & Health, WWAMI.

CAMERON WALKER, B.S. Iowa State University of Science and Technology 1996; M.A. Iowa State University of Science and Technology 2000; Ph.D. University of Oregon 2006; Clinical Associate Professor, WWAMI.

JOHN WILLFORD, B.S. University of Wyoming 2005; Ph.D. University of Wyoming 2008; Clinical Associate Professor, WWAMI.

Assistant Professors

ANA CLARA BOBADILLA, B.S. Pierre and Madam Curie University 2006; M.S. Pierre and Madam Curie University 2008; Ph.D. Pierre and Madam Curie University 2014; Assistant Professor, School of Pharmacy, WWAMI.

DANIELLE BRUNS, B.S. Linfield College 2008; M.S. Colorado State University 2010; Ph.D. Colorado State University 2013; Assistant Professor Kinesiology & Health, WWAMI.

JULIE CARLSON, B.S. University of Wyoming 1985; M.D. Creighton University 1989; Clinical Assistant Professor, WWAMI.

ESTHER GILMAN-KEHRER, B.S. University of Wyoming 1986; M.S. University of Wyoming 1998; Post-Master's F.N.P. University of Colorado 2000; Post-Master's Nurse Midwifery 2002; D.N.P. University of Colorado 2012; Clinical Assistant Professor, Fay W. Whitney School of Nursing, WWAMI.

DANA GOVAERTS, B.S. University of Nebraska 1988; M.D. University of Nebraska Medical Center 1992; Clinical Assistant Professor, WWAMI.

TRACEY HAAS, B.S. Southwest Texas State University 1996; D.O. University of North Texas Health Sciences Center 2001; M.P.H. University of Texas Health Sciences Center 2012; Clinical Assistant Professor, WWAMI.

EMILY SCHMITT, B.S. Elon University 2007; M.S. University of North Carolina-Charlotte 2009; Ph.D. Texas A&M University 2015; Assistant Professor Kinesiology & Health, WWAMI.

The University of Wyoming medical contract program enhances medical education opportunities for Wyoming residents. In March 1996, the University of Wyoming became a partner in the WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Program. The WWAMI program is Wyoming's medical school and the program delivers the first two years of the University of Washington School of Medicine (UWSOM) medical school curriculum on the University of Wyoming campus. The remaining two years of the curriculum are spent in clinical rotations throughout the five-state WWAMI region. Twenty Wyoming residents are accepted into the WWAMI program each year and receive their M.D. degree from the UWSOM. For further information, contact the Wyoming WWAMI Office, College of Health Sciences, Laramie, Wyoming 82071, (307) 766-2496.

Wyoming WWAMI Medical Education Program

FIRST YEAR: Summer Hrs.

HM 6710.....9

FIRST YEAR: Fall Hrs.

HM 6603.....2

HM 6720.....7

HM 6730.....7

Total Hrs. 16

FIRST YEAR: Spring Hrs.

HM 6602.....2

HM 6603.....	2
HM 6740.....	5
HM 6750.....	5
HM 6755.....	1
HM 6760.....	6
HM 6770.....	5

Total Hrs. 26

SECOND YEAR: Fall Hrs.

HM 6602.....	2
HM 6603.....	2
HM 6775.....	3
HM 6800.....	7
HM 6900.....	5

Total Hrs. 19

Graduate

WWAMI Medical Education

The WWAMI Medical Education Program is Wyoming's medical school. Our students are admitted into the University of Washington School of Medicine, complete their foundation phase in Laramie at UW, and finish their medical education in the WWAMI region.

Required Courses

HM6710 - Fund. Medical Sci. & Research

Credits: 1
Max Credit 9

Comprehensive introduction to foundational basic science and research concepts in medicine. Topics covered include molecular and cell biology; human physiology, genetics and biochemistry; community health and disease; clinical epidemiology, research study design and data analysis. Incorporates fundamental principles of anatomy, pathology, and pharmacology, and medicine in society.

Restricted Restricted to WWAMI medical students

HM6603 - Clinical Studies

Credits: 2

Instruction in communication skills, interviewing techniques, physical examination, documentation and clinical reasoning. The course will include hospital based patient encounters and developing comfort and introduction to the physical role.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6720 - Infection & Immunity

Credits: 1

Max Credit 7

Comprehensive introduction to the fundamentals of the immune system; microbiology; infectious diseases; inflammation and repair. Topics covered include the pathogenesis and immunity of infectious disease, immunodeficiencies, hypersensitivity, autoimmunity, and the basis of immunologic diagnostics. Integrates relevant principles of anatomy, pathology, and pharmacology and medicine in society.

Restricted Restricted to WWAMI medical students

HM6730 - Cancer, Hormones & Blood1

Credits: 1

Max Credit 7

Comprehensive introduction to the fundamentals of endocrinology, hematology, and oncology. Topics covered include endocrine regulation of metabolism; normal physiology and pathophysiologic mechanisms responsible for clinically important endocrine disorders; disturbances in red cell, white cell and platelet production; abnormalities of hemostasis; and malignant neoplasia. Integrates relevant principles of anatomy, pathology and pharmacology, and medicine in society.

Restricted Restricted to WWAMI medical students

(7 credits required)

HM6602 - Introductory Primary and Continuity Care Clerkship

Credits: 2

Introduces medical students to continuity of care by working with practicing physicians. The course demonstrates how to work with an individual to help them achieve optimal health, and includes topics in primary and preventative care, geriatrics, rehabilitation, palliative care, behavioral health and pain management.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

- HM 6740 (5 credits required)

HM6750 - Cardiovascular System

Credits: 5
Max Credit 5

Provides an interdisciplinary approach to cardiovascular medicine, including anatomy, physiology, radiology, pathology, medicine, and surgery. Topics include thoracic anatomy, cardiac electrophysiology, cardiac muscle mechanics, myocardial infarction, and cardiac repair.

Restricted Restricted to WWAMI medical students.

HM6755 - Medicine, Health, & Society 1

Credits: 1
Max Credit 1

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Restricted WWAMI medical students only.

HM6760 - Respiration and Regulation

Credits: 6
Max Credit 6

Provides an interdisciplinary approach to respiratory and renal-urinary medicine, including anatomy, physiology, radiology, pathology, medicine, and surgery. Topics include ventilatory mechanics, gas exchange, renal function, and common renal & pulmonary-vascular diseases.

Restricted Restricted to WWAMI medical students.

HM6770 - Head, Neck, & Gut

Credits: 5
Max Credit 5

Integrates discussions of head/neck anatomy, metabolism, and gastrointestinal/liver physiology including physiology and pathophysiology of digestion and hepatic function. Relevant anatomy, pathology, and pharmacology of the gastrointestinal systems will be covered.

Restricted Restricted to WWAMI medical students.

HM6775 - Medicine, Health, & Society 2

Credits: 3
Max Credit 3

This course integrates thematic content with an emphasis on core concepts needed for clinical practice in the changing

healthcare environment. Students will explore areas related to humanism in medicine including the themes of diversity, health equity, ethics, professionalism, and determinants of health.

Restricted WWAMI medical students only.

HM6800 - Mind, Brain, Behavior

Credits: 9

Explains the foundational principles of the organization and function of the head, neck, and central nervous system with a focus on clinical application of this knowledge to systematically approach the differential diagnosis and management of major neurologic, psychiatric, and behavioral disorders. Covers current therapeutic approaches to disease including pharmacological, behavioral, surgical, and other therapies.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

HM6900 - Life Cycles and Reproduction

Credits: 5

Covers normal and abnormal human development reproductive functions including formation and maturation of ova and sperm, menstruation, normal pregnancy, and labor and delivery. Provides information concerning infertility, family planning techniques, urinary disorders, and reproductive aging and demography of human population. Includes relevant fundamental scientific principles in pelvic anatomy, pathology, histology, imaging, and pharmacology.

Prerequisite: Must be enrolled in the WWAMI Medical Education Program.

Total Hrs. 70

Fay W. Whitney School of Nursing

351A Health Sciences Center,
(307) 766-4312

FAX: (307) 766-4294

Web site: www.uwyo.edu/Nursing

Dean: Sherrill J. Smith

Assistant Deans: Paula Kihn, Janet Wilhaus

Professors:

ANN MARIE HART, B.S.N. Medical College of Virginia 1991; M.S. University of Wyoming 1996; Ph.D. University of Colorado Health Sciences Center Denver 2003; Professor of Nursing 2015.

SHERRILL J. SMITH, B.S.N. University of Wisconsin-Eau Claire 1985; M.S. Wright State University 1997; Ph.D. University of Northern Colorado 2008; Professor of Nursing 2019; Dean of Nursing 2019.

Associate Professors:

REBECCA CARRON, B.S.N. Texas Christian University 1976; B.A. University of Wyoming 1997; M.S. 2006; Ph.D. University of Colorado 2014; Associate Professor of Nursing 2020.

JENIFER THOMAS, B.S. Colorado State University 1994; M.S. Avila University 2000; M.S. Colorado State University 2007; Ph.D. 2008; Associate Professor of Nursing 2016.

JANET WILLHAUS, B.S.N. University of Kansas 1985; M.S. Fort Hays State University 2008; Ph.D. Washington State University 2013; Associate Professor of Nursing 2020.

Clinical Associate Professors:

ESTHER GILMAN-KEHRER, B.S.N. University of Wyoming 1986; M.S. 1998; D.N.P. University of Colorado 2012; Clinical Associate Professor 2021.

NANCY MCGEE, B.S.N. University of Wyoming 2005; M.S. 2007; D.N.P. University of Northern Colorado 2014; Clinical Associate Professor 2020.

J'LAIINE PROCTOR, B.S.N. University of Wyoming 2000; M.S. 2003; Certificate-PMHNP 2007; D.N.P. University of Northern Colorado 2014; Clinical Associate Professor 2020.

Clinical Assistant Professors:

NANCY "NIKI" EISENMANN, B.S.N. University of Nebraska Medical Center 2002; M.S. Nebraska Wesleyan University 2008; Ph.D. University of Missouri-Kansas City 2020; Clinical Assistant Professor 2020.

SHERRA ST. CLAIR, B.A. Humanities and Fine Arts University of Wyoming 1996; M.F.A. University of Michigan 1998; A.D.N. Laramie Community College 2014; B.S.N. University of Wyoming 2016; M.S. 2007; D.N.P. University of Wyoming 2019; Clinical Assistant Professor 2021.

Senior Lecturers:

Associate Lecturers:

K. David Bodily, Paula Kihn, Candace Stidolph

Assistant Lecturers:

Megan Beach, Linden Gray, Ashley Lair, Shannon Schneider, Christina Warren

Adjunct and Part-time Faculty:

Amy Aldrich, Nicole Alexander, Nikki Armstrong, Jennifer Barbee-Crim, Timothy Barnes, Paula Belknap, Colleen Butler, Britni Camino, Carol Campbell, Erin Clikeman, Robin Cole, Mary Cox, Robyn Curtis-Rice, Wesley Davis, Alison Doherty, Michelle Dowling, Sharon Farra, Jennifer Favilla, James Fleenor, Shelby Frost, Deborah Gaspar, Brian Gee, Mary Kay Goetter, Julian Good, Grace Gosar, Pete Gosar, Sheriedan Grannan, Nancy Halsey, Lori Hart, Jennifer Helmer, Jesse Henry, Holly Hink, Michelle Hipsak, Jennifer Hluwood, Barbara James, Dawn Jensen, Amy Johnson, Jayne Josephsen, Sunny Kaste, Melanie Kawulok, Katie Keller, Carol Kobulnicky, Cheryl Koski, Cory

Lamblin, Kara Laughlin, Anthony Leonard, Sue Lowe, Katherine Miller, Jesse Morse-Brady, May Nara, Marcia Newell, Kristy Nielson, Brian O'Neill, Jennifer Oiler, Alicia Palazzolo, Sarah Penn, Whitney Peterson, Collin Prince, Chelse Raymer, Rasha Riad, Vickie Richards, Amy Robohm, Marlene Shaw, Elizabeth DePrince Smith, Shawn Snyder, Nichole Taylor, Veronica Taylor, Cassie Terfehr, Joslyn Thompson, Kate Thompson, Teresa Thompson, Weldonna Toth, Jennifer Tryder, Candace Tull, Jessica Warren, Cynthia Weber, Leah White, Linda Williams, Wendy Wood Neeson, Wendy Wright

Emeriti:

Pamela D. Larsen, Mary E. Burman, Beverly McDermott, Holly Miller, Mary Anne Purtzer, Kimberly Raksa-Miller, Susan H. Steiner, Beverly Taheri-Kennedy, Fay W. Whitney, Norma Wilkerson

The Fay W. Whitney School of Nursing (FWWSON) has well established B.S.N, M.S., and D.N.P. programs based upon national nursing education standards.

Mission

The FWWSN educates, conducts research and provides service and practice to improve, protect and promote health.

Accreditation and Membership

The baccalaureate and graduate programs are accredited by the Commission on Collegiate Nursing Education (CCNE).

The baccalaureate program (Basic BSN, BRAND) is approved by the Wyoming State Board of Nursing (WSBN). Graduates of the Basic BSN and BRAND options are qualified to apply to take national licensing examination: NCLEX. Graduates of the DNP Program are eligible to take the national certification exams as a nurse practitioner.

Technical Standards for Admission

All nursing students must be able to perform the essential functions of a nurse, including observation/sensory motor; communication; psychomotor; intellectual-conceptual, integrative and quantitative; and behavioral and social attributes. Please refer to the "Technical Standards for Admission", including information on reasonable accommodations, on the school's website: <http://www.uwyo.edu/nursing/programs/technical-standards-for-admission.html>.

Background Checks Requirement

Students enrolled in clinical training programs within the College of Health Sciences are placed in educational and clinical settings where highly vulnerable clients such as minor children, individuals with disabilities, and/or the elderly, are routinely served. These clinical/ practice training sites (including schools, hospitals, pharmacies, and other university sites) routinely require criminal background checks for all students who engage in clinical activities. Therefore, background checks shall be required on all applicants to programs in the College of Health Sciences prior to admission into their prospective program.

Students applying for admission into the nursing major component of the BSN Program, the MS Program, and the DNP Program will be notified by the FWWSN at the time of any admission offer the process for completing the required background check. Previous background checks (e.g. CNA Certification, LPN or RN Licensure) are not acceptable to fulfill this expectation. The results of the background check may determine final admittance to the program.

Students may also be required to update the criminal background check. Each clinical training site will be informed that students have passed a background check prior to placement at that site; some sites may require a more current background check. Clinical agencies may bar a student access to their facility for clinical experiences based on the results of the background check. If faculty and staff are not able to place the student in an alternative setting, the student will not be able to complete the program. In addition, students seeking readmission into the program are required to complete a new background check. Students are responsible for the costs associated with the admission background check and any other background checks that may be required.

Drug Screening Requirement

Drug screening may be required by some clinical training sites. Students will be notified by the FWWSO should this be an expectation of them. Students may incur charges for this screening and will be notified of such at that time. Drug and/or alcohol testing for any student can be requested by the FWWSO.

The Fay W. Whitney School of Nursing provides a curriculum based on the solid foundation of a general studies program. University students are individuals who come with learning preferences, different experiences, varied goals, and therefore, have unique learning needs. The primary responsibility of faculty is to empower students to become self-directed learners. Active learning is a teaching/learning partnership.

Health Insurance Requirement

Health insurance coverage is a requirement of the Fay W. Whitney School of Nursing for participation in any clinical rotation. It is the responsibility of the student to obtain and maintain coverage for **ALL** clinical rotations. Students will be notified by the FWWSO should this be an expectation for them as well as timing for completion of the FWWSO Student Verification of Health Insurance Form.

Undergraduate Study

Bachelor of Science in Nursing (BSN) Program

The Fay W. Whitney School of Nursing provides a curriculum based on the solid foundation of a general studies program. University students are individuals who come with learning preferences, different experiences, varied goals, and therefore, have unique learning needs. The primary responsibility of faculty is to empower students to become self-directed learners. Active learning is a teaching/learning partnership.

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.

5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Bachelor of Science in Nursing (BSN) Program Options

The Fay W. Whitney School of Nursing offers a baccalaureate program with three options to obtain the BSN degree:

1. Basic BSN - a four-year, on-campus BSN option for the student who wishes to become a registered nurse at the baccalaureate level.
2. BRAND (Bachelors Reach for Accelerated Nursing Degree) - an accelerated BSN outreach option for the student who has already achieved a previous non-nursing baccalaureate degree and who wishes to become a registered nurse at the baccalaureate level.
3. BSN Completion - two online BSN options (ReNEW and RN-BSN):
 - ReNEW (Revolutionizing Nursing Education in Wyoming) - an online BSN option for the student or graduate of a Wyoming community college ReNEW nursing program who wishes to become a baccalaureate-prepared nurse.
 - RN-BSN - an online BSN option for the graduate of a non-ReNEW associate degree or diploma nursing program who wishes to become a baccalaureate-prepared nurse.

Please refer to the appropriate BSN program option section that follows below.

Graduate Study

The Fay W. Whitney School of Nursing offers two graduate programs leading to: 1) a Master of Science (M.S.) degree and 2) a Doctor of Nursing Practice (D.N.P.) degree.

Master of Science (MS) Program

The MS program of study is for nurses who desire to become nurse educators or nurse leaders in any academic or health-related setting. The program mission is to prepare transformational learners and leaders to advance nursing education and practice, thus, addressing the complexities in the 21st century healthcare system. Core curricular concepts woven through the curriculum include transformation, communication, interconnected global perspective, outcomes orientation, and rural population health.

Expected Student Learning Outcomes

MS graduates are prepared to ensure better care, better health, and lower costs through their knowledge, skills, and abilities to:

- Demonstrate competence and caring in the advanced professional nurse role to serve Wyoming, the region, and the world in urban, rural, and frontier health care settings as a provider, leader, and/or educator in the health care system.
- Transform rural health through leadership, service, and clinical scholarship that reflects an interconnected and comprehensive global health perspective.
- Demonstrate an advanced understanding of nursing and other sciences and humanities and integrates this knowledge to manage and improve health care across settings
- Synthesize broad organizational, financial, economic, client-centered, and culturally appropriate concepts from nursing and other sciences to address population health.
- Engage in scholarly inquiry and evidence-based practice to lead change for quality outcomes and implement safe health care to diverse populations in a variety of settings.

Core Concepts:

- **Transformation:**
Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.
- **Rurality/Frontier:**
Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.
- **Service:**
Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.
- **Comprehensive Global Healthcare System Perspective:**
An interconnected and comprehensive global health care system perspective incorporating the following attributes: advocacy, altruism, creativity, ethical conduct, effective communication skills, leadership, problem-solving skills, professionalism, and scholarship.
- **Clinical Scholarship:**
Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Master of Science (MS) Program Concentrations

The Fay W. Whitney School of Nursing offers a masters program with two concentrations to obtain the MS degree:

1. Nurse Educator - a two and a half-year, online MS concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) who desire to become nurse educators.

2. Nurse Leader - a two and a half-year, online MS concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) who desire to become nurse leaders.

Please refer to the MS program section that follows below.

Doctor of Nursing Practice (DNP) Program

The Doctor of Nursing Practice (DNP) degree is the new standard for advanced practice nursing education. The DNP program is open to registered nurses with a minimum of a baccalaureate degree in nursing from a program nationally accredited by an approved nursing education accrediting body.

Expected Student Learning Outcomes

DNP graduates will:

1. engage in evidence-based practice to optimize health outcomes;
2. engage in leadership activities to promote excellence in rural health care.

Doctor of Nursing Practice (DNP) Program Concentrations

The Fay W. Whitney School of Nursing offers a doctoral program with two concentrations to obtain the DNP degree:

1. Family Nurse Practitioner (FMY) - a three-year, DNP concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) that prepares students for careers in rural primary care.
2. Psychiatric Mental Health Nurse Practitioner (PSH) - a three-year, DNP concentration for the registered nurse with a Bachelor of Science in Nursing (BSN) that prepares students for careers in rural psychiatric mental health care.

Please refer to the appropriate DNP program concentration section that follows below.

Major

Nursing, B.S.N., Basic BSN Option

"Basic BSN" is an on-campus BSN option for students who want to become a registered nurse and earn the Bachelor of Science in Nursing degree. Learning facilities include state-of-the-art classrooms and Clinical Simulation Center.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Pre-Clinical Component

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical

significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces

statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

Clinical Component

(Note: Course requirements/expectations are subject to change. Maintain contact with FWWSON for current expectations.)

NURS2340 - Developmental Influences on Health

Credits: 3

Explores interaction between development and health. Discusses human development of physiological, psychological, cognitive, sociocultural, and spiritual systems across the lifespan. Identifies selected theories associated with development over the lifespan and implications for healthcare.

Prerequisite: Completion or concurrent enrollment in NURS 3445 or NURS 3745, NURS 3665 or NURS 3730 and NURS 3790, and PHCY 3450.

NURS3445 - Fundamentals and Health Assessment in Professional Nursing Practice

Credits: 4

This course introduces the concepts of nursing care, safety, and assessment. Students learn to assess and document normal variations and potential alterations of physiological, psychological, sociocultural, spiritual, and developmental dimensions of individuals across the lifespan.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3665, and PHCY 3450.

NURS3490 - Health Promotion in Professional Nursing Practice

Credits: 4

Students will learn and apply concepts of health promotion across the lifespan. Emphasis is on cultural diversity, health risks, behavior change and healthy practices for individuals, families, and populations. Students will incorporate

evidence in designing interventions to promote health and prevent illness for self and clients.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: 3 credits; Prerequisite: *NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3690, NURS 3695, and NURS 4125.*

Prerequisite: Progression or admission to the clinical component of the program and completion or concurrent enrollment with NURS 2340, NURS 3435, and PHCY 3450 or PHCY 4450.

NURS3665 - Foundations of Professional Nursing Roles

Credits: 3

This course introduces the student to professionalism, leadership, safety, and patient-centeredness. The concepts emphasized provide the foundation for professional nursing practice.

Prerequisite: Fall 2021: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3690, and NURS 3695. **Effective Spring 2022**: Completion or concurrent enrollment in NURS 2340, NURS 3445, and PHCY 3450.

NURS3690 - Professional Nursing Acute/Chronic Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with acute and chronic illness. Emphasis is on utilizing the nursing process to develop clinical judgement.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3490, NURS 3695, and NURS 4125.*

Prerequisite: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3665, and NURS 3695.

NURS3695 - Professional Nursing Acute/Chronic Illness Practicum

Credits: 4

Students provide nursing care using the nursing process in a clinical setting with adult clients experiencing acute and chronic illness. Emphasis is on demonstration of clinical judgement.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 3445, PHCY 4470, and completion or concurrent enrollment in NURS 3490, NURS 3690, and NURS 4125.*

Prerequisite: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3665, and NURS 3690.

NURS3890 - Professional Nursing Care in Complex Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with complex illness. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: *NURS 3695 and completion or*

concurrent enrollment in NURS 3891, NURS 3892, and NURS 3895.

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3891, 3892, 3895, 4125.

NURS3891 - Professional Nursing Care of Older Adults

Credits: 3

Students will examine concepts of nursing practice in the care of older adults. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3892, and NURS 3895.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3895, NURS 4125.

NURS3892 - Professional Nursing Care in Mental Health and Illness

Credits: 3

This course explores mental health and illness concepts. Emphasis is on the role of the professional nurse in caring for clients with alterations in mental health.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3895.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3891, NURS 3895, NURS 4125.

NURS3895 - Professional Nursing Care in Complex Illness Practicum

Credits: 4

Students provide patient-centered care using the nursing process in clinical setting with adult and older adult clients experiencing complex illness and alterations in mental health. Emphasis is on demonstration of clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3892.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3891, NURS 3892, NURS 4125.

NURS4125 - Evidence-Based Nursing

Credits: 3

Prepares students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB or COM1 and COM2; STAT 2050 or STAT 2070 or equivalent; admission into the nursing major component of the program.

NURS4665 - Healthcare Informatics in Professional Nursing Practice

Credits: 3

Utilizing a conceptual framework, students will examine nursing informatics within healthcare systems. Emphasis is placed on examining the role of clinical information systems in improving patient outcomes across practice, education, administrative, research, and interdisciplinary applications. Ethical and legal considerations of data management are examined.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: *NURS 3895 and completion or concurrent enrollment in NURS 4690, NURS 4691, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4690, 4691, 4695.

NURS4690 - Professional Nursing Care of Populations

Credits: 4

Introduces the student to population-focused nursing and applies the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, planning, and implementation; analysis of the healthcare system; emergency preparedness; and ethical/legal aspects of public health.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: *Introduces the student to population-focused nursing and applies the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, and analysis of the healthcare system. Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4691, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4691, NURS 4695.

NURS4691 - Professional Nursing Care of Children and Families

Credits: 3

This course encompasses the care of women, children, and their families across physiological, psychological, spiritual, developmental, and socio-cultural dimensions. The focus of this class is on women's health, obstetrical, and pediatric nursing care including health promotion and wellness specific to maternal and pediatric health.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: *4 credits; Course changes effective Fall 2023* - Description: *This course encompasses the care of women, children, and their families across physiological, psychological, spiritual, developmental, and sociocultural dimensions. The focus is on women's health, obstetrical, and pediatric nursing care including health promotion and wellness specific to maternal and pediatric health. Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4690, and NURS 4695.*

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4690, NURS 4695.

NURS4695 - Professional Nursing Care of Populations Practicum

Credits: 4

Students will apply the nursing process to childbearing families, children, and communities. The focus is on physiological, psychological, spiritual, developmental, and socio-cultural dimensions of individuals, families, and populations. Students will incorporate professional nursing roles into population-based care.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: *The focus is on the application of professional nursing roles to the physiological, psychological, spiritual, developmental, and sociocultural dimensions of individuals, families, communities, and populations.* Prerequisite: NURS 3895 and completion or concurrent enrollment in NURS 4665, NURS 4690, and NURS 4691.

Prerequisite: NURS 3895 and completion or concurrent enrollment with NURS 4665, NURS 4690, NURS 4691.

NURS4865 - Professional Nursing Leadership

Credits: 3

The role of the nurse leader in nursing practice is developed through integration of leadership, management, and organizational theories. Emphasis is on interprofessional care management, planned change, advocacy, activism, and professional development.

A&S College Core 2015 **Course changes effective Spring 2024** - Description: *The role of the nurse leader is developed through integration of leadership, management, and organizational theories. Emphasis is on interprofessional care, planned change, advocacy, activism, and professional development.* Prerequisite: NURS 4695 and completion or concurrent enrollment in NURS 4895.

Prerequisite: NURS 4695 and completion or concurrent enrollment with NURS 4895.

NURS4895 - Professional Nursing Capstone Practicum

Credits: 9-12

Students utilize and synthesize basic concepts of professional nursing practice. The course socializes students into a healthcare system. Learning experiences allow students to gain confidence in managing patient care, practicing critical thinking, developing leadership and advocacy skills, and exploring ethical decision-making in clinical situations.

A&S College Core 2015 **Course changes effective Spring 2024** - Description: *Students synthesize concepts of professional nursing practice. The course socializes students into a healthcare system. Learning experiences allow students to manage patient care, apply critical judgment, develop leadership and explore ethical decision-making in healthcare settings.* Prerequisite: NURS 4695 and completion or concurrent enrollment in NURS 4865 .

Prerequisite: NURS 4695 and completion or concurrent enrollment with NURS 4865.

With approval from FWWSON, ARMY 3050 may be applied to this requirement and NURS 4895 taken for 9 credits.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies.

This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.

10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Basic BSN has two different admission entries: 1) Freshman Admission to the Nursing major and 2) Non-Freshman Admission to the Nursing major. Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, Basic BSN, Freshman Admission or Non-Freshman Admission under Admission to Basic BSN*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for Basic BSN. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, Basic BSN, Basic BSN Student Handbook - section 6 Scholastic Requirements*).

Curriculum

The minimum requirement to graduate with a BSN is 120 semester hours of credit. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450] and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability.

Nursing courses are offered fall and spring semesters of the university academic calendar. Students are required to have transportation to all clinical sites. A number of clinical sites are located in Cheyenne. The capstone practicum experience during spring of the senior year requires students to live in locations away from campus.

Program of Study

A detailed, semester sequenced Basic BSN Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, Basic BSN, Basic BSN Program of Study*). All required courses identified under Pre-Clinical Component and Clinical Component must be passed with a C or better (or S) except for CHEM 1000, which requires a B or better. .

Applicable for: Freshman/Non-Freshman Admission to the Nursing Major

Nursing, B.S.N., BRAND Option

"Bachelors Reach for Accelerated Nursing Degree": an accelerated Bachelor of Science (BSN) option for students with a previous non-nursing baccalaureate degree who desire to become a registered nurse. This option is a 'summer to summer' format with a full-time schedule of courses.

University Studies Program Requirements

The University Studies Program 2015

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Prerequisite Courses

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

Nursing Courses

(Note: Course requirements/expectations are subject to change. Maintain contact with FWWSO for current expectations.)

NURS2340 - Developmental Influences on Health

Credits: 3

Explores interaction between development and health. Discusses human development of physiological, psychological, cognitive, sociocultural, and spiritual systems across the lifespan. Identifies selected theories associated with development over the lifespan and implications for healthcare.

Prerequisite: Completion or concurrent enrollment in NURS 3445 or NURS 3745, NURS 3665 or NURS 3730 and NURS 3790, and PHCY 3450.

NURS3730 - Introduction to Professional Nursing

Credits: 2

Introduces students to the core concepts of professional nursing practice. Nursing process, domains of nursing practice, health policy, evidence-based practice, legal and professional standards will be introduced.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3745, NURS 3790, and PHCY 3450.

NURS3745 - Nursing Fundamentals and Health Assessment

Credits: 4

Includes concepts of basic care/comfort, technical skills, medical equipment, asepsis, medication administration, nurse/client safety, and client rights. Students learn to assess and document normal variations and potential alterations of physiological, sociocultural, spiritual, and developmental dimensions of individuals across the lifespan.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3730, NURS 3790, and PHCY 3450.

NURS3790 - Health Promotion of Individuals, Families, and Populations

Credits: 3

Components of the nursing process and evidence-based nursing practice are used to protect the health of clients through health promotion, risk reduction, and disease prevention.

Prerequisite: Completion or concurrent enrollment in NURS 2340, NURS 3730, NURS 3745, and PHCY 3450.

NURS3770 - Nursing Care in Acute and Chronic Illness

Credits: 8

Discern critical elements of professional nursing medical-surgical concepts for adults experiencing acute/chronic health alterations progressing to complex health alterations. Focuses on patient safety principles; quality initiatives; evidence-based nursing; information technology; interprofessional collaboration, communication; health promotion strategies; and critical thinking in the planning of client centered nursing care for the adult.

Prerequisite: NURS 3745 and completion or concurrent in NURS 3771, NURS 3780, and NURS 4765

NURS3771 - Nursing Care in Acute and Chronic Illness Practicum

Credits: 6

Application of critical elements of professional nursing practice with adults experiencing acute and chronic health alterations. Focus is on incorporation of patient safety principles; quality initiatives; evidence-based nursing practice; information technology; interprofessional collaboration and communication; health promotion strategies; and critical thinking and clinical reasoning in the provision of nursing care.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: *Nursing Care in Acute, Chronic, and Complex Illness Practicum*; Credits: 4 credits; Prerequisite: NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3780, and NURS 4765.

Prerequisite: NURS 3710, NURS 3750, NURS 3730, NURS 3780.

NURS3780 - Evidence-Based Practice in Nursing

Credits: 4

Prepares nursing students to engage in evidence-based practice in nursing, specifically how to search the literature and databases, ask meaningful clinical questions, find relevant evidence, critically appraise evidence, integrate best evidence with clinical expertise and patient/community values.

A&S College Core 2015 **Course changes effective Fall 2022** - Credits: 3 credits; Prerequisite: STAT 2050 or STAT 2070 or equivalent; NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3771, and NURS 4765.

Prerequisite: admission to the BRAND program, concurrent enrollment in NURS 3770.

NURS4765 - Healthcare Informatics in Nursing

Credits: 3

Students will describe information and technology utilized to communicate, manage knowledge, support clinical decision-making, and effectively optimize patient outcomes while adhering to ethical and legal considerations of data management.

Prerequisite: NURS 3745 and completion or concurrent enrollment in NURS 3770, NURS 3771, and NURS 3780.

NURS4710 - Population Health

Credits: 4

Introduces the student to population-focused nursing and applied the nursing process to the community as client. Addresses core functions and essential services of public health. Focuses on vulnerable populations; epidemiology; community assessment, planning and implementation; analysis of the health care system; emergency preparedness; and legal aspects of public health.

A&S College Core 2015 **Course changes effective Spring 2023** - Name: *Nursing Care for Population Health;*
Description: *Introduces the student to population-focused and public health nursing through the application of the nursing process with the community as client. Focuses on vulnerable populations; epidemiology; community assessment, and analysis of the healthcare system.* Prerequisite: *NURS 3771 and completion or concurrent enrollment in NURS 4735, NURS 4740, and NURS 4771.*

Prerequisite: NURS 3770, NURS 3771; concurrent enrollment in NURS 4740, NURS 4741, NURS 4735, NURS 4736.

NURS4735 - Vulnerable Populations and Mental Health

Credits: 3

This course introduces students to nursing principles and concepts of mental health psychopathology, physiology, psychology, and spirituality, along with developmental and socio-cultural considerations while incorporating treatment modalities related to the nursing of the middle-aged and aging adult.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: *NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4740, and NURS 4771.*

Prerequisite: NURS 3770 and NURS 3780; concurrent enrollment in NURS 4736.

NURS4740 - Nursing Care of the Young Family

Credits: 6

Utilizes nursing process to assess, promote, and protect the health of young families as client. Focus is human sexuality and reproduction, family planning, pregnancy stages, neonatal, pediatrics. Growth and development, health promotion, disease prevention, family dynamics are included. Evidence-based nursing guides practice to promote a healthy family and family system.

A&S College Core 2015 **Course changes effective Spring 2023** - Description: *Utilizes nursing process to assess, promote, and protect the health of young families as client. Focus is human sexuality and reproduction, family planning, pregnancy stages, and pediatrics to promote*

a healthy family and family system. Credits: 4 credits; Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4735, and NURS 4771.

Prerequisite: NURS 3770; NURS 3771, and concurrent enrollment in NURS 4741.

NURS4771 - Nursing Care of Young Families and Vulnerable Populations Practicum

Credits: 4

Applies and synthesizes clinical judgment related to nursing care of clients with a focus on the young family and vulnerable populations across the lifespan. Concepts address human sexuality, reproduction, mental health, and core functions of public health.

Prerequisite: NURS 3771 and completion or concurrent enrollment in NURS 4710, NURS 4735, and NURS 4740.

NURS4775 - Nursing Senior Capstone

Credits: 10

Provides opportunities to utilize and synthesize core concepts of professional nursing. Intensive clinical experience allowing students to become socialized into health care delivery system; gain in autonomy/confidence in performing skills; practice critical thinking and clinical reasoning in making ethical clinical decisions; develop leadership in providing and coordinating evidence-based nursing care.

A&S College Core 2015 **Course changes effective Summer 2023 - Description:** *Provides opportunities to synthesize core concepts of professional nursing through intensive clinical experiences. Focuses on students' socialization into the healthcare system through application of clinical judgment in making safe and ethical decisions while coordinating evidence-based nursing care. Prerequisite: NURS 4771 and completion or concurrent enrollment in NURS 4785.*

Prerequisite: NURS 4710; NURS 4735; NURS 4736; and concurrent enrollment in NURS 4785.

NURS4785 - Nursing Integration

Credits: 2

Focuses on the continuing integration of previously learned concepts. The student further develops the role of consumer of research and incorporates leadership and management skills as a member of the profession.

A&S College Core 2015 **Course changes effective Summer 2023 - Name:** *Integration of Leadership in Nursing; Description: Focuses on the continuing integration of previously learned concepts of leadership, management, and professional development. The student further develops their role as a consumer of research and as a leader of an interprofessional healthcare team. Prerequisite: NURS 4771 and completion or concurrent enrollment in NURS 4775.*

Prerequisite: NURS 4735; NURS 4736; NURS 4710; and concurrent enrollment in NURS 4775.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Students who meet university requirements are admitted to the university in the pre-nursing component of BRAND (*declared PNBR major*). The number of students admitted to BRAND is limited, and admission is a competitive process. Applicants meeting minimum requirements are not guaranteed admission.

Criteria for admission to BRAND as well as application instructions and deadlines can be found on the nursing website, www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BRAND, Admission Criteria/Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for BRAND. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BRAND, BRAND Student Handbook - section 6, Scholastic Requirements*).

Curriculum

The minimum requirement for the second bachelor's (SB) degree candidate to graduate with a BSN is 50 semester hours of credit. This curriculum option totals 55 credit hours.

The minimum requirement for an SB degree is 30 additional semester hours earned from UW, 12 of which must be in upper division level courses. If prior baccalaureate degree was earned through UW, the 30 credit minimum is in addition to the credits earned for previous degree. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450] and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability. PHCY 3450 and PHCY 4470 must be completed within three years **before** the May start date.

Program of Study

A detailed, semester sequenced BRAND Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BRAND, BRAND Program of Study*). All required courses identified under Prerequisite Courses and Nursing Courses must be passed with a C or better (or S).

Nursing, B.S.N., BSN Completion - ReNEW Option

The BSN Completion - ReNEW (Revolutionizing Nursing Education in Wyoming) option is Wyoming's shared BSN nursing curriculum. Entry into the ReNEW option begins at a participating Wyoming community college ADN nursing program.

University Studies Program Requirements

The University Studies Program 2015

V - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Related Coursework

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring,

theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB
USP 2015 Code U5PN
Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

- Humanities Elective course Credits: 3 (*not PSYC 1000*)

Nursing Courses

NURS3005 - ReNEW Distance Foundations

Credits: 1

Prepares learners for ReNEW BSN Completion in a distance delivery format. The course includes concept-based delivery in the UW learning system, APA formatting, writing scholarly papers, and library resources and skills.

Prerequisite: Enrolled in or graduate of Wyoming ReNEW Nursing Program.

NURS4055 - Application of Evidence in Nursing Practice

Credits: 3

Prepares RN students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L

USP 2015 Code U5C3

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; STAT 2050 or STAT 2070 or equivalent; COM1 and COM2.

NURS4630 - Public/Community Health

Credits: 2

Learners examine public/community health nursing roles and apply the nursing process to community as client. Focuses on improving community health, levels of prevention, and addresses multiple determinants of health. Core functions, essential services, community assessment and planning, emergency preparedness, and analysis of the public healthcare system will be studied.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4635 - Community as Client

Credits: 2

Learners will understand relationships among health, disease, and the environment, with emphasis on the role of community health agencies and programs for communities in need of health care support, regionally, nationally, and globally. In this course, an assessment and planning framework guides students in assessing the health of a community.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4640 - Health Equity

Credits: 2

Learners will examine population-focused concepts to assess vulnerable and oppressed populations. The magnitude of health disparities both in the United States and globally will be discussed. Focuses on a multi-level and multi-cultural view of population health challenges, alleviating health disparities, and a commitment to health equity.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4645 - Population Health

Credits: 2

Focuses on analysis of local, regional, national, and international data that are indicators of population health. Disease outbreaks are analyzed. Learners study development of innovative, collaborative, multi-disciplinary interventions and policies to improve public health. This course provides opportunities for learners to improve population health through application of theory and evidence.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4660 - Healthcare Informatics

Credits: 3

Students will develop knowledge and skills to utilize and evaluate information technologies to improve patient outcomes across diverse populations. Includes the use of Clinical Information Systems to plan and document the nursing process. Ethical and legal considerations of data management and interdisciplinary use of healthcare informatics are presented.

Prerequisite: ReNEW Progression or Current RN license.

NURS4830 - Leadership in Healthcare Today

Credits: 2

Focuses on the role of nurse leader and manager through integration of leadership, management, and organizational concepts, models, and theories. Emphasis in on leadership, followership, management, advocacy, professional development and activism, and managing resources.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4835 - Leading Nursing Practice

Credits: 2

Focuses on nurse leaders making a difference using evidence-based nursing practice. Learners utilize and synthesize basic concepts of professional nursing practice. This course creates the opportunity for learners to lead nursing practice in a variety of settings.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4840 - Healthcare Systems and Policy

Credits: 2

Learners examine healthcare quality and the regulation of professional nursing practice in various settings. The focus is on ethical and legal issues and policy development for healthcare delivery.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4845 - Innovation in Nursing Practice

Credits: 2

Focus in on use and synthesis of concepts in professional nursing practice. This course provides an opportunity to employ critical thinking, to apply ethical decision-making, to use evidence, and to demonstrate the ability to lead planned change.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4855 - Contemporary Nursing Practice

Credits: 2

Focus in on practice as critically effective members and leaders of the healthcare team. Learners analyze a variety of societal, economic, political, and professional issues that influence contemporary nursing. This course provides an opportunity to be creative in examining trends in nursing and healthcare.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Students who apply to UW and meet university requirements are admitted to the university in the pre-nursing component of ReNEW BSN (*declared PNRN*). Criteria for UW admission can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for BSN Completion. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW or RN-BSN, BSN Completion Student Handbook - section 6, Scholastic Requirements*).

Curriculum

The minimum UW requirement to graduate with a BSN in 120 semester hours of credit. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450], and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability.

Program of Study

A detailed Program of Study for ReNEW ADN Entry can be found on the nursing website: www.uwyo.edu/nursing (click on *Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW, Program of Study for ReNEW ADN Entry*). All required courses identified under Related Coursework and Nursing Courses must be passed with a C or better (or S).

Nursing, B.S.N., BSN Completion - RN-BSN Option

The BSN Completion - RN-BSN option is for non-ReNEW associate degree or diploma-educated registered nurses. This option is delivered nationwide with no on-campus time required.

University Studies Program Requirements

The University Studies Program 2015

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

H- - Human Culture (1)

Credits: 3

Max Credit 3

Approved coursework does not include courses taken within the student's major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Related Coursework

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA
USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB
USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.
OR

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in

overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

OR

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

OR

MICR2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors, introduces students to microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance; also covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MOLB 2240.

Prerequisite: LIFE 1010.

OR

MOLB2240 - Medical Microbiology

Credits: 4

Designed primarily for nursing and pre-pharmacy majors. Introduces microbiology, including the diversity of prokaryotic and eukaryotic microbes, their structural and physiological properties, and their applied medical significance. Covers the basic principles of the immune system and emphasizes the communicable diseases of man caused by microbial pathogens.

Cross Listed MICR 2240.

When Offered Spring

Prerequisite: LIFE 1010.

PHCY3450 - Foundational Pathophysiology

Credits: 4

Foundational principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for pre-nursing students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 6120 for interprofessional education revolving around student-led case study presentations.

When Offered (Normally offered spring semester)

Former Course Number [4450]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent, and ZOO 3115.

PHCY4470 - Fundamentals of Pharmacology

Credits: 4

Studies pharmaceutical agents used for treatment, diagnosis or prevention of disease with particular emphasis on mechanisms of action, therapeutic and adverse effects.

When Offered (Normally offered fall semester)

Former Course Number [3510]

Prerequisite: PHCY 3450.

- An approved Human Anatomy course Credits: 4
- An approved Human Physiology course Credits: 4

Nursing Courses

NURS3425 - Bridging Nursing Paradigms

Credits: 3

This course prepares incoming ADN- or Diploma-educated Registered Nurses for completion of the Fay W. Whitney School of Nursing (FWWSON) BSN degree. Nursing knowledge, skills, and abilities in selected content areas will be evaluated and augmented in preparation for BSN Completion coursework.

Prerequisite: Current RN license.

NURS4055 - Application of Evidence in Nursing Practice

Credits: 3

Prepares RN students to engage in evidence-based nursing, specifically how to ask meaningful clinical questions, find relevant evidence, critically appraise evidence, and integrate best evidence with clinical expertise and patient/community values.

USP 2003-2014 Code U3L

USP 2015 Code U5C3

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; STAT 2050 or STAT 2070 or equivalent; COM1 and COM2.

NURS4630 - Public/Community Health

Credits: 2

Learners examine public/community health nursing roles and apply the nursing process to community as client. Focuses on improving community health, levels of prevention, and addresses multiple determinants of health. Core functions, essential services, community assessment and planning, emergency preparedness, and analysis of the public healthcare system will be studied.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4635 - Community as Client

Credits: 2

Learners will understand relationships among health, disease, and the environment, with emphasis on the role of community health agencies and programs for communities in need of health care support, regionally, nationally, and globally. In this course, an assessment and planning framework guides students in assessing the health of a community.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4640 - Health Equity

Credits: 2

Learners will examine population-focused concepts to assess vulnerable and oppressed populations. The magnitude of health disparities both in the United States and globally will be discussed. Focuses on a multi-level and multi-cultural view of population health challenges, alleviating health disparities, and a commitment to health equity.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4645 - Population Health

Credits: 2

Focuses on analysis of local, regional, national, and international data that are indicators of population health. Disease outbreaks are analyzed. Learners study development of innovative, collaborative, multi-disciplinary interventions and policies to improve public health. This course provides opportunities for learners to improve population health through application of theory and evidence.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4660 - Healthcare Informatics

Credits: 3

Students will develop knowledge and skills to utilize and evaluate information technologies to improve patient outcomes across diverse populations. Includes the use of Clinical Information Systems to plan and document the nursing process. Ethical and legal considerations of data management and interdisciplinary use of healthcare informatics are presented.

Prerequisite: ReNEW Progression or Current RN license.

NURS4830 - Leadership in Healthcare Today

Credits: 2

Focuses on the role of nurse leader and manager through integration of leadership, management, and organizational concepts, models, and theories. Emphasis in on leadership, followership, management, advocacy, professional development and activism, and managing resources.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4835 - Leading Nursing Practice

Credits: 2

Focuses on nurse leaders making a difference using evidence-based nursing practice. Learners utilize and synthesize basic concepts of professional nursing practice. This course creates the opportunity for learners to lead nursing practice in a variety of settings.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4840 - Healthcare Systems and Policy

Credits: 2

Learners examine healthcare quality and the regulation of professional nursing practice in various settings. The focus is on ethical and legal issues and policy development for healthcare delivery.

Prerequisite: ReNEW Progression or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4845 - Innovation in Nursing Practice

Credits: 2

Focus in on use and synthesis of concepts in professional nursing practice. This course provides an opportunity to employ critical thinking, to apply ethical decision-making, to use evidence, and to demonstrate the ability to lead planned change.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

NURS4855 - Contemporary Nursing Practice

Credits: 2

Focus in on practice as critically effective members and leaders of the healthcare team. Learners analyze a variety of societal, economic, political, and professional issues that influence contemporary nursing. This course provides an opportunity to be creative in examining trends in nursing and healthcare.

Prerequisite: ReNEW ADN Benchmark or Formal RN-BSN Admission; NURS 3005 or NURS 3425.

Escrow Courses

(Credits are automatically posted to the student's UW transcript during the semester of NURS 4855 enrollment. These credits represent credit for nursing content learned in the associate degree or diploma in nursing program.)

(Note: Course requirements/expectations are subject to change. Maintain contact with FWWSO for current expectations.)

NURS3665 - Foundations of Professional Nursing Roles

Credits: 3

This course introduces the student to professionalism, leadership, safety, and patient-centeredness. The concepts emphasized provide the foundation for professional nursing practice.

Prerequisite: Fall 2021: NURS 3490, PHCY 4470, and completion or concurrent enrollment in NURS 3635, NURS 3690, and NURS 3695. **Effective Spring 2022:** Completion or concurrent enrollment in NURS 2340, NURS 3445, and PHCY 3450.

NURS3890 - Professional Nursing Care in Complex Illness

Credits: 3

Students will examine concepts of nursing practice in the care of adults with complex illness. Emphasis is on utilizing the nursing process to develop clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3891, NURS 3892, and NURS 3895.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3891, 3892, 3895, 4125.

NURS3895 - Professional Nursing Care in Complex Illness Practicum

Credits: 4

Students provide patient-centered care using the nursing process in clinical setting with adult and older adult clients experiencing complex illness and alterations in mental health. Emphasis is on demonstration of clinical judgment.

A&S College Core 2015 **Course changes effective Spring 2023 - Prerequisite:** *NURS 3695 and completion or concurrent enrollment in NURS 3890, NURS 3891, and NURS 3892.*

Prerequisite: NURS 3695 and completion or concurrent enrollment with NURS 3890, NURS 3892, NURS 3891, NURS 3892, NURS 4125.

Additional Requirements

Expected Student Learning Outcomes

At completion of the Bachelor of Science in Nursing (BSN) degree, graduates will be able to meet the end of program student learning outcomes:

1. Minimize risk of harm to patients and providers through both system effectiveness and individual performance.
2. Advance nursing practice related to patient care technologies, information systems, and communication devices that support safe nursing practice.
3. Achieve optimal individual, family, group, community, and population outcomes guided by clinical reasoning and appraisal of evidence of best practice.
4. Demonstrate effective leadership through heightened self-awareness to empower others in the attainment of optimal patient outcomes.
5. Use mutually respectful communication, collaboration, and leadership skills within interprofessional teams in the management of care in diverse, complex, global, and dynamic healthcare systems.
6. Participate as a nursing professional in the development and implementation of healthcare policy, finance, and regulatory entities, including local, state, national, and global healthcare trends.
7. Provide patient-centered care by reflecting on the uniqueness of an individual patient's background, personal preferences, culture, values, traditions, and family, which promotes optimal health outcomes by involving patients and families as they make clinical care decisions.
8. Demonstrate respectful, efficient, safe, and well-coordinated transitions of the patient through all levels of care.
9. Provide respectful, efficient, safe and well-coordinated patient-centered care to populations by reflecting on beliefs, values, attitudes, and practices.
10. Model professionalism with consistent demonstration of core values evidenced by nurses working with others to achieve optimal health and wellness outcomes in patients, families, and populations by wisely applying principles of altruism, excellence, caring, ethics, respect, communication, professional engagement, lifelong learning, and accountability.
11. Encourage evidence-based health promotion and make a positive contribution to immediate and long-term health status, through the provision of education to individuals, families, groups, communities, and populations that encourages healthy behaviors and choices, prevention of disease, protection from preventable illness and disastrous emergencies.

Admission

Students who apply to UW and meet university requirements are admitted to the university in the pre-nursing component of RN-BSN (*declared PNBS*). Criteria for admission as well as application instructions can be found on the

nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, RN-BSN, Admission Criteria/ Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for BSN Completion. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, Wyoming's ReNEW or RN-BSN, BSN Completion Student Handbook - section 6, Scholastic Requirements*).

Curriculum

The minimum UW requirement to graduate with a BSN in 120 semester hours of credit. Evaluation of transfer courses is required to determine credit eligibility.

The required courses, PHCY3450 - Foundational Pathophysiology [4450], and PHCY4470 - Fundamentals of Pharmacology, must be upper division (3000/4000 level). Lower division/Community College (1000/2000 level) courses do not satisfy this requirement. Transfer courses must be reviewed for acceptability.

Program of Study

A detailed Program of Study for RN-BSN Entry can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, BSN, BSN Completion, RN-BSN, Program of Study for RN-BSN Entry*). All required courses identified under Related Coursework and Nursing Courses must be passed with a C or better (or S).

Graduate

Nursing, D.N.P., Family Nurse Practitioner Concentration

The Family Nurse Practitioner (FMY) concentration prepares advanced practice nurses to provide primary health care to diverse individuals and their families in a variety of outpatient settings, especially rural settings.

DNP Core Courses

NURS5140 - Pharmacotherapy for Primary Care

Credits: 4

Prepares primary care practitioners in drug therapy management for a variety of client populations with an emphasis on rural practice.

Prerequisite: NURS 5601, NURS 5602, NURS 5603, NURS 5604, NURS 5605, and NURS 5830.

NURS5165 - DNP: Adv Pathophysiology

Credits: 2

A system-based approach is used to explore selected pathophysiological states encountered across the lifespan in primary care. The developmental physiology, etiology, pathogenesis, clinical manifestations, and physiological responses to illness and treatment regimens are examined, providing a basis for the foundation of clinical decisions.

Prerequisite: NURS 5603 , NURS 5604 , NURS 5605 , and NURS 5830

NURS5601 - Theoretical Foundations Advanced Practice Nursing

Credits: 3

An introduction to the discipline of nursing for graduate nursing students

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5602 - Advanced Nursing Leadership

Credits: 3

Focus on developing advanced nursing leadership skills and attributes for interprofessional collaboration to create viability of the profession and health-related practice environments

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5603 - Evidence-Based Practice for Advanced Nursing

Credits: 3

Focuses on the use of EBP to solve clinical, educational, and administrative problems in advanced nursing practice.

Prerequisite: Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5604 - Population and Health Policies

Credits: 3

Emphasis on population health, epidemiology, and health policy related to rural and global health issues.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5605 - Informatics and Quality Improvement for Advanced Nursing Practice

Credits: 3

Emphasis on theoretical and scientific foundations for quality improvement, safety, and informatics in health care.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5820 - Health Behavior Change I: Primary Prevention and Wellness

Credits: 3

This course will cover the application of theories and techniques of health behavior change and principles of epidemiology to health issues from the individual to the community level.

Prerequisite: Admission to the DNP program.

NURS5824 - Advanced Health Assessment and Clinical Decision-Making for Nurse Practitioners

Credits: 2

Builds upon basic nursing assessment skills; includes a human cadaver lab experience to enhance learners' understanding of anatomy, physiology, and pathophysiology, progressing to didactic, hands-on practice, and check-offs of student ability to perform client interviewing and advanced physical assessment techniques. Prepares learners for the clinical decision-making required of nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2022 - Credits: 3 credits; Description:** *Advanced health assessment and diagnostic decision-making for nurse practitioners. Builds on previous nursing assessment skills. Emphasizes person-centered communication skills and a systematic diagnostic-reasoning approach that leads to accurate clinical decision-making. Clinical correlation amongst anatomy, physiology, pathophysiology, and physical examination. Prerequisite: NURS 5140 and NURS 5165.*

Prerequisite: NURS 5165, NURS 5800, NURS 5805, NURS 5810, and NURS 5865

NURS5830 - Health Behavior Change II: Behavioral Skills for Secondary and Tertiary Prevention

Credits: 3

This course will cover the application of health behavior change skills in advanced nursing practice, including theories/models and techniques, with a focus on chronic illness.

Prerequisite: NURS 5820 and NURS 5865.

NURS5865 - DNP Seminar

Credits: 1

Max Credit (Max. 6)

Instructor and student-led discussions designed to facilitate role transition of the doctorally-prepared nurse practitioner. Seminars include topics related to integration and application of nursing and other health-related theories and models in rural nurse practitioner-delivered care.

Prerequisite: Admission to the DNP program.

NURS5866 - DNP Seminar II

Credits: 1

Instructor and students lead discussions designed to facilitate role transition of the doctorally prepared nurse practitioner. Seminars include topics related to transitioning from nurse practitioner students into practicing nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891, NURS 5862 and NURS 5883 OR NURS 5891, NURS 5875 and NURS 5876.

NURS5891 - DNP Project I

Credits: 3

In collaboration with a facility, learners will examine clinically relevant data to target a practice and/or patient outcome for improvement. Learners will collect and critically appraise related evidence and develop an intervention, including an outcome evaluation plan.

A&S College Core 2015 **Course changes effective Summer 2023** - Credits: 1 credit; Description: In collaboration with a health-related organization, learners will identify a problem, concern, or question that can be addressed through a rapid cycle quality improvement project for a Doctor of Nursing Practice project. Prerequisite: NURS 5873, NURS 5877 and NURS 5827 or NURS 5882, NURS 5883 and NURS 5828.

Prerequisite: NURS 5850.

NURS5892 - DNP Project II

Credits: 3

Continuation of NURS 5891, DNP Project I. In collaboration with facility, learners will implement the proposed clinical intervention, evaluate the outcome, and professionally disseminate the results.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: Continuation of NURS 5891, DNP Project I. In collaboration with a health-related organization, learners will plan and begin to implement a quality improvement project. Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891 AND NURS 5875, NURS 5876 OR NURS 5862, NURS 5883.

NURS5893 - DNP Project III

Credits: 1

Continuation of NURS 5892, DNP Project II. In collaboration with a health-related organization, learners will continue to implement their scholarly quality improvement project.

Prerequisite: NURS 5874, NURS 5892 and NURS 5866 or NURS 5863, NURS 5892, NURS 5866.

NURS5894 - DNP Project IV

Credits: 2

Continuation of NURS 5893, DNP Project III. In collaboration with a health-related organization, learners will finalize their scholarly quality improvement project and disseminate the findings.

Prerequisite: NURS 5893.

Family Nurse Practitioner Specialty Courses

NURS5825 - Advanced Health Assessment and Clinical Decision-Making for Family Nurse Practitioners

Credits: 4

Advanced health assessment and diagnostic decision-making for family nurse practitioners. Builds on previous assessment skills and covers specialty exams used in primary care. Emphasizes a systematic diagnostic reasoning approach that leads to accurate clinical decision-making. Additionally, course focuses on sociocultural influences, growth and development, and gender concepts.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: *Advanced Health Assessment for Family NPs*; Credits: *2 credits*; Description: *Advanced primary care assessment skills for family nurse practitioners. Focusing on specialty examination techniques for all body system.* Prerequisite: NURS 5140 and NURS 5165.

Prerequisite: NURS 5166, NURS 5815, NURS 5820, and NURS 5824.

NURS5827 - Skills for Family NP

Credits: 3

Developing skills for advanced practice nursing and practice management for the family nurse practitioner.

Prerequisite: NURS 5824, NURS 5825, NURS 5871, and NURS 5875.

NURS5871 - Wellness for Adults in Primary Care

Credits: 3

Provision of wellness primary care for adults across the lifespan, including primary and secondary prevention.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 5165 and NURS 5140.*

Prerequisite: NURS 5140 and NURS 5825.

NURS5872 - Practicum for Wellness in Primary Care

Credits: 3

Clinical practicum for NURS 5871, Wellness for Adults in Primary Care.

A&S College Core 2015 **Course changes effective Summer 2023** - Name: *Practicum: Diagnosis and Management of the Primary Care Client for the FNP I*; Credits: *5 credits*; Description: *Clinical practicum focused on beginning level diagnostic and clinical management competencies for the FNP.* Prerequisite: *NURS 5873, NURS 5877, and NURS 5827.*

Prerequisite: NURS 5140 and NURS 5825.

NURS5873 - Primary Care for Children, Adolescents, and Families

Credits: 3

Provision of primary care for children, adolescents, and families across the lifespan, including primary and secondary prevention.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 5871, NURS 5875, NURS 5824, and NURS 5825.*

Prerequisite: NURS 5440, NURS 5830, NURS 5871 and NURS 5872.

NURS5874 - Practicum for Primary Care for Children, Adolescents, and Families

Credits: 3

Clinical practicum for NURS 5873, Primary Care for Children, Adolescents, and Families.

A&S College Core 2015 **Course changes effective Fall 2023** - Name: *Diagnosis and Management of the Primary Care Client for the FNP II;* Credits: *5 credits;* Description: *Clinical practicum that allows students to continue to practice and refine competencies in the FNP role.* Prerequisite: *NURS 5872 and NURS 5891.*

Prerequisite: NURS 5440, NURS 5830, NURS 5871 and NURS 5872.

NURS5875 - Primary Care for Acute & Chronically Ill Adults

Credits: 3

Diagnosis and management of select acute and chronic illnesses experienced by adults across the lifespan. Primary focus is on those physical and behavioral illnesses with high prevalence in rural primary care.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 5165 and NURS 5140.*

Prerequisite: NURS 5850.

NURS5876 - Practicum for Primary Care for Acute & Chronically Ill Adults

Credits: 3

Clinical practicum for NURS 5875, Primary Care for Acute & Chronically Ill Adults I.

A&S College Core 2015 **Course changes effective Fall 2023** - Name: *Final FNP Practicum;* Credits: *6 credits;* Description: *This final clinical experience provides learners with the opportunity to integrate previous learning from the FNP program in the provision of evidence-based health care.* Prerequisite: *NURS 5866, NURS 5874, NURS 5892, and NURS 5893.*

Prerequisite: NURS 5850.

NURS5877 - Primary Care for Acute & Chronically Ill Adults II

Credits: 3

Continuation of NURS 5875. Diagnosis and management of select acute and chronic illnesses experienced by adults across the lifespan. Primary focus is on those physical and behavioral illnesses with high prevalence in rural primary care.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: *NURS 5871, NURS 5875, NURS 5824,*

and NURS 5825.

Prerequisite: NURS 5875, NURS 5876 and NURS 5891.

Additional Requirements

Expected Student Learning Outcomes

Graduates will:

1. engage in evidence-based practice to optimize health outcomes; and
2. engage in leadership activities to promote excellence in rural health care.

Core Concepts:

- Transformation:

Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.

- Rurality/Frontier

Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.

- Service

Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.

- Comprehensive Global healthcare system perspective

An interconnected and comprehensive global health care system perspective incorporating the following attributes: advocacy, altruism, creativity, ethical conduct, effective communication skills, leadership, problem-solving skills, professionalism, and scholarship.

- Clinical Scholarship

Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Admission

The University of Wyoming must receive complete application materials for the DNP Program by the application deadline to be considered for fall admission (*the entire DNP application process is completed online*). The applicant is responsible to make certain that UW is in receipt of all application materials/ fees. The number of students admitted is limited. Admission is a competitive process and applicants meeting minimum requirements are not guaranteed admission to the program. Admission to the university does not guarantee admission to the DNP program in the School of Nursing.

Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, Admission Criteria & Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for the DNP Program. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP Program Student Handbook - section 6 Scholastic Requirements*).

Curriculum

All DNP students, regardless of concentration will take a set of core courses. In addition to the core courses a group of specialty courses are required for each NP concentration. Students earning the DNP degree will complete a final scholarly project which is integrated into the FMY and PSH curricula.

The DNP core and clinical courses will be delivered using a combination of online courses; synchronous video web-conferencing, and hybrid courses with periodic intensive on-campus experiences. Clinical placements will be arranged at health care facilities in Wyoming, north central Colorado, or southern Montana.

Program of Study

A detailed, semester sequenced DNP-FMY Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP-FMY Program of Study*).

Nursing, D.N.P., Psychiatric Mental Health Nurse Practitioner Concentration

The Psychiatric Mental Health Nurse Practitioner (PSH) concentration prepares advanced practice nurses to provide a full range of psychiatric care. Graduates are prepared to assess, diagnose, and manage, to include prescribing psychotropic medications, for people with chronic and acute psychiatric disorders.

DNP Core Courses

NURS5140 - Pharmacotherapy for Primary Care

Credits: 4

Prepares primary care practitioners in drug therapy management for a variety of client populations with an emphasis on rural practice.

Prerequisite: NURS 5601, NURS 5602, NURS 5603, NURS 5604, NURS 5605, and NURS 5830.

NURS5165 - DNP: Adv Pathophysiology

Credits: 2

A system-based approach is used to explore selected pathophysiological states encountered across the lifespan in primary care. The developmental physiology, etiology, pathogenesis, clinical manifestations, and physiological responses to illness and treatment regimens are examined, providing a basis for the foundation of clinical decisions.

Prerequisite: NURS 5603 , NURS 5604 , NURS 5605 , and NURS 5830

NURS5601 - Theoretical Foundations Advanced Practice Nursing

Credits: 3

An introduction to the discipline of nursing for graduate nursing students

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5602 - Advanced Nursing Leadership

Credits: 3

Focus on developing advanced nursing leadership skills and attributes for interprofessional collaboration to create viability of the profession and health-related practice environments

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5603 - Evidence-Based Practice for Advanced Nursing

Credits: 3

Focuses on the use of EBP to solve clinical, educational, and administrative problems in advanced nursing practice.

Prerequisite: Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5604 - Population and Health Policies

Credits: 3

Emphasis on population health, epidemiology, and health policy related to rural and global health issues.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5605 - Informatics and Quality Improvement for Advanced Nursing Practice

Credits: 3

Emphasis on theoretical and scientific foundations for quality improvement, safety, and informatics in health care.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5820 - Health Behavior Change I: Primary Prevention and Wellness

Credits: 3

This course will cover the application of theories and techniques of health behavior change and principles of epidemiology to health issues from the individual to the community level.

Prerequisite: Admission to the DNP program.

NURS5824 - Advanced Health Assessment and Clinical Decision-Making for Nurse Practitioners

Credits: 2

Builds upon basic nursing assessment skills; includes a human cadaver lab experience to enhance learners' understanding of anatomy, physiology, and pathophysiology, progressing to didactic, hands-on practice, and check-offs of student ability to perform client interviewing and advanced physical assessment techniques. Prepares learners for the clinical decision-making required of nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2022** - **Credits:** 3 credits; **Description:** *Advanced health assessment and diagnostic decision-making for nurse practitioners. Builds on previous nursing assessment skills. Emphasizes person-centered communication skills and a systematic diagnostic-reasoning approach that leads to accurate clinical decision-making. Clinical correlation amongst anatomy, physiology, pathophysiology, and physical examination.* **Prerequisite:** NURS 5140 and NURS 5165.

Prerequisite: NURS 5165, NURS 5800, NURS 5805, NURS 5810, and NURS 5865

NURS5830 - Health Behavior Change II: Behavioral Skills for Secondary and Tertiary Prevention

Credits: 3

This course will cover the application of health behavior change skills in advanced nursing practice, including theories/models and techniques, with a focus on chronic illness.

Prerequisite: NURS 5820 and NURS 5865.

NURS5865 - DNP Seminar

Credits: 1

Max Credit (Max. 6)

Instructor and student-led discussions designed to facilitate role transition of the doctorally-prepared nurse practitioner. Seminars include topics related to integration and application of nursing and other health-related theories and models in rural nurse practitioner-delivered care.

Prerequisite: Admission to the DNP program.

NURS5866 - DNP Seminar II

Credits: 1

Instructor and students lead discussions designed to facilitate role transition of the doctorally prepared nurse practitioner. Seminars include topics related to transitioning from nurse practitioner students into practicing nurse practitioners.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891, NURS 5862 and NURS 5883 OR NURS 5891, NURS 5875 and NURS 5876.

NURS5891 - DNP Project I

Credits: 3

In collaboration with a facility, learners will examine clinically relevant data to target a practice and/or patient outcome for improvement. Learners will collect and critically appraise related evidence and develop an intervention, including an outcome evaluation plan.

A&S College Core 2015 **Course changes effective Summer 2023** - Credits: 1 credit; Description: In collaboration with a health-related organization, learners will identify a problem, concern, or question that can be addressed through a rapid cycle quality improvement project for a Doctor of Nursing Practice project. Prerequisite: NURS 5873, NURS 5877 and NURS 5827 or NURS 5882, NURS 5883 and NURS 5828.

Prerequisite: NURS 5850.

NURS5892 - DNP Project II

Credits: 3

Continuation of NURS 5891, DNP Project I. In collaboration with facility, learners will implement the proposed clinical intervention, evaluate the outcome, and professionally disseminate the results.

A&S College Core 2015 **Course changes effective Fall 2023** - Description: Continuation of NURS 5891, DNP Project I. In collaboration with a health-related organization, learners will plan and begin to implement a quality improvement project. Prerequisite: NURS 5872 and NURS 5891 OR NURS 5862 and NURS 5891.

Prerequisite: NURS 5891 AND NURS 5875, NURS 5876 OR NURS 5862, NURS 5883.

NURS5893 - DNP Project III

Credits: 1

Continuation of NURS 5892, DNP Project II. In collaboration with a health-related organization, learners will continue to implement their scholarly quality improvement project.

Prerequisite: NURS 5874, NURS 5892 and NURS 5866 or NURS 5863, NURS 5892, NURS 5866.

NURS5894 - DNP Project IV

Credits: 2

Continuation of NURS 5893, DNP Project III. In collaboration with a health-related organization, learners will finalize their scholarly quality improvement project and disseminate the findings.

Prerequisite: NURS 5893.

Psychiatric Mental Health Nurse Practitioner Specialty Courses

NURS5826 - Advanced Health Assessment for Psych NPs

Credits: 2

Advanced assessment skills for psychiatric mental health nurse practitioners. Focusing on specialty examination techniques in the mental health setting.

Prerequisite: NURS 5165 and NURS 5140.

NURS5828 - Skills for Psych NP

Credits: 2

Developing skills for advanced practice nursing and practice management for the psychiatric mental health nurse practitioner.

Prerequisite: NURS 5824, NURS 5826, NURS 5880, and NURS 5881.

NURS5862 - Practicum: Diagnosis and Management of the Psychiatric Client for the PMHNP I

Credits: 5

Clinical practicum that allows students to continue to practice and refine competencies in the PMHNP role with multiple and complex psychiatric populations.

A&S College Core 2015 **Course changes effective Summer 2023** - Prerequisite: *NURS 5828, NURS 5882, and NURS 5883.*

Prerequisite: NURS 5850.

NURS5863 - Practicum: Diagnosis and Management of the Psychiatric Client for the PMHNP II

Credits: 5

Clinical practicum that allows students to continue to practice and refine competencies in the PMHNP role with multiple and complex psychiatric populations.

A&S College Core 2015 **Course changes effective Fall 2023** - Prerequisite: *NURS 5862 and NURS 5891.*

Prerequisite: NURS 5862, NURS 5883 and NURS 5891.

NURS5864 - Final PSH Practicum

Credits: 6

This final clinical experience provides learners with the opportunity to integrate previous learning from the PMHNP program in the provision of evidence-based health care.

Prerequisite: NURS 5863, NURS 5866, NURS 5892, and NURS 5893.

NURS5880 - Neurobiology & Psychopharm

Credits: 3

The advanced study of neurobiology and psychopharmacology in the treatment of psychiatric disorders across the lifespan. In depth exploration of how the advanced practice psychiatric nurse can utilize pharmacodynamics and pharmacogenetics to inform the clinical decision making in the treatment complex mental illnesses and addiction.

A&S College Core 2015 **Course changes effective Fall 2022** - Name: *Neurobiology and Psychopharmacology*;
Credits: 4 credits; Prerequisite: *NURS 5140 and NURS 5165*.
Prerequisite: NURS 5140.

NURS5881 - Psychotherapy Models and Theories for Advanced Practice Mental Health Nursing

Credits: 3

Utilization of psychotherapy frameworks in the care of individuals, families, and groups. Emphasizing the counseling role and skill development of the advanced practice mental health nurse in the assessment, intervention and evaluation of diverse populations across the lifespan. Issues of ethics, rural practice, and diversity are addressed throughout the course.

A&S College Core 2015 **Course changes effective Fall 2022** - Prerequisite: *NURS 5140 and NURS 5165*.
Prerequisite: NURS 5140.

NURS5882 - Advanced Psychiatric Mental Health Nursing Diagnosis and Management for the Adult, Older Adult, and Vulnerable Populations

Credits: 4

Advanced knowledge of evidence based assessment, diagnosis, treatment, management, and health promotion of adults and aging adults with mental illness. Explore culturally sensitive care among vulnerable populations. Examine the professional, ethical, policy, and practice issues influencing the role of the advanced practice psychiatric nurse.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: *NURS 5824, NURS 5826, NURS 5880, and NURS 5881*.
Prerequisite: NURS 5440, NURS 5830, NURS 5880 and NURS 5881.

NURS5883 - Advanced Psychiatric Mental Health Nursing Diagnosis and Management for the Child and Adolescent

Credits: 4

Evidenced based assessment, diagnosis, treatment and management of mental health disorders in children and adolescence at the individual, family and community level. Theories of family development including behavioral patterns will be assessed using a culturally sensitive lens. Review of psychotherapy, psychopharmacology, psychoeducation, and health promotion as is developmentally appropriate.

A&S College Core 2015 **Course changes effective Spring 2023** - Prerequisite: *NURS 5824, NURS 5826, NURS 5880, and NURS 5881*.
Prerequisite: NURS 5850.

Additional Requirements

Expected Student Learning Outcomes

Graduates will:

1. engage in evidence-based practice to optimize health outcomes;
2. engage in leadership activities to promote excellence in rural health care.

Core Concepts:

- Transformation:

Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.

- Rurality/Frontier

Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.

- Service

Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.

- Comprehensive Global healthcare system perspective

An interconnected and comprehensive global health care system perspective incorporating the following attributes: advocacy, altruism, creativity, ethical conduct, effective communication skills, leadership, problem-solving skills, professionalism, and scholarship.

- Clinical Scholarship

Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Admission

The University of Wyoming must receive complete application materials for the DNP Program by the application deadline to be considered for fall admission (*the entire DNP application process is completed online*). The applicant is responsible to make certain that UW is in receipt of all application materials/ fees. The number of students admitted is limited. Admission is a competitive process and applicants meeting minimum requirements are not guaranteed admission to the program. Admission to the university does not guarantee admission to the DNP program in the School of Nursing.

Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, Admission Criteria & Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for the DNP Program. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP Program Student Handbook - section 6 Scholastic Requirements*).

Curriculum

All DNP students, regardless of concentration will take a set of core courses. In addition to the core courses a group of specialty courses are required for each NP concentration. Students earning the DNP degree will complete a final scholarly project which is integrated into the FMY and PSH curricula.

The DNP core and clinical courses will be delivered using a combination of online courses; synchronous video web-conferencing, and hybrid courses with periodic intensive on-campus experiences. Clinical placements will be arranged at health care facilities in Wyoming, north central Colorado, or southern Montana.

Program of Study

A detailed, semester sequenced DNP-PSH Program of Study can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, DNP, DNP-PSH Program of Study*).

Nursing, M.S., Nurse Educator/Nurse Leader Concentrations

The MS program is a part-time, online degree open to registered nurses with a minimum of a baccalaureate degree in nursing from a program nationally accredited by CCNE or NLNAC. The MS program has two concentrations: 1) Nurse Educator (NE) and 2) Nurse Leader (NL).

MS Core Courses

NURS5472 - Integrated Advanced Pathophysiology, Pharmacology, and Assessment

Credits: 3

Emphasis on the integration of advanced pathophysiology, pharmacology, and assessment in relation to chronic conditions.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5602 , NURS 5604 ; Co-requisite NURS 5605

NURS5473 - Advancing Healthcare Transform

Credits: 2

Max Credit 2

Emphasis on academic/practice partnerships as avenues for addressing population health and related workforce development.

Prerequisite: Admission to the NURS MS program, NURS 5405, NURS 5410

NURS5483 - Practicum: Rural Healthcare Leadership

Credits: 3

Emphasis on the integration of learning through a practicum experience in educational or healthcare leadership.

Prerequisite: Completion of all required MS courses, corequisite NURS 5473.

NURS5601 - Theoretical Foundations Advanced Practice Nursing

Credits: 3

An introduction to the discipline of nursing for graduate nursing students

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5602 - Advanced Nursing Leadership

Credits: 3

Focus on developing advanced nursing leadership skills and attributes for interprofessional collaboration to create viability of the profession and health-related practice environments

Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5603 - Evidence-Based Practice for Advanced Nursing

Credits: 3

Focuses on the use of EBP to solve clinical, educational, and administrative problems in advanced nursing practice.

Prerequisite: Prerequisite: Admission to the MS-NURS or DNP-DNP programs.

NURS5604 - Population and Health Policies

Credits: 3

Emphasis on population health, epidemiology, and health policy related to rural and global health issues.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

NURS5605 - Informatics and Quality Improvement for Advanced Nursing Practice

Credits: 3

Emphasis on theoretical and scientific foundations for quality improvement, safety, and informatics in health care.

Prerequisite: Admission to the MS-NURS or DNP-DNP program.

Nurse Educator Specialty Courses

NURS5452 - Curriculum Development

Credits: 3

Emphasis on the process of developing curricula in nursing educational or healthcare setting to include evaluation of program outcomes.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5605 , NURS 5472 ; Co-requisite of NURS 5462.

NURS5462 - Teaching Methodologies and Evaluation

Credits: 3

Emphasis on evidence-based teaching methodologies, development of course materials, and evaluation of students learning outcomes.

Prerequisite: Admission to MS; NURS 5405; NURS 5410.

Nurse Leader Specialty Courses

NURS5420 - Leadership Within Health Care Systems

Credits: 3

Emphasis on strategic use of systems and outcomes as a foundation for professional leadership development.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5606, NURS 5472.

NURS5461 - Business of Healthcare

Credits: 3

Emphasis on leading and managing entrepreneurial healthcare opportunities.

Prerequisite: Admission to UW's MS Nursing Program; NURS 5605 , NURS 5472

Additional Requirements

Expected Student Learning Outcomes

M.S. Graduate are prepared to ensure better care, better health, and lower costs through their knowledge, skills, and abilities to:

- Demonstrate competence and caring in the advanced professional nurse role to serve Wyoming, the region, and the world in urban, rural, and frontier health care settings as a provider, leader, and/or educator in the health care system.
- Transform rural health through leadership, service, and clinical scholarship that reflects an interconnected and comprehensive global health perspective.
- Demonstrate an advanced understanding of nursing and other sciences and humanities and integrates this knowledge to manage and improve health care across settings

- Synthesize broad organizational, financial, economic, client-centered, and culturally appropriate concepts from nursing and other sciences to address population health.
- Engage in scholarly inquiry and evidence-based practice to lead change for quality outcomes and implement safe health care to diverse populations in a variety of settings.

Core Concepts:

- Transformation:

Transformation includes learning, education, leadership, and nursing as a whole; engaging creativity with theory and evidence-based practice to result in critical reflection and cognitive flexibility.

- Rurality/Frontier

Practice in a low population area where resources and/or access to care are limited and be able to innovate accordingly.

- Service

Providing advanced practice nursing care and services to individuals, families, groups, communities, and populations includes altruism, leadership, decision-making, cooperation, education, listening, problem-solving, person-centered care, fidelity, advocacy, ethical behavior, and practice.

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- Clinical Scholarship

Activities that systematically advance nursing science, including its teaching, research, and practice through rigorous inquiry that 1) is significant to the profession, 2) is creative, 3) can be documented, 4) can be replicated or elaborated, and 5) can be peer-reviewed through various methods and includes discovery, teaching, practice, and integration.

Admission

The University of Wyoming must receive complete application materials for the MS Program by the application deadline to be considered for fall admission (*the entire MS application process is completed online*). The applicant is responsible to make certain that UW is in receipt of all application materials/fees.

Criteria for admission as well as application instructions and deadlines can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, MS, Admission Criteria/Application*).

Scholastic Requirements

University and College of Health Sciences policies governing scholastic requirements (e.g. major changes, probation and dismissal) apply to students enrolled in the School of Nursing. In addition to university/college requirements, the School of Nursing has further scholastic requirements for the MS Program. These requirements can be found on the nursing website: www.uwyo.edu/nursing (*click on Nursing Programs, MS, MS Program Student Handbook - section 6 Scholastic Requirements*).

Curriculum

All MS students, regardless of concentration will take a set of core courses. In addition to the core courses, a group of specialty courses are required for each MS concentration.

Program of Study

A detailed, semester sequenced MS Program of Study can be found on the nursing website: www.uwyo.edu/nursing (click on *Nursing Programs, MS, MS Program of Study*).

School of Pharmacy

292 Health Sciences, (307) 766-6120

FAX: (307) 766-2953

Web site: www.uwyo.edu/Pharmacy

Dean: Kem Krueger

Associate Dean of Students: Tonja Woods

Professor:

SREEJAYAN NAIR, B.S. College of Pharmaceutical Sciences, Manipal, India 1989; M.S. 1991; Ph.D. 1996; Professor of Pharmacology 2014, 2002.

Associate Professors:

JARED S. BUSHMAN, B.A. University of Utah 2003; M.S. University of Rochester 2006; Ph.D. 2008; Assistant Professor of Pharmaceutical Science 2020.

E. KURT DOLENCE, B.S. University of Wyoming 1983; Ph.D. University of Kentucky 1987; Associate Professor of Medicinal Chemistry 2005, 1999.

GUANGLONG HE, B.S. Anhui Normal University 1986; M.S. Chinese Academy of Sciences 1994; Ph.D. 1997; Associate Professor of Medicinal Chemistry 2019, 2013.

KEM P. KRUEGER, Pharm.D. University of Missouri-Kansas City; Ph.D. University of Arizona 1998; Associate Professor of Social and Administrative Pharmacy 2011, 2005.

TRACY D. MAHVAN, B.S. University of Colorado 1995; Pharm.D. 1998; Associate Professor of Pharmacy Practice 2006, 2000.

RESHMI L. SINGH, B.S. Bombay University 1999; M.S. University of Toledo 2001; Ph.D. University of Minnesota 2005; Associate Professor of Social and Administrative Pharmacy 2019, 2013.

Assistant Professors:

MICHELLE BLAKELY, B.A. University of South Alabama 2005; M.Ed. Auburn University 2008; Ph.D. 2011; Assistant Professor of Social and Administrative Pharmacy 2018.

ANNA CLARA BOBADILLA, B.S. Pierre & Marie Curie University 2008; M.S. 2010; Ph.D. 2014; Assistant Professor of Pharmaceutical Sciences 2020.

NERVANA ELKHADRAGY, B.S. Cairo University 2004; Pharm.D. Purdue University 2008; M.S. 2018; Ph.D. 2020. Assistant Professor of Social and Administrative Pharmacy 2020.

KAREN MRUK, B.A. Drew University 2003; Ph.D. University of Massachusetts Medical School 2012; Assistant Professor of Pharmaceutical Science 2018.

Clinical Professor:

MICHELLE L. HILAIRE, Pharm.D. Duquesne University 2002; Clinical Professor of Pharmacy Practice 2016, 2010, 2004.

JAMIE R. HORNECKER, B.S. Texas Tech University 1999; Pharm.D. University of Wyoming 2003; Clinical Professor of Pharmacy Practice 2012, 2005.

Clinical Associate Professors:

LAUREN BIEHLE, Pharm.D. University of Georgia 2010; Clinical Associate Professor 2020.

BECKY S. LINN, B.A. University of Wyoming 1997; Pharm.D. 2002; Clinical Associate Professor 2020.

JANELLE L. KRUEGER, B.S. University of Wyoming 1992; M.S. University of Kansas 1997; Clinical Associate Professor of Pharmacy Practice 2013, 2005.

ALLISON M. MANN, B.S. University of Colorado Boulder 2004; Pharm.D. University of Colorado Denver 2009; Clinical Associate Professor of Pharmacy Practice 2020.

LEENA D. MYRAN, B.S. University of Wyoming 2000; Pharm.D. 2012; Clinical Associate Professor of Pharmacy Practice 2020.

ALIVN OUNG, Pharm.D. MCPHS University 2014; Clinical Associate Professor 2022.

JEREMY VANDIVER, B.A. University of Colorado 2006; Pharm.D. University of Colorado 2010; Clinical Associate Professor 2020.

TONJA M. WOODS, Pharm.D. University of Wyoming 2002; Clinical Associate Professor of Pharmacy Practice 2009, 2003.

Clinical Assistant Professors:

JED DOXTATER, B.S. University of Montana 2006; M.S. University of North Dakota 2013; Clinical Assistant Professor 2015.

JESSICA PAPKE, PharmD, University of Wyoming 2017; Clinical Assistant Professor 2020.

Assistant Lecturers:

ANTOINETTE K. BROWN, B.S. University of Wyoming 1992; Assistant Lecturer 2013.

DAVID C. BRUCH, B.S. University of Wyoming 1998; Pharm.D. 2010; Assistant Lecturer 2012.

CHARLIE P. CRUZ, B.S. Lorma Colleges 1998; M.A. Don Mariano Marcos Memorial State University 2003; M.S. Lyceum of the Philippines University Batangas 2016; Ph.D. Saint Louis College 2014; Assistant Lecturer of Medical Laboratory Science 2016.

Drug Information Director:

MELISSA L. HUNTER, B.S. University of Wyoming 2000; Pharm.D. 2004; Associate Research Scientist 2013, 2007.

Professors Emeriti:

Emery Brunett, Ph.D.
Bruce W. Culver, Ph.D.
Linda Gore Martin, Pharm.D.
Kenneth F. Nelson, Ph.D.
Robert B. Nelson, Ph.D.
Robert D. Scalley, Pharm.D.
Beverly, Sullivan, Pharm.D.
M. Glauca Teixeira, Ph.D.
Weeranuj Yamreudeewong, Pharm.D.

Deans Emeriti:

John H. Vandel, B.S. Pharmacy
Linda Gore Martin, Pharm.D.

Vision, Mission and Values

Vision

The University of Wyoming School of Pharmacy (UWSOP) is nationally recognized for its distinguished and collaborative teaching, research, pharmacy practice, and its entrepreneurial spirit.

Our graduates are highly skilled health professionals and leaders. Our graduates thrive and innovate in diverse and dynamic environments.

Mission

The University of Wyoming School of Pharmacy (UWSOP) advances the holistic development of our learners, preparing them to embrace change and positively impact the health and well-being of the communities that they serve. We engage in interdisciplinary teaching, research, practice, and service that results in meaningful innovations in healthcare, and improves the health and wellness of Wyoming, national, and global communities.

Statement of Values

The University of Wyoming School of Pharmacy community is committed to supporting and promoting individual and collective excellence in teaching, research, service, and pharmacy practice.

We value learning, collaboration, responsibility, compassion, respect, integrity, diversity, equity, and inclusion in all endeavors.

Graduate Expectations

Our graduates will be recognized and respected for:

- Leading positive change in the communities, organizations, industries, and professions that they serve
- Engaging in collaborative opportunities across disciplines and professions
- Providing evidence-based, empathetic, patient-centered care
- Thinking critically, creatively, ethically, and pragmatically
- Thriving and innovating in dynamic, diverse, and digital environments
- Ability to adapt in an ever-changing environment
- Dedication to excellence and integrity
- Communicating effectively across a wide range of audiences
- Embracing an entrepreneurial spirit

Learning Outcomes

The University of Wyoming adheres to the American Association of Colleges of Pharmacy Center for Advancement of Pharmaceutical Education (CAPE) educational outcomes 2013. This multipage document (and its supplements) can be accessed at www.aacp.org. The school has outlined student/curriculum learning outcomes; these are available on the school website.

Student/Faculty Relations

The faculty and staff at the School of Pharmacy treat students as adults and expect appropriate behavior as beginning professionals. The School of Pharmacy recognizes that the profession of pharmacy demands of its members the utmost degree of professional competence, ethical behavior, and integrity. Upon enrolling at the University of Wyoming SOP and at the start of each academic year, all students will sign a pledge acknowledging that they have received and read the current Honor Code and that they have made a personal commitment to uphold the code and abide by its principles. Similarly, the School of Pharmacy Professionalism Policy for faculty and staff is built on the foundation of respect for others, personal responsibility, the creation and maintenance of trust, and honesty and truthfulness. The administration, faculty, staff, students, and alumni of the School of Pharmacy at the University of Wyoming should strive to set an example of ethical leadership and professional behavior as those traits are essential for good social and business interactions.

Accreditation and Membership

In Wyoming, as in most other states, one requirement for examination and registration as a pharmacist is graduation from an accredited entry-level professional program at a school or college of pharmacy. The Accreditation Council for Pharmacy Education (ACPE), the national accrediting agency for pharmacy, accredits pharmacy degree programs.

The Doctor of Pharmacy program at UW was most recently accredited in 2020 following an on-site evaluation by the ACPE in October 2020. Verification of current accreditation status may be made by: a) contacting the Dean's Office, School of Pharmacy; b) connecting to www.uwyo.edu/pharmacy/; c) contacting the Accreditation Council for

Pharmacy Education (190 South LaSalle Street, suite 2850 Chicago IL 60603, (312) 664-3575; cinfo@acpe-accredit.org) or d) by checking the latest Annual Directory of Accredited Professional Programs published by ACPE.

The school is a member of the American Association of Colleges of Pharmacy and adheres to its educational standards.

Preprofessional Program and Requirements

Applicants for the professional program in pharmacy must complete preprofessional requirements before they can be admitted. Usually, two academic years totaling 72 credit hours (which may include summer and J-Term semesters) is required to complete preprofessional requirements.

All preprofessional coursework must be completed by the end of the spring semester prior to matriculation in the professional program.

Graduates of fully accredited high schools may be admitted to the preprofessional program with a math placement score of 3 or an ACT math score of 23.

Early Assurance Program: Students are accepted to the EAP program based on their high school GPA and ACT/SAT scores. High School students can apply to the professional program as they are applying for admission to the University of Wyoming as first-year students.

Preprofessional Pharmacy Program (PPCY)

Students will not receive a degree in prepharmacy. The prepharmacy curriculum guides students as they fulfill requirements for admission to the professional pharmacy degree program.

Required Curriculum

- CHEM1020 - General Chemistry I Credits: 4
- CHEM1030 - General Chemistry II Credits: 4
- LIFE1010 - General Biology Credits: 4
- LIFE2022 - Animal Biology Credits: 4
- MATH2200 - Calculus I Credits: 4
- STAT2050 - Fundamentals of Statistics Credits: 4
- CHEM2420 - Organic Chemistry I Credits: 4
- CHEM2440 - Organic Chemistry II Credits: 4
- KIN2040 - Human Anatomy Credits: 3
- KIN2041 - Human Anatomy Laboratory Credits: 1
- MOLB2021 - General Microbiology Credits: 4
- MOLB3610 - Principles of Biochemistry Credits: 4
- ZOO3115 - Human Systems Physiology Credits: 4
- General Electives (6 credits total)

USP Requirement

The USP-COM 3 requirement is fulfilled in the professional doctoral program.

- FYS-First Year - Seminar Credits: 3
- COM1 - Communication 1 Credits: 3
- COM2 - Communication 2 Credits: 3
- Q- - Quantitative Reasoning Credits: 3
- PN- - Physical and Natural World (1) Credits: 3
- PN- - Physical and Natural World (2) Credits: 3
- H- - Human Culture (1) Credits: 3
- H- - Human Culture (2) Credits: 3
- V- - U.S. & WY Constitution Credits: 3

Professional Doctoral Program

Admission

Admission to the professional program leading to the entry-level Pharm. D. degree is limited to 52 students per year and is highly competitive. Admission is granted by the School of Pharmacy Dean upon the advice of the School of Pharmacy Admissions Committee. Students can apply to the professional program as freshman via the Pharmacy Early Assurance program. All students applying to the UW School of Pharmacy must use the PharmCAS application (www.pharmcas.org) process. All materials (PCAT scores, and Letters of Recommendation) are submitted to UW using this service. The School of Pharmacy requires no supplemental application. Students granted admission to the professional program will have to pay a one-time, non-refundable, seat fee to guarantee their placement into the entering class. In addition students will be required to complete any immunizations necessary for experiential rotations. As part of a College of Health Sciences requirement students are also expected to complete and pass a background check prior to final admission to the professional program.

Students must meet, with or without accommodation, specified requirements. The School of Pharmacy's Technical Standards can be found at http://www.uwyo.edu/pharmacy/_files/documents/admin/uwsop-technical-stds-3-2013.pdf.

The School of Pharmacy provides opportunities to ensure that our students have co-curricular experiences in both our didactic and experiential program. Providing options for students that are co-curricular allows students to choose activities that interest them and will allow them to grow as future health professionals. A portion of co-curricular activities throughout the degree program will be required and assessed.

Students at the University of Wyoming SOP are immersed in interprofessional education opportunities during all years of the professional program. Interprofessional education provides experiences for Pharm.D. students to collaborate and share knowledge with learners in other health sciences disciplines, which fosters readiness for working in team-based care environments in their future careers.

Program of Study

Requirements for Graduation

The degree of Doctor of Pharmacy (Pharm.D.) is granted upon satisfactory completion of 146 hours in the professional curriculum in accordance to the school's academic standards and the fulfillment of the general university requirements. Transfer students who have previous professional pharmacy credits accepted as partial completion of residence work may not earn a degree from this university for less than 30 semester hours of resident credit in the professional program of this School of Pharmacy over a minimum of two resident semesters.

Graduation with Honors

The University of Wyoming School of Pharmacy is authorized to grant honors for academic excellence. A Doctor of Pharmacy with honors designation is awarded by the University of Wyoming to students who graduate with exceptional scholarship in Pharmacy.

Exceptional scholarship in pharmacy is defined as a student who is on track to graduate with their class from the University of Wyoming School of Pharmacy and is in the top 5% of their class based on their pharmacy GPA (as assessed at the end of the fall semester of the P4 year). The Pharmacy GPA is calculated on the basis of required professional pharmacy curriculum coursework and excludes required or selected elective hours. The honors distinction must be approved by a School of Pharmacy faculty vote.

Academic Honesty and Professional Conduct

Students admitted to the professional program are required to participate and sign the University of Wyoming School of Pharmacy Honor Code. Failure to sign the honor code will result in a withdrawal of admission offer or termination from the professional program.

Academic Standards for Progression and Graduation

The course of study in the School of Pharmacy (SOP) is four academic years leading to a Doctor of Pharmacy degree (PharmD). The required professional coursework is organized in a prescribed, non-negotiable, sequential manner. All students have a P-designation identifying their year in the program (P1, P2, P3, P4). Required professional courses (PHCY courses) from any national or international pharmacy programs will not be applied to the UW PharmD degree. The student may petition that coursework to be applied to the program but must replace those credit hours with additional elective courses. Courses taken as S/U, including electives, are usually considered unacceptable in fulfilling program requirements. Auditing courses for the PharmD degree is not allowed.

The academic standards herein described are expected to be followed by all students admitted to the professional program. Any violation will constitute grounds for probation or termination from the professional program and will delay progression towards advanced coursework. Probation is a period of time in which the student is allowed to continue in the program under supervision. Students that do not meet academic standards and are placed on probation will have to submit a petition that includes an individualized plan of study for the next semester. This plan must be developed by the student in agreement with and signed by the academic advisor. The petition will be reviewed by the Student Affairs Committee (SAC), which will send a recommendation to the Dean for approval or denial. A leave of absence may be necessary in cases where poor academic performance is due to a medical or personal hardship. The student may appeal sanctions related to violations of the academic standards and decisions that result in probation and termination in the program. Appeals start at the School level, followed by College and University levels, according to policy.

Academic Standards

1. A grade of D or lower, or course withdrawal, in any required course of the professional program constitutes failure to progress toward the PharmD degree and result in probation.
2. A grade of D or lower, in any elective course of the professional program constitutes failure to progress toward the PharmD degree and result in probation.
3. Students must earn a GPA of 2.000 or better in both University coursework and professional program courses each semester and cumulatively.
4. Students must be considered full time with coursework applicable to the pharmacy degree during each semester while in good standing.
5. Incomplete coursework must be completed prior to progression into the next academic semester and will halt progression in experiential coursework.
6. Students who earn a D or lower in any experiential coursework will have their rotation sequence halted.
7. A course taken in the professional pharmacy program course can be repeated only once.
8. A maximum of three required courses are allowed to be repeated during the degree program.
9. Failure to meet any academic standards for two semesters (not necessarily consecutive) in didactic and/or experiential coursework results in automatic termination from the professional program.
10. Failure of two experiential courses, not necessarily consecutive, results in termination from the professional program.

Elective Credits Policy

The purpose of electives at the School of Pharmacy (SOP) is to complement the pharmacy curriculum, expand knowledge within a specific pharmacy discipline and to ensure completion of the general liberal arts education of the University of Wyoming. Therefore, the following policies have been approved by the faculty for the Doctor of Pharmacy professional program (hereafter, Program).

As published in the University Catalog and SOP students are required to complete a minimum number of electives, specific for the student's year of matriculation into the Program. This number may vary and may be modified as adjustments are made to the professional curriculum to comply with accreditation standards. Students will be made aware of this number during initial orientation into the Program and kept informed of any changes during their stay in the academic program.

Students must take elective courses to satisfy first the requirements of the University Studies Program (hereafter, USP) and then complete the remaining required elective credits as general elective coursework (Program-approved required number of elective hours).

- Students are required to complete all USP requirements even if they exceed the minimum number of elective hours initially defined in their Program in order to graduate from UW.
- Transfer or online courses from other accredited institutions may be honored as elective credits toward the Program. Students are solely responsible to have all transcripts from other schools sent to the University and make sure that the Director of Student Services and advisors are aware of any transfer work in the professional program.
- All required hours (including electives) must be completed by students before progressing into the P4 rotation year. Students will not be allowed to progress toward the 4th year rotations if university studies requirements were not fulfilled.
- Students shall not take electives as Satisfactory/ Unsatisfactory (S/U) credit.
- All courses taken in the preprofessional program or to fulfill requirements in a previous degree cannot be retaken to count as elective hours in the Program. In addition, students cannot use previously taken credit (prior to the professional program) as elective credit in the professional program.
- Credit by exam through the Foreign Languages Dept. will not be accepted as fulfillment of elective requirements in the Program. However, it is a student's right to earn credit by exam for Wyoming History and Government, while receiving elective credits toward the Program and fulfilling USP requirements.

- For procedures and handling of all exceptions to these policies, the students should consult the student handbook, the pharmacy student Share Point site, the SOP website, or check with the Director of Pharmacy Student Services or the Associate Dean of Students.

Curriculum

Pharmacy, Pharm.D.

The School of Pharmacy offers only the four-year curriculum leading to the Doctor of Pharmacy (Pharm.D.) degree. Students admitted to the professional pharmacy program follow a four year program of study leading to the Doctor of Pharmacy Degree. Students complete a total of 146 hours.

In order to keep abreast with changes in pharmaceutical education, the following curriculum is subject to change or modification as required by the accrediting agency. Students should be aware that changes must be expected and they will be included in their academic program. The School of Pharmacy does not plan to change graduation requirements inadvertently, but does reserve the right to change any provisions or requirement deemed necessary at any time within the student's term of residence.

Required Curriculum

- ZOO4125 - Integrative Physiology Credits: 5
- PHCY6100 - Dose Form Design Credits: 4
- PHCY6106 - Pharmaceutical Calculations Credits: 2
- PHCY6110 - Medicinal and Natural Products Chemistry I Credits: 3
- PHCY6140 - Introduction to Social Administrative Pharmacy Credits: 2
- PHCY6160 - Pharmacist Skills I Credits: 1
- PHCY6102 - Biopharmaceutics and Pharmacokinetics Credits: 4
- PHCY6111 - Medicinal and Natural Products Chemistry II Credits: 3
- PHCY6120 - Advanced Pathophysiology Credits: 3
- PHCY6151 - Pharmacy Practice Credits: 2
- PHCY6152 - Therapeutics I Credits: 3
- PHCY6161 - Pharmacist Skills II Credits: 1
- PHCY6170 - Introductory Pharmacy Practice Experience-IPPE1 Credits: 1
- PHCY6480 - Introduction to Community Pharmacy Practice Credits: 4
- PHCY6482 - Introduction to Hospital Pharmacy Practice Credits: 4
- PHCY6215 - Medicinal and Natural Products Chemistry III Credits: 3
- PHCY6230 - Pharmacology I Credits: 4
- PHCY 6230 - Pharmacology I Discussion Credits: 0
- PHCY6240 - Research and Evaluation Methods in Pharmacy Credits: 3
- PHCY6245 - Patient/Professional Interactions Credits: 3
- PHCY6260 - Pharmacist Skills III Credits: 1
- PHCY6231 - Pharmacology II Credits: 4
- PHCY 6231 - Pharmacology II Discussion Credits: 0
- PHCY6246 - Pharmacy Management, Marketing and Finance Credits: 3

- PHCY6251 - Therapeutics II Credits: 3
- PHCY6261 - Pharmacist Skills IV Credits: 2
- PHCY6270 - Intermediate Pharmacy Practice Experience-IPPE2 Credits: 1
- PHCY6312 - Clinical Toxicology Credits: 3
- PHCY6341 - Pharmacy Practice Law Credits: 3
- PHCY6344 - Pharmacy Ethics Credits: 1
- PHCY6350 - Therapeutics III Credits: 4
- PHCY6357 - Clinical Pharmacokinetics Credits: 2
- PHCY6360 - Pharmacist Skills V Credits: 1
- PHCY6300 - Sterile Products Credits: 2
- PHCY6301 - Sterile Products Laboratory Credits: 1
- PHCY6340 - Health Care Policy and Advocacy Credits: 2
- PHCY6351 - Therapeutics IV Credits: 4
- PHCY6353 - Drug Literature Application Credits: 2
- PHCY6361 - Pharmacist Skills VI Credits: 2
- PHCY6370 - Advanced Pharmacy Practice Experience-IPPE3 Credits: 2
- PHCY6485 - Reflective Learning in Pharmacy Credits: 1
- Students complete 3 sections of PHCY 6485, 1 credit each.

- PHCY6470 - Internal Medicine I Credits: 4
- PHCY6473 - Ambulatory Pharmaceutical Care Credits: 4
- (Students complete a second semester of either Internal Medicine or Ambulatory Care)

- PHCY6471 - Internal Medicine II Credits: 4
- PHCY6474 - Ambulatory Pharmacy Care II Credits: 4
- PHCY6481 - Advanced Community Pharmacy Credits: 4
- PHCY6483 - Advanced Institutional Pharmacy Credits: 4
- PHCY6465 - Elective Rotation In: Credits: 4
- Students complete 4 sections of PHCY 6465, 4 credits each.

- Students complete 7 hours of electives during the P1-P3 year.

Total Hours 146

Fourth Year [PH4]:

Consists of nine experiential rotations of four credit hours each and three reflective learning weeks. Rotations are considered full-time. Students may not enroll in any other coursework concurrent with rotations. Consequently, all other coursework (107 credits) must be satisfactorily completed before enrollment in P4 coursework. Note: Students will be required to live in locations other than Laramie when enrolled in experiential rotations. Responsibility for living cost and travel arrangements associated with experimental rotations rests with the student. Students participating in all experimental activities will be required to have a vehicle or an acceptable approved alternative.

Students must complete the following Core or Required Experiential Rotations (subject to change):

- PHCY6470 - Internal Medicine I Credits: 4
- PHCY6473 - Ambulatory Pharmaceutical Care Credits: 4
- PHCY6471 - Internal Medicine II Credits: 4

- or
- PHCY6474 - Ambulatory Pharmacy Care II Credits: 4
- PHCY6481 - Advanced Community Pharmacy Credits: 4
- PHCY6483 - Advanced Institutional Pharmacy Credits: 4
- Plus 4 Elective Rotations (PHCY 6465)

Graduate Study

The School of Pharmacy offers the Master of Science in Health Services Administration and the Master of Business Administration/Doctor of Pharmacy (M.B.A./Pharm.D.) dual degree.

Health Services Administration, M.S.

The School of Pharmacy offers a Master of Science online degree in health services administration (MSHSA).

Specialty Tracks

All students select one specialty track.

Biopharmaceutical Regulatory Compliance Group Specialty Listings

Specialty Tracks through the Biopharmaceutical Regulatory Compliance Group

- o Biopharmaceutical Regulatory Compliance
- o Healthcare Risk Management
- o Forensic Pharmacy
- o Healthcare Policy Analysis
- o Biopharmaceutical Product Representation
- o Clinical Research Administration
- o Patient Safety Systems
- o Healthcare Security Systems
- o Healthcare Ethics & Equity

Health Institution Leadership Group Specialty Listings

Specialty Tracks through the Health Institution Leadership Group

- o Health Institution Leadership
- o Health Economics & Outcomes
- o Healthcare Quality & Improvement
- o Rural Healthcare Coordination
- o Geriatric Care Systems

- o Healthcare Entrepreneurism
- o Healthcare Financing
- o Health Information Technology
- o Healthcare Writing and Reporting

Biopharmaceutical Regulatory Compliance Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks.

- PHCY5040 - The Evolution of American Health Credits: 2
- PHCY5042 - Statistics for Health Services Credits: 3
- PHCY5043 - Empirical Analysis for Health Services Administration Credits: 3
- PHCY5045 - Health Services Administration Applied Research Credits: 1-4
- PHCY5046 - Health Services Administration Seminar1 Credits: 1
- PHCY5041 - Health Services Administration Research Methods Credits: 2
- Sub-Total Program Required Coursework: 15 credit hours

Biopharmaceutical Regulation & Compliance Track

The following tables provides a list of required courses for the track listed

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5242 - The Food and Drug Administration Credits: 2
- PHCY5243 - The Drug Enforcement Administration Credits: 2
- PHCY5244 - State Regulations of Health Professions Credits: 2
- Specialty Track Electives (choose 6 hours)

Healthcare Risk Management Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5342 - Healthcare Risk and Quality Credits: 3
- PHCY5670 - Medication Malpractice Credits: 2
- PHCY5240 - Pharmaceutical Homicide Credits: 2
- Specialty Track Electives (Choose 6 hours)

Forensic Pharmacy Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5240 - Pharmaceutical Homicide Credits: 2
- PHCY 5XXX The Chemistry of Poisonings 2 Credits

PHCY 5XXX Thr Process of Forensic Science 2 Credits

Specialty Track Electives (choose 6 hours)

Healthcare Policy Analysis Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5047 - Pandemic Preparedness Policy Credits: 2
- PHCY5148 - Health Economics and Policy Credits: 2
- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5246 - Prescription Drug Costs Credits: 2
-

Biopharmaceutical Product Representation Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY5541 - Introduction to Biopharmaceutical Marketing and Production Credits: 3
- Specialty Track Electives (choose 6 hours)

Clinical Research Administration Track

Specialty Track Required Coursework (10 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5242 - The Food and Drug Administration Credits: 2
- PHCY 5XXX Biomedical Ethics 3 Credits

PHCY 5XXX Clinical Research Regulation 2 Credits

Specialty Track Electives (choose 5 hours from list)

Patient Safety Systems Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5341 - Principles of Healthcare Quality Credits: 3

- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 6 hours)

Healthcare Security Systems Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY 5XXX Cybersecurity 2 Credits

PHCY 5XXX HIPPA Compliance 2 Credits

PHCY 5XXX Disaster Management 2 Credits

Specialty Track Electives (choose 6 hours)

Healthcare Ethics & Equity Track

Specialty Track Required Coursework (10 Credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY 5XXX Biomedical Ethics 3 Credits

PHCY 5XXX HIPAA Compliance 2 Credits

PHCY 5XXX Clinical Research Regulation 2 Credits

Specialty Track Electives (choose 5 hours)

Health Institution Leadership Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks

- PHCY5040 - The Evolution of American Health Credits: 2
- PHCY5041 - Health Services Administration Research Methods Credits: 2
- PHCY5042 - Statistics for Health Services Credits: 3
- PHCY5043 - Empirical Analysis for Health Services Administration Credits: 3
- PHCY5045 - Health Services Administration Applied Research Credits: 1-4
- PHCY5046 - Health Services Administration Seminar1 Credits: 1
- Sub-Total Program Required Coursework: 15 Hours

Health Institution Leadership Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY5442 - Healthcare Financial Planning Credits: 2
- PHCY5443 - Healthcare Human Capital Plan Credits: 2
- PHCY5444 - Healthcare Strategic Innovation Credits: 2
- Specialty Track Electives (choose 6 hours)

Health Economics and Outcomes

Specialty Track Required Coursework (10 credit hours)

- PHCY5141 - Principles of Health Econ and Outcomes Credits: 3
- PHCY5142 - Health Economic Decision Analysis Credits: 2
- PHCY5143 - Comparative Effectiveness Research Credits: 2
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (Choose 5 hours)

Healthcare Quality & Outcomes Track

Specialty Track Required Coursework (8 credit hours)

- PHCY5341 - Principles of Healthcare Quality Credits: 3
- PHCY5342 - Healthcare Risk and Quality Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 7 hours)

Rural Healthcare Coordination Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5141 - Principles of Health Econ and Outcomes Credits: 3
- PHCY5341 - Principles of Healthcare Quality Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 6 hours)

Geriatric Care Systems Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5341 - Principles of Healthcare Quality Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 6 hours)

Healthcare Entrepreneurism Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance Credits: 3
- PHCY5541 - Introduction to Biopharmaceutical Marketing and Production Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- Specialty Track Electives (choose 6 hours)

Healthcare Financing Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5141 - Principles of Health Econ and Outcomes Credits: 3
- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY5541 - Introduction to Biopharmaceutical Marketing and Production Credits: 3
- Specialty Track Electives (choose 6 hours)

Health Information Technology Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY 5XXX Information Design and Analysis 2 Credits

PHCY 5XXX Healthcare Information Systems 2 Credits

PHCY 5XXX Information Management 2 Credits

Specialty Track Electives (choose 6 hours from list)

Healthcare Writing & Reporting Track

Specialty Track Required Coursework (9 credit hours)

- PHCY5441 - Introduction to Health Leadership Credits: 3
- PHCY 5XXX Professional Writing in Healthcare 2 Credits

PHCY 5XXX Health Data in Figures, Tables & Graphs 2 Credits

PHCY 5XXX The Healthcare Message 2 Credits

Specialty Track Electives (choose 6 hours)

Additional Notes

NOTE: Specialty track electives can be any course provided in the MSHSA program.

Please consult with the program director if you have questions on the electives to choose for a specific track.

Those course numbers with PHCYXXXX are currently being built or waiting on approval from the University. Please contact the MS HSA program for questions.

Additional Requirements

This degree is geared toward new and mid-career practitioners including pharmacists, nurses, physicians, social workers, and other health care professionals who want to become department directors, patient safety coordinators and/or directors, regulatory compliance officers, clinical research associates, health outcomes researchers or take on leadership roles as advanced practice practitioners.

The program also benefits health care workers in fields such as management positions, pharmaceutical sales representatives, medical science liaisons, and pharmacy technician educators as well as new clinical faculty at newly established pharmacy colleges.

Available nationwide the master's program is delivered via a mix of online self-study and online project-based coursework.

The program can be completed in two years of part-time study. Students are requested to travel to the UW Laramie campus for two weekend seminars during the two-year program (based on travel restrictions during the pandemic this course was held online). Graduates will be expected to complete 30 credit hours of coursework and pass a comprehensive final exam. Coursework will be completed over five consecutive semesters however students can take up to 6 years to complete the program.

A prospective student should have earned at least a bachelor's degree from a regionally accredited institution. To find out more about the application process please see the following website www.uwyo.edu/pharmacy/online-ms-program or contact the Student Services Office.

Medical Laboratory Science

Aley Hall, UW-Casper, (307) 268-2753

FAX: (307) 268-2416

Web site: www.uwyo.edu/pharmacy/mls-program/index.html

Director: Jed M. Doxtater, MS MLS (ASCP)^{CM}

Assistant Clinical Faculty:

JED M. DOXTATER, B.S. University of Montana 2007; M.S. University of North Dakota 2013; Assistant Clinical Faculty of Medical Laboratory Science 2015.

Assistant Lecturer

CHARLIE P. CRUZ, B.S. Lorma Colleges 1998; M.A. Don Mariano Marcos Memorial State University 2003; M.S. Lyceum of the Philippines University Batangas 2016; Ph.D. Saint Louis College 2014; Assistant Lecturer of Medical Laboratory Science 2016.

Mission and Goals

The mission of the Bachelor of Science in Medical Laboratory Science program at the University of Wyoming-Casper is to educate, train, and produce highly competent, ethical professionals who are committed to lifelong learning. Curriculum is designed to prepare students to meet current and future workplace challenges and technological advancements in the profession.

Program Goals

1. Provide education in accordance with the National Accrediting Agency for clinical Laboratory Sciences (NAACLS) standards for Medical Laboratory Science programs.
2. Provide students with adequate knowledge and background experience to successfully complete the national certification examination appropriate to their level of training.
3. Provide opportunity for students to develop skills in effective communication sufficient to serve the needs of patients, public, and other healthcare professionals.
4. Graduate well qualified Medical Laboratory Scientists who can function at a career entry level, and are prepared to meet the workforce needs of the state of Wyoming and the nation.
5. Provide students with professional role models so that they may develop and practice professional behaviors, attitudes and ethics necessary to work in, and promote the field of Medical Laboratory Science.
6. Periodically undergo program review to meet the diverse educational needs of students, accreditation standards and industry demands for qualified, skilled entry level practitioners.
7. Establish an advisory board of professionals, community partners and stakeholders for program development, evaluation and improvement.
8. Promote membership and active participation in professional societies.

Outcomes

Description of Entry Level Competencies of the Medical Laboratory Scientist

At entry level, the medical laboratory scientist will possess the entry level competencies necessary to perform the full range of clinical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology/Transfusion medicine, Microbiology, Urine and Body Fluid Analysis and Laboratory Operations, and other emerging diagnostics, and will play a role in the development and evaluation of test systems and interpretive algorithms.

The medical laboratory scientist will have diverse responsibilities in areas of analysis and clinical decision making, regulatory compliance with applicable regulations, education, and quality assurance/performance improvement wherever laboratory testing is researched, developed or performed.

At entry level, the medical laboratory scientist will have the following basic knowledge and skills in:

- Application of safety and governmental regulations and standards as applied to clinical laboratory science;
- Principles and practices of professional conduct and the significance of continuing professional development;
- Communications sufficient to serve the needs of patients, the public and members of the health care team;
- Principles and practices of administration and supervision as applied to clinical laboratory science;
- Educational methodologies and terminology sufficient to train/educate users and providers of laboratory services;
- Principles and practices of clinical study design, implementation and dissemination of results;
- Theoretical knowledge and technical skills of concepts relating to all content areas required by NAACLS, including Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology, Microbiology, Urine and Body Fluid Analysis, Laboratory Operations and biohazard and safety.

Accreditation

The Medical Laboratory Science Program at the University of Wyoming is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Accreditation is a process of external peer review in which an agency grants public recognition to a program of study or an institution that meets established qualification and educational standards. Participation in the accreditation process is voluntary since there is not a legal requirement for specialized programs and institutions to participate. However, when students complete a NAACLS accredited program they become eligible to sit for national certification examinations for the profession.

The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) is a nonprofit organization that independently accredits medical technologist (MLS), clinical laboratory technician/medical laboratory technician (CLT/MLT), histotechnologist (HTL), histologic technician (HT), pathologists' assistant (Path Asst), diagnostic molecular scientist (DMS) and cytogenetic technology (CT), Phlebotomist (PBT), and clinical assistant (CA) educational programs.

Contract information:

National Accrediting Agency for Clinical Laboratory Sciences, 5600 North River Road, Suite 720, Rosemont, IL 60018-5119

<http://www.nacls.org>

Prerequisites for Admission to the MLS Professional Program

Students must meet the following minimum criteria to be considered for Admitted Major status:

- Completion of the Casper College A.S. degree in MLT within 5 years or B.S. degree in a related science.
- Minimum grade point average (GPA) of 2.000 on all course work transferred into the University of Wyoming at Casper from other academic institutions.
- Successful completion of the Medical Laboratory Technician BOC exam is preferred. Students that have not completed the BOC may be admitted with MLS program directors approval.
- Students admitted to the program that do not hold an A.S. in MLT or a B.S. in a related science may be required to complete the University of Wyoming University Studies program in addition to the basic requirements for the Bachelor of Science in Medical Laboratory Science degree. See the current requirements at <http://www.uwyo.edu/unst/>

Applying for Admission to MLS Professional Program

Students may enter the MLS professional program in the fall or spring semester of their junior year. Application for the program must be submitted to the MLS program director before finals week of the first semester the student has declared the MLS major and is enrolled in a MLS course.

Prior to participating in the enrichment experiences, students will be subject to that agency's requirements for a background check, drug testing and/or drug abuse prevention policies. Students are then subject to the random drug testing policy of that agency. These background checks are routinely required by schools, hospitals, and other agencies that participate in on-site training. Background check should be obtained from Viewpoint screening (<https://www.viewpointscreening.com/uwyo>). The Casper College MLT background check is a valid substitute if final semester of MLS program falls within 1 year of check.

After completion and submission of the program application, the student must schedule an interview with the program director for an evaluation for acceptance to the MLS program. Interviews must be completed before the student enrolls in the succeeding semester of coursework. It is the students' responsibility to complete and submit applications, and to schedule an interview with the MLS program director by the due dates.

Students are required to complete an observational enrichment experience during the final MLS semester. This observational experience is designed to demonstrate advanced concepts and topics presented in the MLS curriculum, in a practical setting.

The MLS program will provide documentation requirements, as each site may have different requirements for participation (e.g. vaccination records, HIPPA training, safety training, background check/drug screen etc.). If a student finds an appropriate observational enrichment experience outside of the opportunities available through the MLS program, the student must communicate the site to the MLS program director for approval. It will be the responsibility of the student to arrange the experience with the appropriate site personnel/HR, and program director to ensure all required documentation is provided.

Liability insurance will be required for students entering their senior year coursework. Liability insurance is provided through the University of Wyoming at a cost of \$13.00/year to the student.

Health Requirements: The student must provide proof of health insurance and Hepatitis B vaccination (or declination) to participate in on-campus student laboratory sessions. Hepatitis B vaccinations are available on the UW-C campus at student health, or at the county health department for a small fee. Other health records may be required to participate in enrichment activities including MMR, Tetanus, drug screen, and background check/drug screen.

Essential Functions

Applicants must meet certain essential functions as defined by NAACLS. If you feel that you do not meet these essential functions, careful consideration should be made and advisement received before entering the MLS Program. Essential functions are the abilities and essential functions that a student must be able to perform to be successful in the learning experiences and completion of the program.

Observational Requirements

The MLS student must be able to:

- Observe laboratory demonstrations in which biologicals are tested for their biochemical, hematological, immunological, microbiological, and histochemical components.
- Characterize the color, odor, clarity, and viscosity of biologicals, reagents or chemical reaction products.
- Employ a clinical grade binocular microscope to discriminate among the structural and color (hue, shading, and intensity) differences of microscopic specimens.
- Read and comprehend text, numbers, and graphs displayed in print and on a video monitor.

Movement Requirements

The MLS student must be able to:

- Move freely and safely about a laboratory.
- Reach laboratory bench-tops and shelves, patients lying in hospital beds or patients seated in specimen collection furniture.
- Travel to numerous clinical laboratory sites for practical experience.
- Perform moderately taxing continuous physical work, often requiring prolonged sitting, over several hours.
- Maneuver phlebotomy and culture acquisition equipment to safely collect valid laboratory specimens from patients.
- Control laboratory equipment (i.e., pipettes, inoculating loops, test tubes) and adjust instruments to perform laboratory procedures.
- Use an electronic keyboard to operate laboratory instruments and to calculate, record, evaluate, and transmit laboratory information.
- Perform fine hand manipulations with dexterity.

Communication Requirements

The MLS student must be able to:

- Read and comprehend technical and professional materials.
- Follow verbal and written instructions in order to correctly and independently perform laboratory test procedures.
- Clearly instruct patients prior to specimen collection.
- Effectively, confidentially and sensitively converse with patients regarding laboratory tests.
- Communicate with faculty members, fellow students, staff, and other health care professionals verbally and in a recorded format.
- Independently prepare papers, prepare laboratory reports, and take paper, computer, and laboratory practical examinations.

Behavioral Requirements

The MLS student must:

- Be able to manage the use of time and be able to systematize actions in order to complete professional and technical tasks within realistic constraints.
- Possess the emotional health necessary to effectively employ intellect and exercise appropriate judgment.
- Be able to provide professional and technical services while experiencing the stresses of task-related uncertainty and a distracting environment.
- Be flexible and creative and adapt to professional and technical change.
- Recognize potentially hazardous materials, equipment, and situation and proceed safely in order to minimize risk of injury to patients, self, and nearby individuals.
- Adapt to working with unpleasant biologicals.
- Support and promote the activities of fellow students and of health care professionals.
- Realize that the promotion of peers helps furnish a team approach to learning, task completion, problem solving and patient care.
- Be honest, compassionate, ethical and responsible.

Request for Accommodation

All students are held to the same academic and technical standards. Applicants/students with disabilities seeking accommodation must discuss their disability and accommodation needs with the University Disability Support Services (udss@uwyo.edu or (307) 766-6189; TTY: (307) 766-3073). If appropriate and upon request and registration of the applicant, a reasonable accommodation will be made consistent with University of Wyoming guidelines.

Medical Laboratory Science, B.S.

A degree in Medical Laboratory Science prepares healthcare professionals to perform clinical diagnostic testing in the areas of microbiology, hematology, chemistry, immunohematology, urinalysis, serology, and molecular biology.

USP - University Studies Program Requirements

Completion of all University Studies Program requirements is necessary to obtain a bachelors degree from the University of Wyoming. These requirements may be covered by the Medical Laboratory Technician Associates degree at Casper College. Please work with your advisor to ensure these requirements are fulfilled.

- FYS-First Year - Seminar Credits: 3
- COM1 - Communication 1 Credits: 3
- COM2 - Communication 2 Credits: 3
- COM3 - Communication 3 Credits: 3
- Q- - Quantitative Reasoning Credits: 3
- PN- - Physical and Natural World (1) Credits: 3
- PN- - Physical and Natural World (2) Credits: 3
- H- - Human Culture (1) Credits: 3
- H- - Human Culture (2) Credits: 3

Casper College Requirements

MLTK and PEAC courses are available through an articulation agreement with Casper College **and can be taken only through Casper College**. Students are responsible for fulfilling all University Studies requirements. The articulation agreement, with a proposed semester-by-semester sequence, is available at:

<http://www.uwyo.edu/TRANSFER/articulation/agreements/medical-laboratory-science.html>

- MATH1400 - College Algebra Credits: 3 (Meets Quantitative USP requirement) 4 credits at Casper College
- MICR2021 - General Microbiology Credits: 4
- **OR** MOLB 2021 General Microbiology (Casper College equivalent: MOLB 2210)
- SOC1000 - Sociological Principles Credits: 3 OR ANTH 1200 Introduction to Cultural Anthropology
- ENGL1010 - College Composition and Rhetoric Credits: 3 (Meets Communication I USP requirement)
- LIFE1010 - General Biology Credits: 4 (Meets Physical and Natural World USP requirement; Casper College equivalent: BIOL 1010)
- ENGL2005 - Writing in Technology and the Sciences Credits: 3 (Meets Communication II USP requirement)
- POLS1000 - American and Wyoming Government Credits: 3 (Meets U.S. and Wyoming Constitution USP requirement)
- CHEM1020 - General Chemistry I Credits: 4 (Meets Physical and Natural World USP requirement; Casper College equivalent: CHEM 1025 & CHEM 1028)
- PEAC xxxx: Online Activity Credits: 1
- CMAP 1505 Introduction to Computers Credits: 1
- Elective Credits: 3
- MLTK 1500 - Hematology Credits: 3
- MLTK 1600 - Clinical Immunohematology Credits: 3
- MLTK 1700 - Microscopy: UA Body Fluids Credits: 2
- MLTK 2600 - Clinical Microbiology I Credits: 2
- MLTK 2500 - Clinical Chemistry Credits: 3
- MLTK 2650 - Clinical Microbiology II Credits: 2
- MLTK 2700 - Immunology Credits: 4
- MLTK 2971 - Clinical Practicum: Hematology Credits: 2
- MLTK 2972 - Clinical Practicum: Chemistry Credits: 2
- MLTK 2973 - Clinical Practicum: Immunohematology Credits: 2
- MLTK 2974 - Clinical Practicum: Microbiology Credits: 2
- MLTK 2976 - Clinical Practicum: Serology Credits: 1
- MLTK 2977 - Clinical Practicum: UA / Body Fluids Credits: 1
- MLTK 2978 - MLT Professionalism Credits: 1
- MLTK 2800 - Clinical Pathophysiology Credits: 4

- MLTK 1800 - Principles of Phlebotomy Credits: 3

University of Wyoming Requirements

Upper-division courses required to complete the Bachelor of Science in Medical Laboratory Science (**All MLSK courses are only available through UW-Casper.**):

- CHEM1030 - General Chemistry II Credits: 4
- CHEM2300 - Introductory Organic Chemistry Credits: 4
- LIFE3050 - Genetics Credits: 4
- LIFE3600 - Cell Biology Credits: 4
- STAT2050 - Fundamentals of Statistics Credits: 4
- MOLB3000 - Introduction to Molecular Biology Credits: 3
- MOLB3610 - Principles of Biochemistry Credits: 4
- MLSK4840 - Laboratory Education Methodology Credits: 1
- MLSK4850 - Clinical Research Design Credits: 2
- MLSK4860 - Laboratory Management Credits: 3 (Meets Communication III USP requirement)
- MLSK4870 - Advanced Clinical Chemistry Credits: 4
- MLSK4880 - Advanced Hematology: Erythrocytes Credits: 2
- MLSK4981 - Advanced Clinical Practicum-Hematology Credits: 3
- MLSK4982 - Advanced Clinical Practicum-Molecular Credits: 3
- MLSK4983 - Advanced Clinical Practicum-Immunohematology Credits: 3
- MLSK4984 - Advanced Clinical Practicum- Microbiology Credits: 3
- MLSK4890 - Professional Career Paths and Review Credits: 2
- Upper-division elective credits: 1 (see below, consult your academic advisor)

Upper Division Elective Credit Hours

One upper division elective credit hour must be completed in the student's junior or senior year to meet the total 42 required upper division credits to graduate. Students may take a three credit class to meet this requirement.

These credits must be 3000 and above, and achieved through online outreach or on campus courses. A list of courses that are acceptable to fulfil this requirement can be made available to the student. If a course is in question, it is highly suggested to the student to contact the UW-C advising department or the MLS program director for requirement fulfillment confirmation.

Enrichment Rotations and Laboratory Sessions

The final semester of the student's senior year is comprised of didactic material being delivered in an online hybrid manner, supplemented with on campus lab sessions at the UW-Casper campus. These lab sessions will be accompanied by an observational enrichment rotation at a clinical site. This enrichment rotation will allow for the observation of advanced methodologies in a practical environment. It will be the students' responsibility for all travel and housing costs associated with the advanced clinical practicum courses.

Probation

Students who do not meet the minimum grade requirements stated above for MLSK course work will be placed on probation. In this period of time, students will be allowed to continue in the program under supervision, but will submit a petition which is an individualized plan of study for the next semester that is developed by the student in agreement with and signed by an academic advisor. All completed MLSK courses that fail to meet minimum grade requirements (C or 2.000 or better) must be repeated by the student. Students shall not be allowed to progress to the final semester until all courses in the previous semesters are successfully completed and a GPA of 2.000 is obtained.

Additional Requirements

The program requires 124 credit hours total, with 54 credit hours obtained in the junior/senior years to graduate. Students must complete a minimum of 42 upper division hours, 30 of which must be earned from the University of Wyoming.

Prerequisite for admission to the Medical Laboratory Sciences degree is completion of the Medical Laboratory Technician program at Casper College, or another accredited MLT program. Students interested in the MLS degree who already hold a bachelors degree should contact program director Jed Doxtater at jdoxtate@uwyo.edu.

Major

Medical Laboratory Science, B.S.

A degree in Medical Laboratory Science prepares healthcare professionals to perform clinical diagnostic testing in the areas of microbiology, hematology, chemistry, immunohematology, urinalysis, serology, and molecular biology.

USP - University Studies Program Requirements

Completion of all University Studies Program requirements is necessary to obtain a bachelors degree from the University of Wyoming. These requirements may be covered by the Medical Laboratory Technician Associates degree at Casper College. Please work with your advisor to ensure these requirements are fulfilled.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

Casper College Requirements

MLTK and PEAC courses are available through an articulation agreement with Casper College **and can be taken only through Casper College**. Students are responsible for fulfilling all University Studies requirements. The articulation agreement, with a proposed semester-by-semester sequence, is available at:

<http://www.uwyo.edu/TRANSFER/articulation/agreements/medical-laboratory-science.html>

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR MOLB 2021 General Microbiology (Casper College equivalent: MOLB 2210)

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a

range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

- PEAC xxxx: Online Activity Credits: 1
- CMAP 1505 Introduction to Computers Credits: 1
- Elective Credits: 3
- MLTK 1500 - Hematology Credits: 3
- MLTK 1600 - Clinical Immunohematology Credits: 3
- MLTK 1700 - Microscopy: UA Body Fluids Credits: 2
- MLTK 2600 - Clinical Microbiology I Credits: 2
- MLTK 2500 - Clinical Chemistry Credits: 3
- MLTK 2650 - Clinical Microbiology II Credits: 2
- MLTK 2700 - Immunology Credits: 4
- MLTK 2971 - Clinical Practicum: Hematology Credits: 2
- MLTK 2972 - Clinical Practicum: Chemistry Credits: 2
- MLTK 2973 - Clinical Practicum: Immunohematology Credits: 2
- MLTK 2974 - Clinical Practicum: Microbiology Credits: 2
- MLTK 2976 - Clinical Practicum: Serology Credits: 1
- MLTK 2977 - Clinical Practicum: UA / Body Fluids Credits: 1
- MLTK 2978 - MLT Professionalism Credits: 1
- MLTK 2800 - Clinical Pathophysiology Credits: 4
- MLTK 1800 - Principles of Phlebotomy Credits: 3

University of Wyoming Requirements

Upper-division courses required to complete the Bachelor of Science in Medical Laboratory Science (**All MLSK courses are only available through UW-Casper.**):

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

CHEM2300 - Introductory Organic Chemistry

Credits: 4

Terminal course in organic and beginning biological chemistry. No credit will be allowed in CHEM 2300 if credit earned in CHEM 2420. This course is not an acceptable prerequisite for CHEM 2440.

When Offered (Normally offered spring semester)

Prerequisite: CHEM 1020, CHEM 1050, CHEM 1000 or equivalent.

LIFE3050 - Genetics

Credits: 4

Introduces principles of heredity and variation in living organisms, including a study of the nature of the genetic material and its transmission, influence of heredity and environment on the development of individual characters, as well as evolution of organisms and artificial selection of plant and animal varieties. Emphasizes application to today's society.

Former Course Number [BIOL 3050/BIOL 4000]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3600 - Cell Biology

Credits: 4

Focuses on cell structure, cell function and the regulation of cell processes. Examines many levels of organization, ranging from single molecules and individual cells to multi-cellular systems and the whole organism. Discussion section is required.

Former Course Number [BIOL 3600/ BIOL 4600]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

MOLB3000 - Introduction to Molecular Biology

Credits: 3

An introduction to molecular biological processes governing cellular events is presented in the context of the structure of genomes, genes and chromosomes, DNA replication, gene expression, signal transduction pathways and the

regulation of cellular processes in disease and development. Experimental methods and technologies will also be discussed.

Prerequisite: LIFE 1010 and CHEM 1030; MOLB 2021 or MICR 2021 recommended.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

MLSK4840 - Laboratory Education Methodology

Credits: 1

This course provides an overview of education methodology and issues related to roles as educators in the clinical laboratory profession. Course topics and assignments include pedagogy, curriculum design, assessment and accreditation. Major educational responsibilities for clinical laboratory professionals relating to continuing education, competency assurance, certification and licensure will be addressed.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4850 - Clinical Research Design

Credits: 2

A course in research design methods commonly used in clinical research. Emphasis is on research design, process, measurement, regulatory issues, and ethics, as used by investigators. The focus is to equip students with knowledge and skills necessary to critically examine professional literature, methodology and ethical considerations that influence research design.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4860 - Laboratory Management

Credits: 3

This course introduces students to laboratory management systems, testing, reimbursement, accrediting/regulatory issues, finances, information systems, QA/QC improvement and supervisory roles in the clinical laboratory. Emphasis is on management and communication skills needed to work successfully as entry-level professionals in a health care setting.

USP 2015 Code U5C3

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4870 - Advanced Clinical Chemistry

Credits: 4

This course is designed to introduce students to advanced topics in clinical chemistry in relation to instrumentation, diagnostic testing and its correlation to disease states, and method correlation and validation. Students will demonstrate the ability to describe principles and applications required for the entry level laboratory scientist.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

MLSK4880 - Advanced Hematology: Erythrocytes

Credits: 2

Advanced hematology principles and techniques prepare students for practice in the clinical laboratory. This course will focus on advanced topics of hematology, focusing on normal and abnormal erythrocytes in relation to assessment, and disease correlation.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

MLSK4981 - Advanced Clinical Practicum-Hematology

Credits: 3

Advanced hematology principles and techniques prepare students for practice in the clinical laboratory. Topics include leukopoiesis, leukemias, lymphomas, hemostasis, coagulopathies, urinalysis and body fluids. Laboratory will focus on abnormal smears, normal and leukemic bone marrow evaluations, and coagulation mixing studies, factor assays and body fluids related to clinical disease states.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4982 - Advanced Clinical Practicum-Molecular

Credits: 3

Principles of molecular technology used in clinical laboratories. Laboratory experiences include cytogenetics, nucleic acid extraction, hybridization, detection, amplification, sequencing, microarrays, and in-situ hybridization. Emphasis is on the areas of the clinical laboratory that use molecular techniques related to genetics, oncology, infectious disease, and identity testing for forensic and transplant purposes.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4983 - Advanced Clinical Practicum-Immunohematology

Credits: 3

Principles of immunology theory, blood group systems, genetics, and immunohematology techniques. Procedures including evaluation of blood samples, pretransfusion compatibility testing, and transfusion reactions are studied.

Serologic testing and problem-solving in antibody identification and complex procedures are stressed. Laboratory emphasizes modern practices, resolution of compatibility problems and advanced antibody identification methods.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4984 - Advanced Clinical Practicum- Microbiology

Credits: 3

Focus is on underlying mechanisms of microbial pathogenesis, host responses to infectious disease and clinical diagnosis procedures. Emphasis is on detailed mechanisms of infection, pathogenesis, and major discoveries and technologies in medical microbiology. Current issues in public and global health, epidemiology, bioterrorism, biotechnology and vaccination programs will be studied.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an associate of science degree in medical laboratory technician within 5 years.

MLSK4890 - Professional Career Paths and Review

Credits: 2

This Medical Laboratory Sciences program prepares students for a variety of graduate degrees and careers in laboratory medicine. This course is designed to help students investigate career and education opportunities after becoming a certified Medical Laboratory Scientist and also provides students with a cumulative review to ensure mastery of content.

Prerequisite: Medical Laboratory Technician (ASCP) certification or completion of an AS degree in MLT within the past 5 years.

- Upper-division elective credits: 1 (see below, consult your academic advisor)

Upper Division Elective Credit Hours

One upper division elective credit hour must be completed in the student's junior or senior year to meet the total 42 required upper division credits to graduate. Students may take a three credit class to meet this requirement.

These credits must be 3000 and above, and achieved through online outreach or on campus courses. A list of courses that are acceptable to fulfil this requirement can be made available to the student. If a course is in question, it is highly suggested to the student to contact the UW-C advising department or the MLS program director for requirement fulfillment confirmation.

Enrichment Rotations and Laboratory Sessions

The final semester of the student's senior year is comprised of didactic material being delivered in an online hybrid manner, supplemented with on campus lab sessions at the UW-Casper campus. These lab sessions will be accompanied by an observational enrichment rotation at a clinical site. This enrichment rotation will allow for the observation of advanced methodologies in a practical environment. It will be the students' responsibility for all travel and housing costs associated with the advanced clinical practicum courses.

Probation

Students who do not meet the minimum grade requirements stated above for MLSK course work will be placed on probation. In this period of time, students will be allowed to continue in the program under supervision, but will submit a petition which is an individualized plan of study for the next semester that is developed by the student in agreement with and signed by an academic advisor. All completed MLSK courses that fail to meet minimum grade requirements (C or 2.000 or better) must be repeated by the student. Students shall not be allowed to progress to the final semester until all courses in the previous semesters are successfully completed and a GPA of 2.000 is obtained.

Additional Requirements

The program requires 124 credit hours total, with 54 credit hours obtained in the junior/senior years to graduate. Students must complete a minimum of 42 upper division hours, 30 of which must be earned from the University of Wyoming.

Prerequisite for admission to the Medical Laboratory Sciences degree is completion of the Medical Laboratory Technician program at Casper College, or another accredited MLT program. Students interested in the MLS degree who already hold a bachelors degree should contact program director Jed Doxtater at jdoxtate@uwyo.edu.

Graduate

Doctor of Pharmacy, MBA/PharmD Dual Degree

This dual degree program provides students with a complementary business degree to start their own business or to advance into management positions in their careers. Students acquire decision-making skills that allow them to excel in their field of practice.

Additional Requirements

The School of Pharmacy offers an MBA/Pharm.D. dual degree program that is geared toward students who have already obtained a Bachelor's degree. A dual M.B.A./Pharm.D. degree allows a student to diversify their skill set and enhance their value proposition to prospective employers.

The Doctor of Pharmacy/Master of Business Administration dual degree takes five years to complete - four years of Pharmacy studies and one year of MBA core courses. Students spend their first year (Fall, Spring, and Summer semesters) in the MBA program taking core courses and completing other program requirements. The next four years will encompass the traditional Pharm.D. curriculum. Students completing this program will earn a Doctor of Pharmacy degree and a Master of Business Administration degree. Please review the program specific information for each program:

- Business Administration, M.B.A.
- Pharmacy, Pharm.D.

MBAM5101 - MBA Foundations

Credits: 1

The purpose of this course is to prepare students for the academic rigors of the MBA program.

Restricted Enrollment in MBAM or MBAF degree program.

Prerequisite: Admission to full-time MBA program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5107 - Decision Making I

Credits: 1

This course develops a systematic process for making decisions in complex business situations, by integrating six dimensions of business risk: competitive, financial, organizational, legal, social, and ethical. The process combines analytical and ethical reasoning methods that compensate for the flawed decision making common in business organizations.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate

financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5209 - Decision Making II

Credits: 1

An experiential learning course that builds on MBAM 5107. Students apply systematic business decision making process to real-world business situations. Student teams work directly with owners and managers of Wyoming companies to address their strategic, competitive, operational, financial, and/or administrative challenges in real time.

Prerequisite: MBAM 5107.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

MBA-MBA students, including dual degree students, must take an additional nine (9) credit hours of 4000 or 5000 level College of Business courses. Three (3) of these credit hours can be taken outside of the College of Business. Dual degree students (JD/PharmD/MS) may take three (3) credit hours outside the College of Business following dual degree agreement guidelines. Please contact your advisor for additional information.

Health Services Administration, M.S.

The School of Pharmacy offers a Master of Science online degree in health services administration (MSHSA).

Specialty Tracks

All students select one specialty track.

Biopharmaceutical Regulatory Compliance Group Specialty Listings

Specialty Tracks through the Biopharmaceutical Regulatory Compliance Group

- o Biopharmaceutical Regulatory Compliance
- o Healthcare Risk Management
- o Forensic Pharmacy
- o Healthcare Policy Analysis
- o Biopharmaceutical Product Representation
- o Clinical Research Administration
- o Patient Safety Systems
- o Healthcare Security Systems
- o Healthcare Ethics & Equity

Health Institution Leadership Group Specialty Listings

Specialty Tracks through the Health Institution Leadership Group

- o Health Institution Leadership
- o Health Economics & Outcomes
- o Healthcare Quality & Improvement

- o Rural Healthcare Coordination
- o Geriatric Care Systems
- o Healthcare Entrepreneurism
- o Healthcare Financing
- o Health Information Technology
- o Healthcare Writing and Reporting

Biopharmaceutical Regulatory Compliance Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks.

PHCY5040 - The Evolution of American Health

Credits: 2

This course explores the evolution of the healthcare system in response to various needs and crises over the years. The professionalization of health care; the development of the modern hospital; the implications of computerized health information; and the empowerment of patients will be covered.

Prerequisite: Admission into the Health Services Administration MS program.

PHCY5042 - Statistics for Health Services

Credits: 3

This course will introduce students to correlation analysis, regression, analysis of variance and selected non-parametric tests, focusing on appropriate use of each and how to interpret the output of a statistical test to answer a research question.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5043 - Empirical Analysis for Health Services Administration

Credits: 3

This course will equip students with an understanding of research and policy debates related to economic, political, and administrative aspects of health services by providing an overview of how research can be used by health service researchers to draw conclusions about health services and their administration.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5045 - Health Services Administration Applied Research

Credits: 1-4

This course provides the opportunity for students to apply knowledge and skills obtained in the HSA program while gaining practical experience with real-world projects.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5046 - Health Services Administration Seminar1

Credits: 1

Max Credit (Max. 2)

An in-depth investigation of a timely issue in health services, including the regulatory, economic, patient-safety, marketing, leadership, and ethical aspects of that issue. Students will participate in separate group analysis of a presented problem, and in their presentations of their group's assessment of the problem.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5041 - Health Services Administration Research Methods

Credits: 2

This course will cover the basic research designs used in health services research. Focus will be given on framing the research questions, selecting the appropriate study design and threats to the internal validity of the study designs.

Prerequisite: Must be enrolled in the HSA program.

Sub-Total Program Required Coursework: 15 credit hours

Biopharmaceutical Regulation & Compliance Track

The following tables provides a list of required courses for the track listed

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5242 - The Food and Drug Administration

Credits: 2

This course examines the regulatory climate for FDA-regulated drug and biological products. Regulatory standards are reviewed (including discovery of new therapeutic modalities, their approval, manufacturing, promotion, and distribution), and the enforcement authority of the FDA is examined (focusing on methods that promote safe and effective drug use).

Prerequisite: PHCY 5241.

PHCY5243 - The Drug Enforcement Administration

Credits: 2

This course examines the balance of health professionals and institutions working with regulators to develop programs that reflect both the best interests of individual patients and of society. Focusing on challenges of treating chronic pain, prescription drug abuse, and actions that have led to conflict between regulators and health practitioners.

Prerequisite: PHCY 5241.

PHCY5244 - State Regulations of Health Professions

Credits: 2

This course examines how state regulatory agencies assure the initial competence of practitioners, as well as their continuing competence in the years following the completion of academic training. The course also examines the factors that are applied to the regulation of health care settings, using the structure-process-outcomes typology of Donabedian.

Prerequisite: PHCY 5241.

Specialty Track Electives (choose 6 hours)

Healthcare Risk Management Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5342 - Healthcare Risk and Quality

Credits: 3

This course surveys the importance and processes of quality and risk in health care institutions. Students will be assigned to lead topics. Current events/topics will be utilized to inform the class.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5670 - Medication Malpractice

Credits: 2

Using a case-study approach, potential legal liability issues are studied, within a health care context that primarily focuses on legal liability related to the use of medications. Strategies for reduction of legal liability are explored. The

implementation and oversight of legal risk management programs is addressed.

Dual Listed Dual listed with: PHCY 4670.

Prerequisite: Enrollment in graduate or professional program or department permission.

PHCY5240 - Pharmaceutical Homicide

Credits: 2

Legal pharmaceutical products are sometimes used by healthcare professional criminals to kill people. This course focuses on identifying the zone of risk for people who could be harmed by pharmaceuticals, and the development of best practices to protect patients and other from the harm.

Dual Listed PHCY 4240.

Prerequisite: Enrollment in graduate or professional program or department permission.

Specialty Track Electives (Choose 6 hours)

Forensic Pharmacy Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5240 - Pharmaceutical Homicide

Credits: 2

Legal pharmaceutical products are sometimes used by healthcare professional criminals to kill people. This course focuses on identifying the zone of risk for people who could be harmed by pharmaceuticals, and the development of best practices to protect patients and other from the harm.

Dual Listed PHCY 4240.

Prerequisite: Enrollment in graduate or professional program or department permission.

PHCY 5XXX The Chemistry of Poisonings 2 Credits

PHCY 5XXX Thr Process of Forensic Science 2 Credits

Specialty Track Electives (choose 6 hours)

Healthcare Policy Analysis Track

Specialty Track Required Coursework (9 credit hours)

PHCY5047 - Pandemic Preparedness Policy

Credits: 2

Analysis of regulatory measures undertaken to protect the public from adverse effects of a global pandemic. Evaluation of alternative means of preparing for a pandemic and for management of pandemic response. Considers balancing of individual interests and community interests.

PHCY5148 - Health Economics and Policy

Credits: 2

This course explores the financing and structure of the U. S. healthcare system with the purpose of understanding how these systems impact patient care, health policy, and economics. Topics include organization of healthcare systems, insurance programs, legislation, healthcare labor markets and drug costs.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5246 - Prescription Drug Costs

Credits: 2

Max Credit 2

Overview of prescription drug prices and the consequences for patients and society of the high cost of pharmaceutical products. Causes of escalating pharmaceutical prices are reviewed. Legal and economic factors that contribute to high drug prices are considered. Potential solutions are identified.

Restricted Professional and Graduate students only.

Biopharmaceutical Product Representation Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5541 - Introduction to Biopharmaceutical Marketing and Production

Credits: 3

This course will review empirical evidence in various topic areas within the fields of biopharmaceutical marketing, sales promotion, communication, and selling effectiveness focusing on the history and structure of the biopharmaceutical product representative function and theoretical domains associated with the associated activities.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.
Specialty Track Electives (choose 6 hours)

Clinical Research Administration Track

Specialty Track Required Coursework (10 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5242 - The Food and Drug Administration

Credits: 2

This course examines the regulatory climate for FDA-regulated drug and biological products. Regulatory standards are reviewed (including discovery of new therapeutic modalities, their approval, manufacturing, promotion, and distribution), and the enforcement authority of the FDA is examined (focusing on methods that promote safe and effective drug use).

Prerequisite: PHCY 5241.

PHCY 5XXX Biomedical Ethics 3 Credits
PHCY 5XXX Clinical Research Regulation 2 Credits
Specialty Track Electives (choose 5 hours from list)

Patient Safety Systems Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Healthcare Security Systems Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.
PHCY 5XXX Cybersecurity 2 Credits

PHCY 5XXX HIPAA Compliance 2 Credits
PHCY 5XXX Disaster Management 2 Credits
Specialty Track Electives (choose 6 hours)

Healthcare Ethics & Equity Track

Specialty Track Required Coursework (10 Credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY 5XXX Biomedical Ethics 3 Credits
PHCY 5XXX HIPAA Compliance 2 Credits
PHCY 5XXX Clinical Research Regulation 2 Credits
Specialty Track Electives (choose 5 hours)

Health Institution Leadership Group

MS-HSA Curriculum

The following table provides a list of the core courses required for all tracks

PHCY5040 - The Evolution of American Health

Credits: 2

This course explores the evolution of the healthcare system in response to various needs and crises over the years. The professionalization of health care; the development of the modern hospital; the implications of computerized health information; and the empowerment of patients will be covered.

Prerequisite: Admission into the Health Services Administration MS program.

PHCY5041 - Health Services Administration Research Methods

Credits: 2

This course will cover the basic research designs used in health services research. Focus will be given on framing the research questions, selecting the appropriate study design and threats to the internal validity of the study designs.

Prerequisite: Must be enrolled in the HSA program.

PHCY5042 - Statistics for Health Services

Credits: 3

This course will introduce students to correlation analysis, regression, analysis of variance and selected non-parametric tests, focusing on appropriate use of each and how to interpret the output of a statistical test to answer a research question.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5043 - Empirical Analysis for Health Services Administration

Credits: 3

This course will equip students with an understanding of research and policy debates related to economic, political, and administrative aspects of health services by providing an overview of how research can be used by health service researchers to draw conclusions about health services and their administration.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5045 - Health Services Administration Applied Research

Credits: 1-4

This course provides the opportunity for students to apply knowledge and skills obtained in the HSA program while gaining practical experience with real-world projects.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5046 - Health Services Administration Seminar1

Credits: 1

Max Credit (Max. 2)

An in-depth investigation of a timely issue in health services, including the regulatory, economic, patient-safety, marketing, leadership, and ethical aspects of that issue. Students will participate in separate group analysis of a presented problem, and in their presentations of their group's assessment of the problem.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

Sub-Total Program Required Coursework: 15 Hours

Health Institution Leadership Track

Specialty Track Required Coursework (9 credit hours)

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5442 - Healthcare Financial Planning

Credits: 2

This course explores financial principles incorporating the unique environment of the health institution. The mix of services (inpatient, outpatient, nursing facilities, urgent/emergency care and components) will be studied through extensive use of case studies and models to develop the health institution leader's financial skills.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5443 - Healthcare Human Capital Plan

Credits: 2

This course will provide skills for developing and managing human capital by the health institution leader through exploration of best practices for human capital selection and development to optimize the performance of the workforce while complying with legal, regulatory, and contractual requirements through extensive use of case studies and models.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5444 - Healthcare Strategic Innovation

Credits: 2

This course develops strategic skills by the health institution leader through exploration of principles incorporating the unique environment of the health institution. The strategic skills will be applied to the concept of innovation through extensive use of case studies and models.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Health Economics and Outcomes

Specialty Track Required Coursework (10 credit hours)

PHCY5141 - Principles of Health Econ and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5142 - Health Economic Decision Analysis

Credits: 2

This class is designed to provide the student with the methods of comparative effectiveness research with special focus on how various decision makers use comparative effectiveness data to assist in decision-making.

Prerequisite: PHCY 5141.

PHCY5143 - Comparative Effectiveness Research

Credits: 2

This class is designed to provide the student with the methods of comparative effectiveness research with special focus on how various decision makers use comparative effectiveness data to assist in decision-making.

Prerequisite: PHCY 5141.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (Choose 5 hours)

Healthcare Quality & Outcomes Track

Specialty Track Required Coursework (8 credit hours)

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5342 - Healthcare Risk and Quality

Credits: 3

This course surveys the importance and processes of quality and risk in health care institutions. Students will be assigned to lead topics. Current events/topics will be utilized to inform the class.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 7 hours)

Rural Healthcare Coordination Track

Specialty Track Required Coursework (9 credit hours)

PHCY5141 - Principles of Health Econ and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Geriatric Care Systems Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5341 - Principles of Healthcare Quality

Credits: 3

Max Credit (Max. 3)

This course will provide an overview of healthcare quality and performance measurement. It will also provide a review of quality improvement strategies used in various healthcare settings.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Healthcare Entrepreneurism Track

Specialty Track Required Coursework (9 credit hours)

PHCY5241 - Principles for Biopharmaceutical Regulatory Compliance

Credits: 3

This course considers the role of regulatory agencies that prescribe conduct in the healthcare industries and professions, focusing on the Food and Drug Administration. The functioning of other agencies, such as the federal Drug Enforcement Administration, state boards of pharmacy and state departments of health are also considered.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5541 - Introduction to Biopharmaceutical Marketing and Production

Credits: 3

This course will review empirical evidence in various topic areas within the fields of biopharmaceutical marketing,

sales promotion, communication, and selling effectiveness focusing on the history and structure of the biopharmaceutical product representative function and theoretical domains associated with the associated activities.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.
Specialty Track Electives (choose 6 hours)

Healthcare Financing Track

Specialty Track Required Coursework (9 credit hours)

PHCY5141 - Principles of Health Econ and Outcomes

Credits: 3

This course considers the role of the range of outcomes used by clinicians and health care systems in assessing treatment modalities. The framework for conducting and assessing outcomes research will be emphasized.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY5541 - Introduction to Biopharmaceutical Marketing and Production

Credits: 3

This course will review empirical evidence in various topic areas within the fields of biopharmaceutical marketing, sales promotion, communication, and selling effectiveness focusing on the history and structure of the biopharmaceutical product representative function and theoretical domains associated with the associated activities.

Prerequisite: Completion or concurrent enrollment in PHCY 5040.
Specialty Track Electives (choose 6 hours)

Health Information Technology Track

Specialty Track Required Coursework (9 credit hours)

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY 5XXX Information Design and Analysis 2 Credits

PHCY 5XXX Healthcare Information Systems 2 Credits

PHCY 5XXX Information Management 2 Credits

Specialty Track Electives (choose 6 hours from list)

Healthcare Writing & Reporting Track

Specialty Track Required Coursework (9 credit hours)

PHCY5441 - Introduction to Health Leadership

Credits: 3

This course will develop the health institution leader through analysis of theory and application to practice by extensive use of case studies and models. Organizational, team and individual dimensions of leadership are examined. Leadership for optimization resources and effective use of data analytics are explored.

Prerequisite: Must be enrolled in the HSA program, or by permission.

PHCY 5XXX Professional Writing in Healthcare 2 Credits

PHCY 5XXX Health Data in Figures, Tables & Graphs 2 Credits

PHCY 5XXX The Healthcare Message 2 Credits

Specialty Track Electives (choose 6 hours)

Additional Notes

NOTE: Specialty track electives can be any course provided in the MSHSA program.

Please consult with the program director if you have questions on the electives to choose for a specific track.

Those course numbers with PHCYXXXX are currently being built or waiting on approval from the University. Please contact the MS HSA program for questions.

Additional Requirements

This degree is geared toward new and mid-career practitioners including pharmacists, nurses, physicians, social workers, and other health care professionals who want to become department directors, patient safety

coordinators and/or directors, regulatory compliance officers, clinical research associates, health outcomes researchers or take on leadership roles as advanced practice practitioners.

The program also benefits health care workers in fields such as management positions, pharmaceutical sales representatives, medical science liaisons, and pharmacy technician educators as well as new clinical faculty at newly established pharmacy colleges.

Available nationwide the master's program is delivered via a mix of online self-study and online project-based coursework.

The program can be completed in two years of part-time study. Students are requested to travel to the UW Laramie campus for two weekend seminars during the two-year program (based on travel restrictions during the pandemic this course was held online). Graduates will be expected to complete 30 credit hours of coursework and pass a comprehensive final exam. Coursework will be completed over five consecutive semesters however students can take up to 6 years to complete the program.

A prospective student should have earned at least a bachelor's degree from a regionally accredited institution. To find out more about the application process please see the following website www.uwyo.edu/pharmacy/online-ms-program or contact the Student Services Office.

Pharmacy, Pharm.D.

The School of Pharmacy offers only the four-year curriculum leading to the Doctor of Pharmacy (Pharm.D.) degree. Students admitted to the professional pharmacy program follow a four year program of study leading to the Doctor of Pharmacy Degree. Students complete a total of 146 hours.

In order to keep abreast with changes in pharmaceutical education, the following curriculum is subject to change or modification as required by the accrediting agency. Students should be aware that changes must be expected and they will be included in their academic program. The School of Pharmacy does not plan to change graduation requirements inadvertently, but does reserve the right to change any provisions or requirement deemed necessary at any time within the student's term of residence.

Required Curriculum

ZOO4125 - Integrative Physiology

Credits: 5

Examines how functional organ systems are coordinated and integrated by the CNS and endocrine systems to establish and maintain health. Includes lecture, flipped component and tutorial session. Students must register for lecture and tutorial.

Former Course Number [3120]

Prerequisite: grade of C or higher in ZOO 3115; and/or a Pharmacy 1 standing.

PHCY6100 - Dose Form Design

Credits: 4

Extensively introduces various types of dosage forms, discusses advantages and disadvantages of each. Pharmaceutical calculations are a major component of the course, as well as physicochemical principles involved in dose form stability.

Prerequisite: CHEM 2420 and CHEM 2440.

PHCY6106 - Pharmaceutical Calculations

Credits: 2

Application of basic mathematics and quantitative reasoning to pharmaceutical calculations, emphasizing calculations of doses, dosage requirements, compounding of formulations and parenterals.

Former Course Number [6105]

Prerequisite: MATH 1000 or MATH 1400.

PHCY6110 - Medicinal and Natural Products Chemistry I

Credits: 3

Three-semester series that studies the physicochemical, biochemical and pharmacological properties of substances of natural and synthetic origin that are used as medicinal agents.

Prerequisite: CHEM 2440 and MOLB 3610.

PHCY6140 - Introduction to Social Administrative Pharmacy

Credits: 2

Provides an introduction to socio-cultural, behavioral and administrative principles of pharmacy with a focus on pharmacist roles and their historical evolution, health disparities, health behavior theory and practice philosophy, and a survey of the U. S. health care system.

Prerequisite: Enrollment in the professional program or consent of instructor.

PHCY6160 - Pharmacist Skills I

Credits: 1

Preparation and evaluation of dosage forms is main thrust of course. Laboratory emphasizes manipulative and mathematical skills, prescription formats, packaging and storage as they apply to pharmaceuticals.

Former Course Number [6101]

Prerequisite: concurrent enrollment in PHCY 6100; MATH 2100.

PHCY6102 - Biopharmaceutics and Pharmacokinetics

Credits: 4

Discusses biopharmaceutic and pharmacokinetic aspects of dosage form design. Basic pharmacokinetics and

biopharmaceutics are interrelated to clinical applications. Also covers classical kinetics and dissolution.

USP 2015 Code U5C3

Prerequisite: MATH 2200 and PHCY 6100.

PHCY6111 - Medicinal and Natural Products Chemistry II

Credits: 3

Continuation of Medicinal and Natural Products Chemistry I.

Former Course Number [6210]

Prerequisite: Ph1 status in PharmD program or consent of instructor.

PHCY6120 - Advanced Pathophysiology

Credits: 3

Advanced course covering the molecular, cellular, genetic and clinical principles of tissue dysfunction and disease, incorporating clinical lab values and human case studies. This course is primarily designed for Doctor of Pharmacy students who will transition into their clinical rotations. Students will jointly meet once per week with students within PHCY 3450 for interprofessional education revolving around student-led case study presentations.

Former Course Number [6220]

Prerequisite: LIFE 1010, LIFE 1020, CHEM 1020, CHEM 1030, CHEM 2420, CHEM 2440, MOLB 2240, MOLB 3610, ZOO 3115, ZOO 4125.

PHCY6151 - Pharmacy Practice

Credits: 2

Provides didactic content that enables students to accurately prepare and dispense prescription medications.

Former Course Number [6354]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6152 - Therapeutics I

Credits: 3

Emphasizes the role of the pharmacist in pharmaceutical self care, appropriate triage and referral involving prescription, non-prescription pharmaceuticals, complimentary, alternative therapies and devices in community dwelling patients with both acute and chronic self-care conditions.

Former Course Number [6352]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6161 - Pharmacist Skills II

Credits: 1

Provides laboratory and other related experiences that enable students to accurately prepare and dispense prescription medications.

Prerequisite: P1 status in PharmD program or consent of instructor.

PHCY6170 - Introductory Pharmacy Practice Experience-IPPE1

Credits: 1

Provides an early curricular exposure to the roles and functions of pharmacists in their work environment through a shadow experience.

Prerequisite: satisfactory completion of PHCY 6185.

PHCY6480 - Introduction to Community Pharmacy Practice

Credits: 4

Four-week rotation in community pharmacy practice completed under the guidance of a licensed pharmacist. Patient care activities will include, but not be limited to, basic patient and drug therapy assessment, performing medication histories and prospective drug utilization reviews, basic patient counseling and active participation in the medication distribution process.

Prerequisite: grade of C or higher in PHCY 6352 and 6354 and satisfactory completion of all courses within the P1 curriculum (i. e. P2 standing).

PHCY6482 - Introduction to Hospital Pharmacy Practice

Credits: 4

Four-week rotation in hospital pharmacy practice completed under the guidance of a licensed pharmacist. Patient-care activities will include basic drug therapy and patient assessment, prospective drug utilization reviews, participating in the hospital's medication distribution process, performing calculations, compounding preparations and understanding pharmacy's role within the health-system through interdisciplinary interactions.

Prerequisite: grade of C or higher in PHCY 6352 and 6354 and satisfactory completion of all courses within the P1 curriculum (i. e. P2 standing).

PHCY6215 - Medicinal and Natural Products Chemistry III

Credits: 3

Continuation of Medicinal and Natural Products Chemistry II.

Former Course Number [6211]

Prerequisite: PHCY 6111.

PHCY6230 - Pharmacology I

Credits: 4

First semester of a one-year series. Studies action of chemical agents on living systems to include pharmacodynamics, toxicology, and clinical therapeutics. Concepts are emphasized through case presentations and discussion.

Prerequisite: PHCY 4450.

- PHCY 6230 - Pharmacology I Discussion Credits: 0

PHCY6240 - Research and Evaluation Methods in Pharmacy

Credits: 3

The course focuses on research design and statistical analyses, as well as pharmaco-economic, pharmaco-epidemiology and public health concepts and methods for evidence-based practice applications and health care policy development.

Prerequisite: MATH 2200 and PharmD program P2 status.

PHCY6245 - Patient/Professional Interactions

Credits: 3

Focuses on psychosocial and communication concepts pertaining to human interactions, with application to professional practice environments and clinical counseling situations.

USP 2015 Code U5C3

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6260 - Pharmacist Skills III

Credits: 1

This course is the third in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in the different subdisciplines represented in the SOP curriculum.

Prerequisite: P2 status in PharmD program or consent of instructor.

PHCY6231 - Pharmacology II

Credits: 4

Second semester of a one-year series. Continuation of PHCY 6230. Lecture with separately scheduled discussion section.

Prerequisite: PHCY 6230.

- PHCY 6231 - Pharmacology II Discussion Credits: 0

PHCY6246 - Pharmacy Management, Marketing and Finance

Credits: 3

Examines management functions and leadership in various types of contemporary pharmacy practice including pharmacy services, drug distribution, technology, human resources, marketing, finance and accounting.

Prerequisite: P2 status.

PHCY6251 - Therapeutics II

Credits: 3

Introduces pharmacotherapeutic principles employed in the patient care process for managing select disease states and specific patient populations. The course emphasizes the role of evidence-based medicine in developing pharmaceutical care plans (e. g. recommending therapy, evaluating and monitoring the efficacy and safety of medications).

Prerequisite: PHCY 6120, PHCY 6230.

PHCY6261 - Pharmacist Skills IV

Credits: 2

This course is the fourth in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P2 status in PharmD program or consent of instructor.

PHCY6270 - Intermediate Pharmacy Practice Experience-IPPE2

Credits: 1

An advanced exposure to the practice of pharmacy in health care environments.

USP 2015 Code U5C3

Prerequisite: satisfactory completion of PHCY 6170.

PHCY6312 - Clinical Toxicology

Credits: 3

Focuses on biological and pharmacological effects of environmental, chemicals, OTC and prescription drug poisoning cases. Emphasis will be placed on the use of historical, laboratory and clinical data to diagnose and develop clinical management approaches for both acute and chronic poisoning cases.

Prerequisite: PHCY 6230, MOLB 3610.

PHCY6341 - Pharmacy Practice Law

Credits: 3

Coverage of state, federal and local laws and regulations which relate directly to the practice of pharmacy. The Wyoming Pharmacy Act serves as a model for analogous laws in other states. Case law at the federal and state levels affecting pharmacy practice is analyzed and discussed.

Prerequisite: PH3 or consent of instructor.

PHCY6344 - Pharmacy Ethics

Credits: 1

Focuses on ethical issues confronting pharmacists in practice, pharmacy as a profession, the health care delivery system and society.

Former Course Number [6280, 6385]

Prerequisite: enrollment in the doctor of pharmacy professional program.

PHCY6350 - Therapeutics III

Credits: 4

Provides an overview of the treatment of selected disease states. Students will develop skills in providing patient-centered care as a medication expert, interpreting evidence, and formulating, monitoring, and adjusting care plans. Course will build upon skills learned in PHCY 6251.

Prerequisite: grade of C or higher in PHCY 6251.

PHCY6357 - Clinical Pharmacokinetics

Credits: 2

Course will provide the student with an overview of the clinical application of pharmacokinetic concepts as used in providing quality patient care. Principles of pharmacokinetics may be applied to the therapeutic use of all medications, including those inherently discussed during this course.

Prerequisite: PHCY 6102.

PHCY6360 - Pharmacist Skills V

Credits: 1

This course is the fifth in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6300 - Sterile Products

Credits: 2

An introduction to the preparation and clinical application of sterile dosage forms in accordance with USP 797 and other related standards. Emphasizes basic principles related to preparation, dispensing and administration of parenteral medications in health care settings.

Former Course Number [6103]

Prerequisite: PHCY 6100, PHCY 6160, PHCY 6106, and concurrent enrollment in PHCY 6301.

PHCY6301 - Sterile Products Laboratory

Credits: 1

A hands-on training in techniques used to prepare, dispense and administer parenteral admixtures, parenteral nutrition, chemotherapy and ophthalmics forms in accordance with USP 797 and other related standards.

Former Course Number [6104]

Prerequisite: PHCY 6100, PHCY 6160, PHCY 6106 and concurrent enrollment in PHCY 6300.

PHCY6340 - Health Care Policy and Advocacy

Credits: 2

Prepares the future pharmacist leader to analyze and engage in professional advocacy and the healthcare policy process at the local, state and national level. Content will include details of the U. S. healthcare system, health policy, the policy-making process, key stakeholders' roles, sociocultural influences and current issues.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6351 - Therapeutics IV

Credits: 4

Provides the student with an overview of the treatment of complex disease states. Students will build on their patient-centered skills from PHCY 6350 by interpreting evidence, prioritizing patient needs, and formulating and monitoring evidence-based care plans. These skills will be essential as students begin advanced pharmacy practice experiences.

Prerequisite: grade of C or higher in PHCY 6350.

PHCY6353 - Drug Literature Application

Credits: 2

This course is designed to provide students with the fundamental knowledge and skills to practice evidence-based pharmacotherapy. Topics include: evaluation of drug information requests, informatics, understanding drug information resources, development and execution of search strategies, primary literature and research design analysis, and writing

and presentation skills.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6361 - Pharmacist Skills VI

Credits: 2

This course is the sixth and final course in a series that will allow students to practice what they learn during didactic class time with an integrated approach that meaningfully pulls in different subdisciplines represented in the SOP curriculum.

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6370 - Advanced Pharmacy Practice Experience-IPPE3

Credits: 2

Designed to prepare the student for 4th year advanced pharmacy practice experience (APPE) activities by discussion of logistics, professionalism, regulatory issues, portfolio requirements and assessment tools. In addition, students will continue building their clinical skills through a patient care practice experience.

USP 2015 Code U5C3

Prerequisite: P3 status in PharmD program or consent of instructor.

PHCY6485 - Reflective Learning in Pharmacy

Credits: 1

Max Credit (Max. 4)

Designed to help prepare P4 pharmacy students to be knowledgeable and well-rounded practitioners. Provides an opportunity to reflect on rotation experiences, give professional level presentations, and exposure to content not covered elsewhere in curriculum. Course includes guest speakers, Pharm. D. seminars, assessment activities, job/residency fairs, P4 portfolio, and reflective writing.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.
Students complete 3 sections of PHCY 6485, 1 credit each.

PHCY6470 - Internal Medicine I

Credits: 4

An advanced practice experience to develop skills as a medication expert within an inpatient internal medicine or family medicine experiential setting. Students will coordinate, collaborate, and communicate among themselves, their preceptor, and other members of the interprofessional healthcare team to provide patient-centered care.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6473 - Ambulatory Pharmaceutical Care

Credits: 4

An experiential course focusing on the pharmacist as the drug expert in a multidisciplinary health care team. Students will provide direct patient care to patients in an outpatient setting.

USP 2015 Code U5C3

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

(Students complete a second semester of either Internal Medicine or Ambulatory Care)

PHCY6471 - Internal Medicine II

Credits: 4

Course is a continuation of PHCY 6470 in which students take on increasing responsibility and/or more complex patient cases to develop skills as a medication expert in the acute care setting. Students will continue providing patient-centered care by collaborating with their preceptor and other members of the interprofessional healthcare team.

USP 2015 Code U5C3

Prerequisite: PHCY 6470.

PHCY6474 - Ambulatory Pharmacy Care II

Credits: 4

Course is a continuation of PHCY 6473 in which students will take on increasing responsibilities, develop an expanded understanding for systems management, and further advance their clinical skills as medication experts in the outpatient setting.

USP 2003-2014 Code [COM3]

Prerequisite: PHCY 6473.

PHCY6481 - Advanced Community Pharmacy

Credits: 4

An advanced practice experience in community pharmacy designed to build upon introductory experiences and promote active participation in caring for patients in this practice setting. Students will spend 25-30 of their time in non-dispensing activities (e. g. screenings, in-depth counseling, MTM, immunizations, self-care treatment, community presentations, etc.).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6483 - Advanced Institutional Pharmacy

Credits: 4

An advanced practice experience in institutional/hospital pharmacy designed to build upon introductory experiences and promote active participation within the health-system through interdisciplinary interactions, projects, presentations, and patient care activities. Students will devote at least 50 of their time to nondispensing activities (e. g. monitoring meds, consults, discharge counseling, medication reconciliation, inservices).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6465 - Elective Rotation In:

Credits: 4

Max Credit (Max. 16)

Elective advanced pharmacy practice experience that is available in a variety of practice environments (e. g. direct patient care settings, management, research, and other pharmacy-related locations). Rotation requires active participation and application of knowledge, skills, values, and attitudes.

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

Students complete 4 sections of PHCY 6465, 4 credits each.

- Students complete 7 hours of electives during the P1-P3 year.

Total Hours 146

Fourth Year [PH4]:

Consists of nine experiential rotations of four credit hours each and three reflective learning weeks. Rotations are considered full-time. Students may not enroll in any other coursework concurrent with rotations. Consequently, all other coursework (107 credits) must be satisfactorily completed before enrollment in P4 coursework. Note: Students will be required to live in locations other than Laramie when enrolled in experiential rotations. Responsibility for living cost and travel arrangements associated with experimental rotations rests with the student. Students participating in all experimental activities will be required to have a vehicle or an acceptable approved alternative.

Students must complete the following Core or Required Experiential Rotations (subject to change):

PHCY6470 - Internal Medicine I

Credits: 4

An advanced practice experience to develop skills as a medication expert within an inpatient internal medicine or family medicine experiential setting. Students will coordinate, collaborate, and communicate among themselves, their preceptor, and other members of the interprofessional healthcare team to provide patient-centered care.

USP 2003-2014 Code [COM3]

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6473 - Ambulatory Pharmaceutical Care

Credits: 4

An experiential course focusing on the pharmacist as the drug expert in a multidisciplinary health care team. Students will provide direct patient care to patients in an outpatient setting.

USP 2015 Code U5C3

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6471 - Internal Medicine II

Credits: 4

Course is a continuation of PHCY 6470 in which students take on increasing responsibility and/or more complex patient cases to develop skills as a medication expert in the acute care setting. Students will continue providing patient-centered care by collaborating with their preceptor and other members of the interprofessional healthcare team.

USP 2015 Code U5C3

Prerequisite: PHCY 6470.

or

PHCY6474 - Ambulatory Pharmacy Care II

Credits: 4

Course is a continuation of PHCY 6473 in which students will take on increasing responsibilities, develop an expanded understanding for systems management, and further advance their clinical skills as medication experts in the outpatient setting.

USP 2003-2014 Code [COM3]

Prerequisite: PHCY 6473.

PHCY6481 - Advanced Community Pharmacy

Credits: 4

An advanced practice experience in community pharmacy designed to build upon introductory experiences and promote active participation in caring for patients in this practice setting. Students will spend 25-30 of their time in non-dispensing activities (e. g. screenings, in-depth counseling, MTM, immunizations, self-care treatment, community presentations, etc.).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

PHCY6483 - Advanced Institutional Pharmacy

Credits: 4

An advanced practice experience in institutional/hospital pharmacy designed to build upon introductory experiences and promote active participation within the health-system through interdisciplinary interactions, projects, presentations, and patient care activities. Students will devote at least 50 of their time to nondispensing activities (e. g. monitoring meds, consults, discharge counseling, medication reconciliation, inservices).

Prerequisite: grade of C or higher in PHCY 6351 and PHCY 6357.

- Plus 4 Elective Rotations (PHCY 6465)

Preprofessional Program

Preprofessional Pharmacy Program (PPCY)

Students will not receive a degree in prepharmacy. The prepharmacy curriculum guides students as they fulfill requirements for admission to the professional pharmacy degree program.

Required Curriculum

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1030 - General Chemistry II

Credits: 4

Second semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1030 and CHEM 1060.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: CHEM 1020.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2022 - Animal Biology

Credits: 4

An integrative course addressing the evolution, anatomy, physiology, and ecology of animals. Continues building upon the four themes in LIFE 1010, cell and molecular biology, genetics, evolution, and ecology. Preserved animal specimens are dissected during some labs. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered spring semester)

Former Course Number [BIOL 2022]

Prerequisite: LIFE 1010 with a grade of C or better.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

CHEM2420 - Organic Chemistry I

Credits: 4

First semester of a one-year sequence in organic chemistry. Approached from the viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week. No credit allowed in CHEM 2420 if credit earned in CHEM 2300.

When Offered (Normally offered fall)

Prerequisite: CHEM 1030 or CHEM 1060.

CHEM2440 - Organic Chemistry II

Credits: 4

Second semester of a one-year sequence in organic chemistry. Approached from viewpoint of modern chemical theory, emphasizing structural and mechanistic concepts. The course incorporates a laboratory integrated with the lecture. Students desiring a one-semester terminal course should take CHEM 2300.

Lab/Lecture Hours 3 hours per week.

When Offered (Normally offered spring semester)

A&S College Core 2015 Note: CHEM 2300 is not an acceptable prerequisite for CHEM 2440.

Prerequisite: CHEM 1030 or CHEM 1060 and CHEM 2420.

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

MOLB2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implication for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents, and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MICR 2021 and LIFE 2021

When Offered Fall and Spring

Former Course Number [2210]

Prerequisite: Minimum grade of C in LIFE 1010 and CHEM 1000 or CHEM 1020.

MOLB3610 - Principles of Biochemistry

Credits: 4

One-semester biochemistry course for life-, health- and physical-science students. Introduces a full range of biochemical concepts including discussion of major macromolecules, metabolism and molecular biology.

Prerequisite: LIFE 1010 and a minimum grade of C in CHEM 2300 or CHEM 2420.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

- General Electives (6 credits total)

USP Requirement

The USP-COM 3 requirement is fulfilled in the professional doctoral program.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Division of Social Work

Health Sciences Building, (307) 766-6112

FAX: (307) 766-6839

Web site: www.uwyo.edu/socialwork

Director: Eleanor Pepi Downey, M.S.W., Ph.D

Associate Professors:

ELEANOR PEPI DOWNEY, B.A. Queens College (NC) 1966; M.S.W. Rutgers University 1971; Ph.D. University of Denver 1998; Associate Professor of Social Work 2019.

DIANE A. KEMPSON, B.A. Columbia College 1968; M.S.W. Florida State University 1970; Ph.D. University of South Carolina 1998; Associate Professor of Social Work 2010.

NEELY MAHAPATRA, B.Sc. Utkal University, India 1991; M.Sc. 1993; M.S.S.W. University of Texas-Austin 2003; Ph.D. 2008; Associate Professor of Social Work 2016.

VALERIE THOMPSON-EBANKS, B.Sc. University of the West Indies 2002; M.S.W. 2007; Ph.D. Colorado State University 2012; Associate Professor of Social Work 2018.

Assistant Professors:

SANDY LEOTTI, B.A. Prescott College 2002; M.S.W. University of Montana 2006; Ph.D. Portland State University 2019; Assistant Professor of Social Work 2019.

SUKYUNG YOON, B.A. Chung-Ang University 2002; M.S.W. Yonsei University 2008; Ph.D. University of Tennessee 2019; Assistant Professor of Social Work 2019.

Assistant Lecturers:

BILLIE CHAPMAN, B.A. University of Wyoming 2005; M.S.W. 2008; Assistant Lecturer of Social Work 2018.

KYM CODALLOS, B.A. California State University, Sacramento 1999; M.S.W. California State University, Stanislaus 2006; M.A. 2011; Assistant Lecturer of Social Work 2018.

SARAH S. GREEN, B.A. University of Wyoming, 2015; M.S.W. 2019; Assistant Lecturer 2021.

GRETA MAXFIELD, B.S. University of Wyoming 1994; M.S.W. Washington University 1999; Assistant Lecturer of Social Work 2019.

Social workers are uniquely qualified to help people in their own environments by looking at different aspects of their lives and cultures. We work to ensure the client's personal well-being, prevent crises, counsel individuals, support families, and strengthen communities. We make sure people get the help they need, with the best resources available.

For more than 100 years, social workers have cared for people in every stage of life. Social workers help others overcome life's most difficult challenges and manage the troubles of everyday living, including the troubles that exist due to poverty, stress, addiction, abuse, unemployment, mental illness, family change, and social violence. Social workers advocate for social justice.

Undergraduate Study

The Division of Social Work prepares students for entry-level generalist social work practice. Two locations offer the social work program: the Laramie campus and the University of Wyoming-Casper campus. Graduates receive a Bachelor of Social Work (BSW) and are prepared to work as generalist social work practitioners with individuals, groups, families, organizations, communities, and institutions to achieve more effective and efficient social functioning.

Our program is accredited by the Council on Social Work Education. The curriculum is designed to help students acquire important knowledge and skills in the areas of values and ethics, diversity, social and economic justice, human behavior and the social environment, social welfare policy and services, social work practice, and research. A competency-based curriculum prepares students to meet an "initial level" of competence in nine core areas (CSWE,

2015). Students also select elective courses in areas such as aging, child and adolescent services, health and mental health, and disability services. The program culminates in a 450-hour supervised field practicum, which allows students to work as social workers in one of Wyoming's many human service agencies.

Social Work Major

Social work is a professional degree program. Prior to admission to the professional degree program, students who are working to complete program prerequisites and most University Studies courses are "Social Work-Pre-Admit" majors. Students must be accepted into the BSW program as an admitted "Social Work" major in order to proceed in the program and enroll in professional degree courses beginning in the fall semester (usually of the junior year). Application for Admitted Major status are due in the middle of the Spring semester or in the middle of the Fall semester. Students should apply during the semester they are completing all social work prerequisite courses. Acceptance to Admitted Major (professional degree program) is competitive and requires an application. Please see application requirements on the Division of Social Work website. Students accepted into the professional degree program are expected to complete their degree in a timely manner. Students who have not completed social work classes for one year or more must reapply for Admitted Major and submit a plan for readiness to continue in the social work degree program. A plan may include, but is not limited to, repeating or auditing a course taken at an earlier point in the student's academic experience, completing an independent study that may provide updated social work content for the student, demonstrating knowledge or practice skills. Readmission is not guaranteed.

Criteria for Admission as an Admitted Major

The admissions process is competitive. Students must meet the following minimum criteria to be considered for Admitted Major status.

1. Students must earn a minimum grade point average (GPA) of 2.500 on all UW course work as well as all course work transferred into the University of Wyoming from other academic institutions.
2. Complete the following prerequisites: a. SOC 1000 b. PSYC 1000 c. POLS 1000 d. SOWK 2000 e. Human Biology (KIN/ZOO 2040 or PSYC 2080) f. STAT 2070 g. ECON 1010
3. Students must earn a grade of C or higher in all SOWK prerequisite classes.
4. Students must adhere to the UW Student Code of Conduct and the NASW Code of Ethics.
5. Students cannot exhibit behavior that will impinge on the student's present or future ability to fulfill professional responsibilities as a social work professional.
6. All students seeking admission to programs in the College of Health Sciences are required to undergo a background check as specified by college policy. Criminal convictions may result in rejection of the candidate for admission to Admitted Major.
7. Students must submit an application and an application fee. (See UW Fee Book)
8. Applicants to the social work program cannot receive credit for life experience.

Requirements for Admitted Majors

Once admitted, social work students must:

1. Achieve a C or better in all social work courses, including six hours of required social work electives.

2. Social work classes are offered and must be completed in sequential order.
3. Maintain a 2.500 or above GPA overall every semester after admittance to Admitted Major.
4. Maintain a 2.500 or above GPA overall in all social work course work every semester after admittance to Admitted Major.
5. Registration is restricted and students must meet with their advisor each semester for enrollment.
6. Complete SOWK 4990 with a satisfactory grade.
7. Students must adhere to the UW Student Code of Conduct and the NASW Code of Ethics.

Individuals failing to meet any of the above requirements will be reviewed by faculty and one of the following actions may be taken: remediation, probation, sanction, and/or dismissal from the program. Because many social work courses have prerequisite requirements, receiving a grade lower than a C in a social work course may prevent the individual from moving forward in the social work program.

BSW Field Practicum

All students complete a 450-hour (10 credit hours) field practicum experience in a community-based social agency or social program. Field practicum sites exist throughout the state of Wyoming and students may be placed outside Laramie. Students apply for this program the semester before their actual placement. Students must complete a Field Placement Application and meet with the Field Coordinator prior to determining a practicum site (please review Field Practicum Manual). Background checks and drug screenings may be required by some agencies even though the College of Health Sciences has received a background check during admission to the major.

For the practicum, a grade of U is interpreted as performing below expectations and will not be considered satisfactory completion of the practicum, hence of the BSW program. Based on input from the student, the field instructor, and the faculty liaison during the field evaluation, the field coordinator will determine what remediation would be required. The plan will clarify course objectives and professional skills upon which the student needs to improve. A student wishing to continue in the program would need to reapply for a field placement. Upon the field committee's approval of the request for placement, the student may then repeat the practicum experience. Consistent with University policy, the most recent grade would be the grade calculated into the GPA. The grade of U is interpreted as not meeting minimal requirements of the course; failure to complete the minimum clock hours in the field placement; failure to complete written assignments in a satisfactory manner; violation of one or more of the tenets of the NASW Code of Ethics (see Appendix B and Termination of Practicum section in the practicum manual); and/or failure to withdraw formally or to terminate the course. A student receiving a U in the practicum will be automatically dismissed from the BSW program with no opportunity to reapply or re-enter. Grades and dismissals may be appealed. (See most current BSW Student Handbook for appeal procedures.)

Requirements for Graduation

The program requires 120 credit hours to graduate. Students must have completed all social work requirements, 42 upper-division hours, maintain a 2.500 GPA overall, a 2.500 GPA in social work coursework, and have achieved a grade of C or better in all social work courses. Courses must be taken for a letter grade unless offered for S/U only. USP H and PN courses must be taken outside the major subject but can be cross listed with the major.

BSW Curriculum

Social Work B.S.W. degree plan

Graduate Study

The Master of Social Work (MSW) prepares professional social workers for advanced level social work practice and leadership positions in frontier and rural human service environments. The Advanced Generalist MSW program is accredited by the Council on Social Work Education. The MSW program graduates advanced integrated practitioners who work within and negotiate complex multi-dimensional problem settings for both clients and practitioners while embracing the profession's values of service, social justice, dignity and worth of the person, importance of human relationships, integrity, competence, human rights, and scientific inquiry. The MSW is a full time, campus-based hybrid program that utilizes different course delivery methods to accommodate its widespread student population.

Wyoming School Social Work Certification

The Division offers the necessary requirements to obtain Wyoming School Social Work certification. Students in the last year of the MSW Program need to successfully complete SOWK 5810 Working with Children and Families in the Schools and complete their field placement within an approved school setting. Upon graduation, students must apply to the Wyoming Department of Education to obtain formal certification. For the most current certification information go to the PTSB website <http://wyomingptsb.com/>

Graduate Admissions Requirements

The Division of Social Work's Graduate Admissions Committee bases recommendations on review of all application materials (applicant's grades, personal statement, academic essay, professional references, and any related social service experience) as they reflect the applicant's commitment to social work, social and economic justice, values and ethics of the social work profession, and applicant's potential as a graduate student, social work practitioner, colleague and leader in the social work field. The Committee also looks for the intangible qualities that an applicant brings to the classroom and campus environment and to professional social work.

Once the committee recommends admission of an applicant, the Office of Admissions in Academic Affairs makes the final decision of admission.

Requirements for the Standard MSW Program

- A baccalaureate degree from an accredited college or university that reflects a broad liberal arts preparation. This consists of having completed at least 21 credit hours in social and behavioral sciences and 6 credit hours each in natural sciences, humanities, visual and performing arts, and quantitative reasoning;
- A human biology course (beyond introductory biology), receiving a grade of C or better;
- A statistics course, receiving a grade of C or better;
- An undergraduate cumulative grade point average (GPA) of 3.000 or above on a 4-point scale.

Requirements for the Advanced Standing MSW Program

- A bachelor's degree in Social Work from a Council on Social Work Education accredited social work program;
- An undergraduate social work GPA of 3.250 or above;
- An overall undergraduate GPA of 3.000 or above;

- Received a B or better and/or a Satisfactory grade in BSW Field Education Practicum.

*International students have special requirements for admission to UW. All are encouraged to contact the International Students and Scholars Office for details before applying.

All Applicants

All applicants will be evaluated on:

- a. Intellectual and personal qualities essential to successful practice of social work, such as sensitivity and responsiveness in relationships, concern for the needs of others, adaptability, good judgment, creativity and integrity;
- b. Commitment to social justice and equality;
- c. Written and verbal communication skills;
- d. Professional references; and
- e. Compatibility of career goals with the MSW program's advanced generalist perspective.

All applicants meeting minimum criteria will be considered for admission. Admitted applicants will be required to complete a criminal background check through College of Health Sciences.

Program Specific Degree Requirements

All incoming students enter the MSW program in the summer semester of their first year, completing introductory and/or bridge courses as needed for their specific program phase. The MSW program is divided into two levels: generalist and advanced generalist. The generalist year of the MSW program prepares students without a BSW degree for the advanced generalist curriculum in the second year. Students who have already obtained the BSW degree may apply for Advanced Generalist in the MSW program. These students complete only the second-year courses.

Master of Social Work Field Practicum

All students, regardless of status, participate in a field practicum experience, starting in their first fall semester. New students submit an initial application for placement upon acceptance into the program.

Foundation students will complete 900 hours in practicum over the course of their two years of study, 400 and 500 hours respectively. Advanced Standing students will complete 500 hours in their one year of study. All students in practicum will take a corresponding field seminar class each semester.

Grading is done as Satisfactory/Unsatisfactory. Receiving a grade of U is considered a failing grade and can result in termination from the practicum. If the practicum is terminated, the student may be offered a remediation plan to retake the required hours. This opportunity is only offered one time. The student may also be referred to the DOSW faculty for review according to the Student Academic and Professional Performance policy.

Specific information and procedures relating to all aspects of the field practicum experience can be found in the Field Practicum Manual located on the Division of Social Work's website.

Master of Social Work requirements

- Students complete all SOWK required courses.

- Students complete either the SOWK 5755 Capstone course or the optional SOWK 5960 - Thesis Research.

For students who complete the Capstone course:

- Complete SOWK 5755. The SOWK 5755 portfolio project requires a minimum of 2 credit hours, usually taken as 1 credit in the fall semester and 1 credit in the spring of the advanced year.
- A final written paper with oral defense is required.
- Thesis is NOT required.

For students who choose the optional thesis:

- Complete SOWK 5960 - Thesis Research. SOWK 5960 requires a minimum of 4 credit hours, usually take as 2 in the fall semester and 2 in the spring semester.
- Students who choose to produce a thesis are required to carry out original research.
- Thesis proposal defense, thesis implementation, and final defense are required per university regulations for a thesis project.

Major

Social Work, B.S.W.

Want to make a difference in the world? Turn your passion into action. Our BSW program combines classroom and field experience to provide you with knowledge and skills to help improve the quality of life of individual clients and impact communities.

USP - University Studies Program Requirements

The following University Studies Program requirements are required to graduate and are not covered by the Social Work major.

First Year Seminar (3 credits)

Communications I (3 credits)

ENGL 1010 College Composition and Rhetoric

Communications II (3 credits)

Quantitative Reasoning (3 credits)

MATH 1000 Problem Solving

Physical and Natural World (minimum 6 credits)

LIFE 1003 Current Issues in Biology (4 credits) strongly recommended (LIFE 1010 General Biology also acceptable)

Any other USP Physical & Natural World course (3-4 credits)

Prerequisites for Admission

Prerequisites for admission into the BSW program includes a C or higher in the following courses:

SOC1000 - Sociological Principles

Credits: 3

Provides a survey of the discipline and foundation for other sociology courses. Explores major areas of interest - ranging from small groups and families to bureaucracies and social movements. Introduces significant concepts and theories, along with tools of social research. Gives attention to contemporary American society, as well as comparative and historical material.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

POLS1000 - American and Wyoming Government

Credits: 3

Introduction to the Constitutions and governmental processes of the U. S. and Wyoming.

When Offered (Offered each semester)

USP 2003-2014 Code U3V

USP 2015 Code U5V

SOWK2000 - Introduction to Social Work

Credits: 3

Introduces social work and social welfare through an overview of the history, philosophy, ethics, values, methods, and fields of practice to generalist social work.

Former Course Number [3000]

Prerequisite: Sophomore standing or higher and completion of USP-C2 with a grade of C or higher.

STAT2070 - Introductory Statistics for the Social Sciences

Credits: 4

Presents central ideas of descriptive statistics and statistical inference, as applied to questions in social sciences. Includes graphs, averages, sampling, estimation, hypothesis-testing and relationships between variables. Introduces associated computer skills. Credit cannot be earned in more than one of STAT 2010, STAT 2050, 2070, STAT 4220, 5000.

Cross Listed SOC 2070.

USP 2003-2014 Code U3Q,U3QB

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

- Human Biology. Credits: 3. (PSYC 2080: Biological Psychology or KIN 2040: Human Anatomy)*
*This requires a prerequisite general biology course, usually LIFE 1003: Current Issues in Biology.

Required courses after admission into the Social Work program

NOTE: Once admitted, social work students must achieve a C or better in all social work courses and maintain a 2.500 or above UW and SOWK GPA every semester after admittance to Admitted Major. Please view full requirements and expectations for admitted majors on the Division of Social Work catalog page.

SOWK3530 - Human Behavior and the Social Environment I

Credits: 3

Covers theories and knowledge of human bio-psycho-social-spiritual development and social interactions within a systems framework. Introduces theories of individuals and families and their development. Paradigms of culture, marginalization and oppression are examined.

USP 2003-2014 Code U3CS

Prerequisite: admitted social work major status.

SOWK3630 - Generalist Social Work Practice I, Individual and Families

Credits: 3

Introduces generalist social work practice at all systems' levels, with focus on individuals and families. It covers the nature of social work practice, theoretical perspectives, ethics and values, engagement, assessment, intervention and evaluation processes and skills.

Prerequisite: admitted social work major status.

SOWK3645 - Ethical Social Work Practice

Credits: 3

Focuses on the ethical principles that undergird the practice of social work, addresses how to practice ethically, and explores the process of ethical decision-making. Social work practice with various client systems will be considered, as well as practice in varied settings.

SOWK4060 - Diversity and Difference in Social Work Practice

Credits: 3

Practice class examines social workers' roles and issues related to human diversity. Social work values and ethics and social and economic justice are explored throughout.

USP 2003-2014 Code U3D

Prerequisite: admitted social work major status.

SOWK3540 - Human Behavior and Social Environment II

Credits: 3

Covers theories and knowledge of human bio-psycho-social-spiritual development and social interactions within a systems framework, with a focus on groups, communities, organizations and institutions.

USP 2003-2014 Code U3CS

Prerequisite: SOWK 3530 with a C or better and admitted social work major status.

SOWK3640 - Generalist Social Work Practice II, Groups

Credits: 3

Focuses on group work within the generalist social work perspective, covering theoretical perspectives, ethics and values, and problem-solving skills applied to task and treatment groups.

Prerequisite: SOWK 3630 and SOWK 3530 with a C or better and admitted major status.

SOWK3650 - Generalist Social Work Practice III; Communities and Organizations

Credits: 3

Teaches engagement, assessment, intervention and evaluation with organizations, communities and institutions within the generalist social work perspective.

Prerequisite: SOWK 3630 with a C or better; SOWK 3540 pre or concurrent; admitted social work major status.

SOWK4850 - Human Rights, Social Justice and Social Policy

Credits: 3

Examines human rights, social welfare policy, and social, political and economic justice, as well as systems that oppress and create injustice, both in the US and internationally. A focus of the course will be the analysis of social welfare policy as it affects social justice issues.

Restricted Include: BSW-SOWK major, Exclude: Freshman & Sophomore class standings

Prerequisite: SOWK 4060 and admitted social work major status

SOWK4560 - Social Work Research

Credits: 3

Max Credit 3

Introduces social work research and practice evaluation. Prepares students to use research in practice.

Restricted Include: SOWK students (= admitted majors), Exclude: Freshman & Sophomore class standing

Prerequisite: Admitted social work major status.

SOWK4990 - Social Work Practicum

Credits: 5-10

Max Credit (Max. 10)

Represents the culmination of preparation for entry level generalist social work practice. Supervised practice in the knowledge, values and skills learned in the classroom.

Prerequisite: SOWK 3640, SOWK 3650 and application to the field program.

SOWK4991 - BSW Field Seminar I

Credits: 2

Develops and supports student integration of classroom and field practicum experiences in a final demonstration of competencies for the beginning practitioner. This course is taken in Fall, concurrent with SOWK 4990, Field Practicum.

Prerequisite: concurrent enrollment in SOWK 4990.

SOWK4570 - Research-Informed Practice

Credits: 3

Learn about and engage in methods of research applicable to their social work practice. Competence in methods such as single system design and program evaluation will be assessed in this course.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: SOWK 4560 with a C or better and admitted social work major status.

SOWK4992 - BSW Field Seminar II

Credits: 2

Develops and supports student integration of classroom and field practicum experiences in a final demonstration of competencies for the beginning practitioner.

Prerequisite: taken concurrently with SOWK 4990, Field Practicum.

- Social Work electives Credits: 6 (selected with advisor consultation)

Electives

General Electives (28-29 credits)

Degree must include 120 credits total, at least 42 of which must be upper-division credits. Total number of general elective credit needed may vary per student. Consult with your academic advisor to determine the best electives for your particular interests or needs. It may be worthwhile to add a minor to your degree.

Suggested lower-division electives:

Below are suggested lower-division electives that can be taken before admission into the BSW program. Consult with your academic advisor to determine the best electives for your particular interests or needs. It may be worthwhile to add a minor to your degree.

- SPAN1010 - First Year Spanish I Credits: 4
- SPAN1020 - First Year Spanish II Credits: 4
- RELI1000 - Introduction to Religion Credits: 3
- WIND2100 - Introduction to Disability Studies Credits: 3
- SOC2350 - Race and Ethnic Relations Credits: 3

Suggested upper-division electives:

- FCSC 3110 Personal Finance Credits: 3
- FCSC 4112 Family Decision-Making and Resource Management Credits: 3

Additional Requirements

Social work is a professional degree program. Prior to admission to the professional degree program, students who are working to complete program prerequisites and most University Studies courses are "Social Work-Pre-Admit" majors. Students must be accepted into the BSW program as an admitted "Social Work" major in order to proceed in the program and enroll in professional degree courses beginning in the fall semester (usually of the junior year). Acceptance to Admitted Major (professional degree program) is competitive and requires an application. See the Division of Social Work catalog page for full admission requirements.

The program requires 120 credit hours to graduate. Students must have completed all social work requirements, 42 upper-division hours, maintain a 2.500 GPA overall, a 2.500 GPA in social work coursework, and have achieved a grade of C or better in all social work courses. Courses must be taken for a letter grade unless offered for S/U only.

Graduate

Social Work, M.S.W.

Want to make a difference in the world? Join our MSW program and accelerate into bold thinking and professional leadership via multiple paths in human services. Our MSW's advocate for change for a better world! Join us.

Admission Requirements for the Standard MSW Program

- A baccalaureate degree from a nationally accredited college or university that reflects a broad liberal arts preparation. This consists of having completed at least 21 credit hours in social and behavioral sciences and 6 credit hours each in natural sciences, humanities, visual and performing arts, and quantitative reasoning;
- A human biology course (beyond introductory biology), receiving a grade of C or better;
- A statistics course, receiving a grade of C or better;
- An undergraduate cumulative grade point average (GPA) of 3.000 or above on a 4-point scale.

Admission Requirements for the Advanced Standing MSW Program

- A bachelor's degree in Social Work from a Council on Social Work Education accredited social work program;
- An undergraduate social work GPA of 3.250 or above;
- An overall undergraduate GPA of 3.000 or above;
- Received a B or better and/or a satisfactory grade in BSW Field Education Practicum.

*International students have special requirements for admission to UW. All are encouraged to contact the International Students and Scholars Office for details before applying.

All Applicants

All applicants will be evaluated on:

- a. Intellectual and personal qualities essential to the successful practice of social work, such as sensitivity and responsiveness in relationships, concern for the needs of others, adaptability, good judgment, creativity and integrity;
- b. Commitment to social justice and equality;
- c. Written and verbal communication skills;
- d. Professional references; and
- e. Compatibility of career goals with the MSW program's advanced generalist perspective.

All applicants meeting minimum criteria will be considered for admission. Admitted applicants will be required to complete a criminal background check through the College of Health Sciences.

Program Specific Degree Requirements

All incoming students enter the MSW program in the summer semester of their first year, completing introductory and/or bridge courses as needed for their specific program phase. The MSW program is divided into two levels: generalist and advanced generalist. The generalist year of the MSW program prepares students without a BSW degree

for the advanced generalist curriculum in the second year. Students who have already obtained their BSW degree may apply for Advanced Generalist in the MSW program. These students complete only the second-year courses.

Master of Social Work Field Practicum

All students, regardless of status, participate in a field practicum experience, starting in their first fall semester. New students submit an initial application upon formal admission to the program.

Foundation students will complete 900 hours in practicum over the course of their two years of study, 400 and 500 hours respectively. Advanced Standing students will complete 500 hours in their one year of study. All students in practicum will take a corresponding field seminar class each semester.

Grading is done as Satisfactory/Unsatisfactory. Receiving a grade of U is considered a failing grade and can result in termination from the practicum. If the practicum is terminated, the student may be offered a remediation plan to retake the required hours. This opportunity is only offered one time. The student may also be referred to the DOSW faculty for review according to the Student Academic and Professional Performance policy.

Specific information and procedures relating to all aspects of the field practicum experience can be found in the Field Practicum Manual located on the Division of Social Work's website.

Master of Social Work

- Students complete all SOWK required courses.
- Students complete either the SOWK 5755 Capstone course or the optional SOWK 5960 - Thesis Research.

For students who complete the Capstone course:

- Complete SOWK 5755. The SOWK 5755 portfolio project requires a minimum of 2 credit hours, usually taken as 1 credit in the fall semester and 1 credit in the spring of the advanced year.
- A final written paper with oral defense is required.
- Thesis is NOT required.

For students who choose the optional thesis:

- Complete SOWK 5960 - Thesis Research. SOWK 5960 requires a minimum of 4 credit hours, usually take as 2 in the fall semester and 2 in the spring semester.
- Students who choose to produce a thesis are required to carry out original research.
- Thesis proposal defense, thesis implementation, and final defense are required per university regulations for a thesis project.

Wyoming Institute for Disabilities (WIND)

147 Health Sciences Building, (307) 766-2761

FAX: (307) 766-2763

Web site: www.uwyo.edu/wind

Executive Director: Sandra Root-Elledge, M.A.

Senior Lecturer, Executive Director:

SANDRA ROOT-ELLEGE, B.S. University of Wyoming 2001; M.A. 2003; Senior Lecturer, 2018, 2009, 2004.

Associate Professor, Director Disability Studies:

MICHELLE JARMAN, B.A. University of California at Berkeley 1989; M.A. Northern Michigan University 2000; Ph.D. University of Illinois at Chicago 2006; Associate Professor of Disability Studies 2014, 2007.

Associate UCEDD Directors:

ERIC J. MOODY, B.S. Pacific Lutheran University 1998; M.A. University of Denver 2004; Ph.D. 2007; Postdoc University of Colorado School of Medicine 2011; Research Professor, Director of Research and Evaluation 2018.

CANYON HARDESTY, B.S. University of Wyoming 2004; M.S. 2007; M.S. Creighton University 2011; Associate Lecturer 2018, 2013.

Associate Lecturer:

ALISON QUAGGIN HARKIN, B.A. University of Toronto 1981; M.A. Athabasca University 2010; Assistant Lecturer 2014.

Assistant Lecturers:

TERRI WOFFORD, B.S. University of Central Florida 1994; M.S. East Tennessee State University 1998; Assistant Lecturer 2017.

The Wyoming Institute for Disabilities (WIND) is part of a national network of University Centers of Excellence in Developmental Disabilities Education, Research and Service (UCEDD). These centers provide a broad array of interdisciplinary academic, clinical, and research experiences of people with disabilities-particularly developmental disabilities. A wide variety of disciplines contribute to the study of disabilities.

WIND offers a Disability Studies Minor which investigates broad questions about the nature, meanings, and consequences of disability from interrelated social, historical, cultural, and political perspectives. The undergraduate minor in disability studies examines disability issues from multiple lenses, and draws specifically from social sciences, humanities, and health sciences.

Disability studies has an ethical commitment to place the interests and voices of people with disabilities at the center of our curricula and training activities. The minor balances theoretical exploration with practical application, and provides students with a vibrant understanding of disability history, cultural representation, policy concerns, and current debates. Ultimately, students in the minor will work closely with people with disabilities, and gain the skills and perspectives to participate in unique disability research and advocacy.

Minor

Disability Studies Minor

A diverse interdisciplinary field that investigates the nature, meanings, and consequences of dis/ability from social, cultural, and policy perspectives.

Program Goals:

Disability studies views disability as a political construction, cultural identity, and valued lived experience, not simply as a medical condition. The minor curriculum embeds these overarching goals:

1. Promoting full civic integration of people with disabilities;
2. Positioning disability as an integral aspect of human diversity; and
3. Addressing disability rights, equity, and justice in personal, relational, community, and structural contexts.

Requirements:

All students in the minor are required to complete 18 credit hours consisting of three WIND core courses, one WIND elective, and two additional WIND or external electives related to disability studies. External electives should be selected in consultation with a disability studies faculty advisor.

Required Core Courses: 9 Credits

WIND2100 - Introduction to Disability Studies

Credits: 3

Provides students with an overview of the disability studies field. Students gain introductory knowledge about the disability studies perspective by examining the work of scholars from many academic backgrounds, which will facilitate students' understanding of the interdisciplinary nature of disability studies.

USP 2003-2014 Code U3CH,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

WIND4020 - Disability Studies Theory and Practice

Credits: 3

Explores the interdisciplinary nature of disability studies theory and scholarship, including investigation of embodied knowledge, cultural meanings, and socio-political practices related to disability. Students will develop in-depth critical disability research papers and deliver accessible, professional presentations.

Cross Listed SOWK 4020.

Dual Listed WIND 5020.

USP 2003-2014 Code U3CS

USP 2015 Code U5C3

Prerequisite: WIND 2100 or WB or COM2.

WIND4500 - Practicum

Credits: 3

Provides students practical experience in the field of Disability. Typically taken during a student's final semester in the

Disability Studies Minor.

Prerequisite: completion of WIND 2100, and WIND elective, WIND 4020 (or concurrent enrollment).

WIND Electives: 3-9 Credits

At least 3 credits, and up to 9 credits, selected from WIND electives:

WIND2500 - Special Topics

Credits: 1-3

Max Credit (Max. 6)

Provides undergraduate students with the opportunity to gain introductory knowledge of critical topics and new areas of inquiry in the field of disability studies.

WIND2700 - Gender and Disability

Credits: 3

Disability studies draws upon critical theory to investigate disability as a discursive construction. Investigates how intersecting conceptions of disability and gender have shaped cultural meanings and the social positioning of specific groups, especially women with disabilities. Topics include non-normative embodiment, issues of representation and subjectivity, and the politics of health, sexuality, and care.

Cross Listed GWST 2700.

USP 2003-2014 Code U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

WIND3150 - Literature and Medicine

Credits: 3

This course explores how literature and memoirs have grappled with illness, disease, and disability, paying particular attention to the perspectives of doctors, nurses, patients, families, and communities in shaping meanings of diagnoses, health, and access to care.

Prerequisite: Completion of COM1.

WIND4050 - Independent Study

Credits: 1-3

Max Credit (Max. 6)

Offers the advanced student the opportunity to pursue a topic of interest with the direction of an instructor in disability studies.

Dual Listed WIND 5050.

Prerequisite: WB and consent of instructor.

WIND4100 - Global Disability Studies

Credits: 3

The course investigates global approaches to disability, including the UN Convention on the Rights of Persons with Disabilities (CRPD), and crucial disability issues such as education, employment, poverty and social integration. Students will carry out research projects and present on their work.

USP 2003-2014 Code [none] >COM3]

Prerequisite: COM2

WIND4200 - Diverse Minds

Credits: 3

Through investigations of novels, memoirs, films, and media representations of intellectual disability, autism/neurodiversity, and psychiatric disability, students critically analyze figurations of "unstable," "unruly," or what we will conceptualize as "diverse" minds.

Dual Listed WIND 5200.

USP 2003-2014 Code [none] >COM3]

Prerequisite: COM2

WIND4600 - Special Topics

Credits: 3

Provides upper division undergraduate students with the opportunity for in-depth examination of critical topics and new areas of inquiry in the field of disability studies.

Prerequisite: WIND 2100 , Junior standing and consent of instructor.

External Electives: 0-6 Credits

The following UW courses are accepted as external electives:

SPPA2110 - American Sign Language I

Credits: 4

Basic comprehension and expression of American Sign Language (ASL), the language used by the Deaf community in the United States. ASL vocabulary, grammar, and pragmatics are taught through lecture, conversation, and storytelling. The direct experience method (using ASL with no voice) is utilized to enhance the learning process.

USP 2015 Code U5H

Former Course Number [4100]

SPPA2120 - American Sign Language II

Credits: 4

Second level of ASL comprehension and expression. ASL vocabulary, grammar, and pragmatics, along with increased fluency, are taught through lecture, conversation, and storytelling. Translation from English to ASL is addressed.

USP 2015 Code U5H

Former Course Number [4120]

Prerequisite: SPPA 2110.

EDEX2484 - Introduction to Special Education

Credits: 3

Designed to meet the needs of education majors for a required course in special education. Students will explore the history of, understanding of and services for individuals with low/high incidence disabilities.

Prerequisite: EDST 2450 completed with a C or better and an institutional GPA of 2.50.

SPPA4070 - Deaf Studies

Credits: 3

Studies deaf culture and deaf history in the United States. Culture topics will include deaf community dynamics, humor, behavior, emotional and social interaction, besides issues involving deaf children as a linguistic minority. History will be discussed from the 1700s to the present in the U. S.

USP 2003-2014 Code U3CS,U3D

USP 2015 Code U5H

A&S College Core 2015 ASD

Prerequisite: SPPA 2110.

FCSC4124 - Families of Young Children With Special Needs

Credits: 3

Deals with importance of including family in the process of early intervention with the preschool child with special needs.

Prerequisite: FCSC 2121 or PSYC 2300; junior standing.

PSYC4320 - Intellectual Disability

Credits: 3

Acquaints students with all aspects of intellectual disability including assessment, diagnosis and classification, etiology, and associated health and mental health difficulties. Prevention, educational and psychological intervention, family adaptation, and community involvement are also addressed.

Prerequisite: A grade of C or better in PSYC 1000 and PSYC 2300 or PSYC 4300 or FCSC 2121 or EDST 2450.

- Note: many courses in GWST, AMST, and other units in the School of Culture, Gender, and Social Justice would also be acceptable external electives.

More Information:

As an interdisciplinary minor, this program complements majors across the university. For more information, visit the website: www.uwyo.edu/wind/disabilitystudies/index.html, contact program director, Michelle Jarman at mjarman@uwyo.edu or by phone at 766-5060, or visit the WIND office located in the Health Sciences Building, room 147.

18 Credit Hours Total

Medical Laboratory Science

Aley Hall, UW-Casper, (307) 268-2753

FAX: (307) 268-2416

Web site: www.uwyo.edu/pharmacy/mlsprogram/index.html

Director: Jed M. Doxtater, MS MLS (ASCP)

Assistant Clinical Faculty:

JED M. DOXTATER, B.S. University of Montana 2007; M.S. University of North Dakota 2013; Assistant Clinical Faculty of Medical Laboratory Science 2015.

Assistant Lecturer:

CHARLIE P. CRUZ, B.S. Lorma Colleges 1998; M.A. Don Mariano Marcos Memorial State University 2003; M.S. Lyceum of the Philippines University Batangas 2016; Ph.D. Saint Louis College 2014; Assistant Lecturer of Medical Laboratory Science 2016.

Mission and Goals

The mission of the Bachelor of Science in Medical Laboratory Science program at the University of Wyoming-Casper is to educate, train, and produce highly competent, ethical professionals who are committed to lifelong learning. Curriculum is designed to prepare students to meet current and future workplace challenges and technological advancements in the profession.

Program Goals

1. Provide education in accordance with the National Accrediting Agency for clinical Laboratory Sciences (NAACLS) standards for Medical Laboratory Science programs.
2. Provide students with adequate knowledge and background experience to successfully complete the national certification examination appropriate to their level of training.
3. Provide opportunity for students to develop skills in effective communication sufficient to serve the needs of patients, public, and other healthcare professionals.

4. Graduate well qualified Medical Laboratory Scientists who can function at a career entry level, and are prepared to meet the workforce needs of the state of Wyoming and the nation.
5. Provide students with professional role models so that they may develop and practice professional behaviors, attitudes and ethics necessary to work in, and promote the field of Medical Laboratory Science.
6. Periodically undergo program review to meet the diverse educational needs of students, accreditation standards and industry demands for qualified, skilled entry level practitioners.
7. Establish an advisory board of professionals, community partners and stakeholders for program development, evaluation and improvement.
8. Promote membership and active participation in professional societies.

Outcomes

Description of Entry Level Competencies of the Medical Laboratory Scientist

At entry level, the medical laboratory scientist will possess the entry level competencies necessary to perform the full range of clinical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology/Transfusion medicine, Microbiology, Urine and Body Fluid Analysis and Laboratory Operations, and other emerging diagnostics, and will play a role in the development and evaluation of test systems and interpretive algorithms.

The medical laboratory scientist will have diverse responsibilities in areas of analysis and clinical decision making, regulatory compliance with applicable regulations, education, and quality assurance/performance improvement wherever laboratory testing is researched, developed or performed.

At entry level, the medical laboratory scientist will have the following basic knowledge and skills in:

- Application of safety and governmental regulations and standards as applied to clinical laboratory science;
- Principles and practices of professional conduct and the significance of continuing professional development;
- Communications sufficient to serve the needs of patients, the public and members of the health care team;
- Principles and practices of administration and supervision as applied to clinical laboratory science;
- Educational methodologies and terminology sufficient to train/ educate users and providers of laboratory services;
- Principles and practices of clinical study design, implementation and dissemination of results;
- Theoretical knowledge and technical skills of concepts relating to all content areas required by NAACLS, including Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology, Microbiology, Urine and Body Fluid Analysis, Laboratory Operations and

biohazard and safety

Accreditation

The Medical Laboratory Science Program at the University of Wyoming is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Accreditation is a process of external peer review in which an agency grants public recognition to a program of study or an institution that meets established qualification and educational standards. Participation in the accreditation process is voluntary since there is not a legal requirement for

specialized programs and institutions to participate. However, when students complete a NAACLS accredited program they become eligible to sit for national certification examinations for the profession. The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) is a nonprofit organization that independently accredits medical technologist (MLS), clinical laboratory technician/medical laboratory technician (CLT/MLT), histotechnologist (HTL), histologic technician (HT), pathologists' assistant (Path Asst), diagnostic molecular scientist (DMS) and cytogenetic technology (CT), Phlebotomist (PBT), and clinical assistant (CA) educational programs. *Contract information:* National Accrediting Agency for Clinical Laboratory Sciences, 5600 North River Road, Suite 720, Rosemont, IL 60018-5119 <http://www.naacls.org>

Prerequisites for Admission to the MLS Professional Program

Students must meet the following minimum criteria to be considered for Admitted Major status:

- Completion of the Casper College A.S. degree in MLT within 5 years or B.S. degree in a related science.
- Minimum grade point average (GPA) of 2.000 on all course work transferred into the University of Wyoming at Casper from other academic institutions.
- Successful completion of the Medical Laboratory Technician BOC exam is preferred. Students that have not completed the BOC may be admitted with MLS program directors approval.
- Students admitted to the program that do not hold an A.S. in MLT or a B.S. in a related science may be required to complete the University of Wyoming University Studies program in addition to the basic requirements for the Bachelor of Science in Medical Laboratory

Science degree.

See the current requirements at <http://www.uwyo.edu/unst/>

Applying for Admission to MLS Professional Program

Upon completion of the prerequisite requirements of the program, students may apply to the professional program in the fall semester of their senior year. Applications for the program must be submitted to the MLS program director before finals week of the fall semester prior to entering the professional program Advanced Clinical Practicum (ACP) coursework. It is the students' responsibility to complete and submit applications by the defined due date.

Students are required to complete an observational enrichment experience during the final MLS semester. This observational experience is designed to demonstrate advanced concepts and topics presented in the MLS curriculum, in a practical setting.

Prior to participating in the enrichment experience, students may be subjected to that agency's requirements for HIPAA training, a background check, drug testing and/or drug abuse prevention policies. Students may be subject to the random drug testing policy of that agency. These background checks are routinely required by schools, hospitals, and other agencies that participate in on-site training. Background checks should be obtained from Viewpoint screening (<https://www.viewpointscreening.com/uwyo>).

Students must meet the vaccination and health insurance requirements of the university. Vaccinations are available through the county health department or through student health on the UW-C campus, and liability health insurance is available through the University of Wyoming. Current enrichment site affiliates do not require a background check, drug screen or proof of vaccination, as the university vaccination requirements exceed that of the facility. If a student finds an appropriate observational enrichment experience outside of the opportunities available through the MLS program, the student must communicate the site to the MLS program director for approval. This notification should occur well in advance to entering the professional program. It will be the responsibility of the student to arrange the experience with the appropriate site personnel/HR and program director, to ensure all required documentation is

provided. The student must provide proof of health insurance and Hepatitis B vaccination (or declination) to participate in on-campus student laboratory sessions. Hepatitis B vaccinations are available on the UW-C campus at student health, or at the county health department for a small fee.

Essential Functions

Applicants must meet certain essential functions as defined by NAACLS. If you feel that you do not meet these essential functions, careful consideration should be made and advisement received before entering the MLS Program. Essential functions are the abilities and essential functions that a student must be able to perform to be successful in the learning experiences and completion of the program.

Observational Requirements

The MLS student must be able to:

- Observe laboratory demonstrations in which biologicals are tested for their biochemical, hematological, immunological, microbiological, and histochemical components.
- Characterize the color, odor, clarity, and viscosity of biologicals, reagents or chemical reaction products.
- Employ a clinical grade binocular microscope to discriminate among the structural and color (hue, shading, and intensity) differences of microscopic specimens.
- Read and comprehend text, numbers, and graphs displayed in print and on a video monitor.

Movement Requirements

The MLS student must be able to:

- Move freely and safely about a laboratory.
- Reach laboratory bench-tops and shelves, patients lying in hospital beds or patients seated in specimen collection furniture.
- Travel to numerous clinical laboratory sites for practical experience. • Perform moderately taxing continuous physical work, often requiring prolonged sitting, over several hours.
- Maneuver phlebotomy and culture acquisition equipment to safely collect valid laboratory specimens from patients.
- Control laboratory equipment (i.e., pipettes, inoculating loops, test tubes) and adjust instruments to perform laboratory procedures.
- Use an electronic keyboard to operate laboratory instruments and to calculate, record, evaluate, and transmit laboratory information.
- Perform fine hand manipulations with dexterity.

Communication Requirements

The MLS student must be able to:

- Read and comprehend technical and professional materials.
- Follow verbal and written instructions in order to correctly and independently perform laboratory test procedures.
- Clearly instruct patients prior to specimen collection.
- Effectively, confidentially and sensitively converse with patients regarding laboratory tests.
- Communicate with faculty members, fellow students, staff, and other health care professionals verbally and in a recorded format.
- Independently prepare papers, prepare laboratory reports, and take paper, computer, and laboratory practical examinations.

Behavioral Requirements

The MLS student must:

- Be able to manage the use of time and be able to systematize actions in order to complete professional and technical tasks within realistic constraints.
- Possess the emotional health necessary to effectively employ intellect and exercise appropriate judgment.
- Be able to provide professional and technical services while experiencing the stresses of task-related uncertainty and a distracting environment.
- Be flexible and creative and adapt to professional and technical change.
- Recognize potentially hazardous materials, equipment, and situation and proceed safely in order to minimize risk of injury to patients, self, and nearby individuals.
- Adapt to working with unpleasant biologicals.
- Support and promote the activities of fellow students and of health care professionals.
- Realize that the promotion of peers helps furnish a team approach to learning, task completion, problem solving and patient care.
- Be honest, compassionate, ethical and responsible.

Request for Accommodation

All students are held to the same academic and technical standards. Applicants/students with disabilities seeking accommodation must discuss their disability and accommodation needs with the University Disability Support Services (udss@uwyo.edu or (307) 766-6189; TTY: (307) 766-3073). If appropriate and upon request and registration of the applicant, a reasonable accommodation will be made consistent with University of Wyoming guidelines.

Requirements for the Bachelor of Science in Medical Laboratory Science

Medical Laboratory Science, B.S. degree plan

Dental Hygiene

Health Sciences Advising Office

Craig Vaske, Manager

Phone: (307) 766-3878

Email: hsadvise@uwyo.edu

Web site: <http://www.uwyo.edu/hs/divisions-and-programs/dental-hygiene-program.html>

The University of Wyoming and Sheridan College offer a cooperative program of dental hygiene education which, when completed, results in two degrees. An Associate of Applied Science degree in dental hygiene is awarded by Sheridan College following completion of the prerequisites and dental hygiene prescribed study. An optional Bachelor of Science in Dental Hygiene (BSDH) degree is awarded by the University of Wyoming following completion of the Associate of Applied Science in dental hygiene, the University Studies Program, and other requirements of the University of Wyoming, for a total of 120 credit hours including 42 upper level hours, 30 of which must be from the University of Wyoming. See www.uwyo.edu/hs/divisions-and-programs/dental-hygiene-program.html.

The American Dental Association has awarded full accreditation to the Associate of Applied Science degree in dental hygiene at Sheridan College. Graduates are eligible to take the National Board of Dental Hygiene exam, as well as regional and state exams for licensure, as registered dental hygienists.

Applicants should visit www.sheridan.edu/academics/programs-a-z/dental-hygiene for specific prerequisites and application materials. Applications are due to Sheridan College prior to February 15 of the year they wish to enter the program. Class sizes are limited. Admission is contingent upon successful completion of a background check.

All prerequisite coursework must be completed with a cumulative grade point of 2.750 (on a 4.000 point scale). Courses in anatomy, physiology, and microbiology must be current within five years at the time of application to the Dental Hygiene professional program. Students must also complete a minimum of 20 hours of dental hygiene observation prior to application. Completion of the prerequisite courses and observation does not guarantee admission to the professional program. If admitted, students complete their coursework in Sheridan, Wyoming.

Prospective applicants can take prerequisite courses at any higher education institution. To view a list of prerequisites, see the degree program page in this catalog. Students who are completing prerequisite courses at the University of Wyoming are advised by the Health Sciences Advising Office (hsadvise@uwyo.edu). These students apply to UW as "Pre-Dental Hygiene" students.

NOTE: This major is not appropriate for students preparing to apply to dental school.

Learning Outcomes

The primary objective of the program is to assure that graduates have knowledge and abilities necessary to successfully practice dental hygiene.

Major

B.S. in Dental Hygiene (BSDH)

Dental hygienists play an important role in promoting health by helping patients understand the connection between good oral health and an overall healthy body. They provide patient education and individualized therapeutic services to help patients reach their oral health goals.

Program Prerequisites

Students interested in the bachelor's degree in dental hygiene should contact the Health Sciences Advising Office at Health Sciences 110, phone (307)766-3878, e-mail: hsadvise@uwyo.edu.

Prerequisite courses for admission into the Dental Hygiene program at Sheridan College includes a cumulative GPA of 2.750 or better in the courses listed below. These may be taken at any institution, but if taken at the University of Wyoming, the course numbering will be as follows:

MATH1400 - College Algebra

Credits: 3

Emphasizes aspects of algebra important in the study of calculus. Includes notation of algebra, exponents, factoring, theory of equations, inequalities, functions, graphing and logarithms. For students who plan to enroll in a calculus course (MATH 2200 or MATH 2350).

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in Math 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA
USP 2015 Code U5C1

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB
USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O
USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

PSYC1000 - General Psychology

Credits: 3

Surveys the field of psychology through lectures, class discussion and assigned readings. Includes development of behavior, physiological mechanisms of behavior, perception, motivation and emotion, learning, intelligence, individuality and personality and mental health.

USP 2003-2014 Code U3CS
USP 2015 Code U5H

ANTH1200 - Introduction to Cultural Anthropology

Credits: 3

Introduction to foreign, especially non-western, cultures through anthropological concepts, films and ethnographies.

USP 2003-2014 Code U3CS, U3G
USP 2015 Code U5H
A&S College Core 2015 ASG

FCSC1141 - Principles of Nutrition

Credits: 3

This course will provide an introduction to the fundamental concepts of nutrition science and the role of nutrition in overall health. Students develop an understanding of nutritional requirements as related to metabolism of nutrients in various physiological states. Designed for nutrition majors and interested non-majors.

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.
OR CHEM 1020 General Chemistry I

MICR2021 - General Microbiology

Credits: 4

Introduces nature and diversity of microorganisms and their implications for all of biology. Covers comparative properties of eukaryotic and prokaryotic microbes, as well as their roles as disease agents, ecological agents and model systems for understanding of fundamental biological processes at the molecular level.

Cross Listed MOLB 2021.

Former Course Number [MICR 2210]

Prerequisite: LIFE 1010, CHEM 1000 or equivalent.

OR MOLB 2021 General Microbiology

KIN2040 - Human Anatomy

Credits: 3

Study of human structure in terms of its microscopic and gross anatomy. Provides students with adequate background to study human physiological function. The corresponding course, to be taken concurrently, is KIN 2041.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2040]

Prerequisite: LIFE 1000, LIFE 1003, LIFE 1010, or ANTH 1100.

KIN2041 - Human Anatomy Laboratory

Credits: 1

A laboratory study of human structure in terms of human microscopic and gross anatomy. This laboratory course is designed to provide students with an adequate background to study human physiology and kinesiological function.

USP 2003-2014 Code U3SB

Former Course Number [PEPR 2041]

Prerequisite: KIN 2040 or concurrent enrollment in KIN 2040.

ZOO3115 - Human Systems Physiology

Credits: 4

Covers the fundamental function(s) of the human body systems, from cells and tissues through organs and systems, focusing also on biological communication and homeostasis. Students learn how to interpret physiological data. Includes laboratory and tutorial sessions. Fulfills degree requirement in physiology subsection for zoology major.

Prerequisite: At least ((C in CHEM 1020 or CHEM 1050) or B in CHEM 1000) and C in LIFE 1010.

UW Requirements for the BSDH Degree

In order to receive a BSDH through the University of Wyoming, students must also take the following courses:

1. Program prerequisites
2. A.A.S. in Dental Hygiene from Sheridan College (competitive application required)
3. Completion of all USP requirements, including the US and Wyoming Constitutions (USP-V) and Communication III (USP-COM3) requirements
4. STAT 2050 or STAT 2070
5. At least 120 credits hours, 42 of which are upper-division credits. This usually requires the completion of additional upper-division elective credits. Note: talk to an advisor to know whether you need to fulfill any additional credits toward your BSDH (hsadvise@uwyo.edu).

Required Courses

Required courses after admission to the Dental Hygiene program at Sheridan College (NWCC-D):

Sheridan College Courses

Sheridan College courses, taught ONLY at Sheridan College in Sheridan, WY.

- DHYG 2100 - Dental Health Education Credits: 3
- DHYG 2300 - Preclinical Dental Hygiene Credits: 3
- DHYG 2305 - Clinical Dental Technology Credits: 1
- DHYG 2405 - Dental Anatomy Credits: 2
- DHYG 2450 - Oral Radiology Credits: 3
- DHYG 2451 - Oral Radiology Lab Credits: 1
- DHYG 2470 - Orientation to Dental Hygiene Credits: 3
- DHYG 2200 - Pharmacology Credits: 2

- DHYG 2210 - Dental Embryology & Histology Credits: 2
- DHYG 2350 - Clinical Dental Hygiene I Credits: 3
- DHYG 2400 - Head, Neck, and Oral Anatomy & Physiology Credits: 2
- DHYG 2420 - Clinical Seminar I Credits: 2
- DHYG 2455 - Dental Materials Credits: 2
- DHYG 2456 - Dental Materials Lab Credits: 1

University of Wyoming Courses

University of Wyoming courses (details below), taught ONLY at Sheridan College in Sheridan, WY.

DHYG3230 - Clinical Seminar II

Credits: 2

This course is a continuation of the Clinical Seminar Series. Course content will focus on the review and enhancement of instrumentation skills; the essentials of instrument selection; the role of root planing in dental hygiene; the development and refinement of skills needed for treatment of more advanced periodontal cases, which includes the initiation of a periodontal case study; and the introduction and preparation for the use of state-of-the-art clinical technologies.

Prerequisite: DHYG 2420.

DHYG3300 - Clinical Dental Hygiene II

Credits: 5

This course provides students the opportunity to gain further practical experience in dental hygiene procedures by providing comprehensive patient care in clinical settings. A flexible format allows students to meet requirements in procedures for patient record-keeping, patient education, dental prophylaxis, dental radiography and routine clinical procedures.

Prerequisite: DHYG 2350.

DHYG3400 - General and Oral Pathology

Credits: 3

This course is designed to teach students the concepts underlying general and oral manifestations of human disease states, manifestations of specific diseases, relationships to body defense mechanisms, and potential implications for medical and dental hygiene treatment. To the extent possible, applications to clinical situations in dental hygiene practice will be made.

Prerequisite: one year pre-dental hygiene (including general pathology); MOLB 2021 or equivalent.

DHYG3600 - Ethics and Law in Dental Hygiene

Credits: 2

This course provides an introduction to basic concepts in the analysis of ethical theories, principles, values, the professional code of ethics, and legal aspects associated with the dental hygiene healthcare profession. Contemporary

issues are examined in dentistry and medicine as a strategy to explore and apply ethical principles in diverse cultures and situations.

Prerequisite: successfully complete all first-year dental hygiene courses.

DHYG3750 - Periodontology

Credits: 3

This course reviews the anatomy and histology of periodontal structures and dental accretions followed by a study of the classifications and etiology of periodontal diseases including both local and systemic factors. A thorough exploration of the hygienist's role in disease recognition, prevention, therapeutic procedures and maintenance is also included.

DHYG3770 - Pain Management

Credits: 2

This course provides clinical experience with local anesthesia and inhalation sedation techniques. It includes the detection of anatomic landmarks in the mouth pertaining to specific injection sites, preparation of the armamentarium, maintenance of asepsis, simulated and real injection of anesthetic agents at predetermined sites and administration of nitrous oxide/oxygen.

Prerequisite: successful enrollment in dental hygiene major or consent of instructor.

DHYG3775 - Pain Management Lab

Credits: 1

This course provides clinical experience with local anesthesia and inhalation sedation techniques. It includes the detection of anatomic landmarks in the mouth pertaining to specific injection sites, preparation of the armamentarium, maintenance of asepsis, simulated and real injection of anesthetic agents at predetermined sites and administration of nitrous oxide/ oxygen.

Prerequisite: successful completion of sophomore year course work in dental hygiene, current certifications in CPR, and curriculum enrollment in dental hygiene major or consent of instructor.

DHYG3250 - Clinical Seminar III

Credits: 2

This course prepares the dental hygiene student to make the transition from an educational setting to private practice. Focus is on applying, synthesizing, and transferring clinical and didactic knowledge to clinical and ethical decision-making. Students will be engaged in problem-based case studies, application of motivational theories, and analysis of evidence-based research.

Prerequisite: DHYG 3230, DHYG 3300 and DHYG 3350 or concurrent enrollment.

DHYG3350 - Clinical Dental Hygiene III

Credits: 5

This course assists students in gaining practical experience in clinical procedures requiring greater skill and knowledge than procedures previously undertaken. This course prepares students for the transition to private office practice.

Prerequisite: DHYG 3300.

DHYG3550 - Community Dental Health

Credits: 3

This course provides the dental hygiene student with an introduction to basic skills needed to evaluate the dental health community, including research methodology and basic statistical analysis. It provides the student with a basic understanding of the significant social, political, psychological and economic factors influencing the American Health System.

Prerequisite: DHYG 2100.

DHYG3720 - Office Practice

Credits: 2

This course is designed to provide the dental hygiene student with both current information and experience in office practice and management. Also included are discussions of professionalism, decision-making and leadership roles, including legal and ethical responsibilities, team responsibilities in the dental office and discussion of selecting, securing and maintaining employment.

Prerequisite: DHYG 2300, 2350, DHYG 3300 and a communications course.

DHYG3800 - Board Review

Credits: 1

This course is designed to assist dental hygiene students in preparing for the National Board Dental Hygiene Exam, the western and central regional clinical and anesthesia board exams, and state jurisprudence exams. These exams are required for licensure to practice dental hygiene in the United States. This course includes discussion of the distinction between various agencies in the education, healthcare and legal system which have jurisdiction over the licensure process, and the impact of cheating during any portion of the process on the public welfare.

Prerequisite: DHYG 3300.

College of Law

College of Law

102 Law Building

Klint Alexander, Dean

Phone: (307)766-6416 FAX: (307)766-6417

Web site: www.uwyo.edu/law

Professors:

KLINT ALEXANDER, B.A. Yale University 1991; Ph.D./M.Phil. Cambridge University 1997; J.D. University of Virginia 1999; Dean & Professor of Law 2015.

MELISSA ALEXANDER, B.A. Yale University 1996; J.D. University of Virginia 1999; Professor of Law 2019, 2015.

JACQUELYN BRIDGEMAN, B.A. Stanford University 1996; J.D. University of Chicago 1999; Associate Dean for Academic Affairs and Professor of Law 2008, 2002.

KENNETH CHESTEK, B.A. Pennsylvania State University 1975; J.D. University of Pittsburg School of Law 1979; Professor of Law 2018, 2012.

DANIELLE R. COVER, B.A. University of Maryland 1994; J.D. Tulane University School of Law 1997; Professor of Law 2020, 2014; Director of Legal Services Clinic.

JAMES M. DELANEY, B.A. University of Washington 1985; J.D. Gonzaga University School of Law 1992; LL.M. in Taxation, University of Florida 1997; Professor of Law 2013.

STEPHEN M. FELDMAN, B.A. Hamilton College 1977; J.D. University of Oregon 1982; J.S.M. Stanford University 1986; Jerry W. Housel/ Carl F. Arnold Distinguished Professor of Law 2002.

MARK GLOVER, B.A. Washington University in St. Louis 2002; J.D. Boston University School of Law 2008; LL.M. Harvard Law School 2011; Professor of Law 2019, 2015.

DARRELL D. JACKSON, B.A. College of William and Mary 1987; J.D. George Mason University School of Law 1990; Ph.D. University of Colorado School of Education 2011; Professor of Law 2018, 2013.

SAM KALEN, B.A. Clark University 1980; J.D. Washington University 1984; Professor of Law 2014, 2009.

GEORGE MOCSARY, B.E. The Cooper Union School of Engineering 1995; MBA University of Rochester 1995; J.D. Fordham University School of Law 2009; Professor of Law 2019.

NOAH B. NOVOGRODSKY, B.A. Swarthmore College 1992; J.D. Yale Law School 1997; Professor of Law 2013, 2009.

TARA RIGHETTI, B.A. University of Colorado Boulder 2005; J.D. 2007; Professor of Law 2020, 2014.

JASON ROBISON, B.S. University of Utah 2003; J.D. University of Oregon 2006; LL.M. Harvard Law School 2009; S.J.D. 2013; Professor of Law 2019, 2015.

ALAN ROMERO, B.A. Brigham Young University 1990; J.D. Harvard University 1993; Professor of Law 2007, 2003.

MICHAEL R. SMITH, B.S. Florida State University 1982; J.D. University of Florida 1985; Professor of Law 2006.

Associate Professors:

LAUREN MCLANE, B.S. Radford University 2002; J.D. Seattle University School of Law 2008; Associate Professor of Law 2021, 2018; Director, Defender Aid Clinic.

DONA PLAYTON, B.S. University of Wyoming 1989; J.D. University of Wyoming 1993; Associate Professor of Law 2002, 2018; Director, Family and Child Legal Advocacy Clinic.

Assistant Professors:

JERRY FOWLER, B.A. Princeton University 1983; J.D. Stanford University 1990; Assistant Professor of Law 2019; Director, International Human Rights Clinic.

Academic Professionals:

DEBORA PERSON, B.A. Arizona State University 1981; M.L.S. Rutgers University 1992; Library Associate 1993; Administrative Law Librarian 2005, 1994.

TAWNYA PLUMB, B.A. University of Wyoming 1996; M.L.I.S. University of Texas at Austin 1998; Electronic Services and Assistant Librarian 2004.

Professors Emeritus

Debra L. Donahue, Harvey Gelb, Timothy Kearley, Jerry R. Parkinson, Dee Pridgen, Joel Selig, Elaine A. Welle

The College of Law was founded in 1920. The goal of the college is to provide a sound and thorough education in the law that will prepare the student to practice law in accordance with the highest standards of professional competence and responsibility. The emphasis in instruction is on analysis and understanding of legal principles and the development of skills necessary to the practice of the profession. The course of study will prepare a graduate to practice in any jurisdiction which has adopted the Anglo-American system of law.

The curriculum of the College of Law consists of three years of study within the college. Required courses necessary to basic legal knowledge make up the first two semesters of study, while courses in the final four semesters are largely elective. Students become eligible to receive the Juris Doctor (J.D.) degree upon successful completion of 90 semester credit hours of law courses with a grade point average of at least 2.000.

The college acts as a law center for Wyoming. It serves lawyers, judges, and government by a program of continuing legal education for attorneys and others interested in significant legal developments, by research projects aimed at improving state law, and by publishing the Wyoming Law Review.

Accreditation

The college is approved by the American Bar Association and its graduates are eligible for admission to the bar in every state. A student planning to practice in a particular state should check its rules for admission to the bar.

The college is also a member of the Association of American Law Schools. Membership is conditioned upon the maintenance of an adequate teaching staff and library, the offering of a sound educational program and adherence to prescribed standards for the admission and graduation of students.

Prelegal Curriculum

There is no prescribed or required set of courses for prelegal work. A student must usually have a B.A. or B.S. degree before beginning the professional study of law. There are no restrictions on the field in which the degree is earned.

The objective of prelegal study should be to acquire knowledge and skills useful in the study and practice of law. College study should prepare the student for law school by developing language comprehension and use, understanding

of political, economic, social and cultural institutions, and the ability to think logically and creatively. Courses promoting these objectives are included in the basic requirements for most undergraduate degrees. The choice of a major should be determined by the student's academic interest and professional objective in law.

Valuable background may be acquired through the study of English, history, philosophy, economics, political science, psychology, sociology, business administration, mathematics and the natural sciences.

For additional information, see the College of Law web site, (www.uwyo.edu/law).

Admission Requirements and Procedures

Admission to the professional curriculum in law is granted by the admissions committee of the College of Law. The College of Law restricts the number of entering students to a class size consistent with its facilities and its educational objectives. In evaluating an application, the committee considers the applicant's undergraduate college scholastic record and score on the Law School Admission Test (LSAT).

Other criteria relevant to the probability of success in the study and practice of law will also be considered.

1. Prior to beginning work in the College of Law, applicants must have a bachelor's degree from an accredited college or university, unless they have requested and been granted following exception:
 - a. An applicant who needs not more than 6 semester hours of college credit to qualify for a bachelor's degree may be admitted in exceptional cases to law school if the committee determines that the applicant has sufficient education and preparation for the study of law; has an outstanding undergraduate scholastic record; and has an approved program signed by the appropriate undergraduate official indicating that the remaining requirements for the bachelor's degree may be met by summer school attendance or by other means that will not interfere with the study of law.
2. Every applicant must take the Law School Admission Test. A packet giving information about the test, the dates on which it is given, and centers at which it can be taken, sample questions and an application form, may be obtained from Law School Admission Council, Box 2000, Newtown, PA 18940, by phone at (215) 968-1001, online at www.lsac.org.
3. Every applicant must register with the Law School Admission Council Credential Assembly Service, CAS. Registration may be done through the LSAC website (www.lsac.org). The CAS will prepare a report that is transferred to the college.
4. Every applicant must complete the electronic University of Wyoming College of Law Application through LSAC between October 15 and April 30. Applications received by December 15 will be considered for early admission.
5. If admitted, official transcripts sent directly to the College of Law from each college attended must be on file in the Admissions Office at least 30 days before the student's registration date.

Application Deadline

An initial entering class will be selected from completed applications on file on April 30. Students who submit an application by December 15 will be considered for early admission. An application is complete only when the college has received the LSAT score, the CAS report, applications, and all supporting documents.

Admission With Advanced Standing

Transfer students are admitted only when the College of Law facilities and curriculum permit. A transfer student may transfer up to the number of credits the student could have earned had the student completed his or her first year at the University of Wyoming College of Law. Transfer credit will be given only for courses in which the student earned a grade of C or higher. Applicants admitted must satisfy the requirements for graduation established by the College of

Law, including such other requirements as may be imposed as a condition of admission. Students interested in transferring should contact the College of Law for information concerning application procedures.

Academic Regulations

The Juris Doctor (J.D.) degree is awarded by the College of Law faculty to candidates who meet the following requirements:

Curriculum is subject to change at the College of Law Faculty's discretion, which may cause the annually updated university catalog to be out of date. For students matriculating in or after the fall 2013 semester, each student must successfully complete (grade of "D-" or better for courses taken at this school, grade of "C" or better for courses taken elsewhere) 90 credit hours (required for graduation) of law coursework in accordance with the official curriculum as adopted by the College of Law faculty. At least 59 of these credits must be completed at the University of Wyoming College of Law. Courses taken for S/U grades count toward the hours required for the J.D. degree only if the course is offered for the S/U grade only. Regardless of the matriculation date, students must complete at least 76 credit hours through graded (A-F) courses.

The course of study must be completed no earlier than 24 months (2 years) and not later than 84 months (7 years) after a student has commenced law study. No student shall be permitted to enroll at any time in coursework that, if successfully completed, would exceed 20 percent (18 hours) of the total coursework required for graduation.

Second and third year students may take up to six of 90 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students must receive a letter grade of B or better for these non-law courses to count toward graduation requirements. Additionally, these courses will transfer in with a satisfactory grade of 'S' and will not impact their law school GPA. Students who wish to enroll in a non-law course on this basis must secure the prior approval of the course professor and the Associate Dean of Academic Affairs at the College of Law. Approval will be based on the student's submission of a Non-Law Grad Course Request form with a brief written statement explaining how the proposed coursework relates to and enhances the student's legal education. Students should be aware that non-law courses completed on this basis will not count toward the 76 hours that students must complete in graded courses as a requirement for graduation. The non-law coursework will instead be counted as credits the law students are permitted to take on an S/U basis.

The College of Law automatically approves up to 9 hours of any joint degree core courses with the corresponding prefix to their joint degree (i.e. MBAM, POLS, ENR) that meet the grade requirement to transfer in toward their law degree. If additional courses are needed outside of these respective prefixes, these will be approved on a case by case basis. Those students enrolled in a joint degree program may take up to 9 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students in a joint degree program who use 9 non-law credit hours toward their J.D. degree may reduce their required number of graded credits from 76 to 73 so that they can participate in other S/U offerings at the College of Law. To receive law school credit for the non-law course, a student will be required to earn a grade of B or better in the non-law course. The grade will not count, however, toward the student's law school GPA. The course will be counted as a "satisfactory" grade for purposes of the student's law school GPA. Joint degree students should be aware that non-law courses completed on this basis will not count toward the 73 hours that joint degree students must complete in graded courses as a requirement for graduation. The non-law coursework will instead be counted as credits the law students are permitted to take on an S/U basis.

To graduate, all students must earn a cumulative grade point average of 2.000 for all courses taken at the College of Law. If a course is repeated, both grades shall be included in computing the average. The student, except in exceptional circumstances, must have a baccalaureate degree. Candidates who meet these requirements are eligible for graduation at the end of any semester.

Academic Standing

The following requirements apply to any coursework at the College of Law. Courses that law students may complete outside of the College of Law do not count in calculation of the required College of Law grade point average (GPA).

In the first year, a student who fails to make a 1.800 GPA after the first semester, or fails to make a 1.900 cumulative GPA overall in the first year's work, shall be excluded from the College of Law. A student who at any time fails to make a passing grade in two of the courses for which the student is registered in any semester shall be excluded from the College of Law.

A student who enters the second year with a GPA lower than 2.000 but at 1.900 or above, or who fails to maintain a 2.000 cumulative GPA after the first year, shall be placed on academic probation. A student on academic probation who does not attain an overall grade point average of 2.000 within one semester shall be excluded.

A student excluded from the College of Law may petition the faculty for readmission. The faculty may, in its discretion, readmit the student upon receipt of satisfactory evidence of extenuating circumstances or marked improvement in grades and study habits. Readmission may be subject to conditions, including, but not limited to, the repeating of any or all courses, as the faculty may decide. If a student's petition for reinstatement is denied, the student must wait nine months before petitioning again for readmission. Also, all students are limited to two petitions for readmission. The entire faculty will automatically hear and consider a student's initial petition. In the event of a second petition for readmission, a committee selected by the Dean will hear and consider the petition. The committee will present a report and recommendation to the faculty for adoption. Denial of a second petition is final.

Advanced Writing Requirement

As a condition of graduation, all students must complete an upper-level writing requirement consisting of a research paper of a minimum length of 5,000 words, exclusive of footnotes. All students must follow a designated standard citation form. Students must submit a detailed outline of the paper to the supervising professor, then must rewrite the paper at least once after the professor reviews the first draft. With the professor's approval, the student can meet the advanced writing requirement in any law school elective course, including a seminar, as long as the above requirements are met. The supervising professor must certify that the writing requirement has been fulfilled.

All student articles written for law review, whether published or unpublished, must have a supervising faculty member and otherwise meet all other provisions of the College of Law Advanced Writing Requirement. A student may also fulfill the requirement through an independent study or by writing a case note or comment for the law review, under the supervision of a professor. It cannot be satisfied through participation in a clinic.

Attendance Requirement

Students must attend at least 75 percent of regularly scheduled classes in each required course. A professor in a required course may impose an attendance requirement of greater than 75 percent if the policy is announced in writing on the first day the class meets.

In elective courses, students must attend at least 75 percent of regularly scheduled classes unless the professor announces a different policy in writing on the first day the class meets. Any alternative policy must comply with the American Bar Association (ABA) requirement of regular and punctual attendance.

A student who fails to meet the minimum class attendance requirement in any class will be dropped from the course and receive a grade of F, unless extenuating circumstances are present, in which case the student shall receive a grade of W. A professor may impose sanctions for students who have met the minimum class attendance requirement but in other respects have violated specified attendance guidelines, if the professor announces the guidelines and possible sanctions in writing on the first day the class meets.

The following table indicates the number of classes a student must attend under the 75 percent rule in a two hour or three hour course, depending on the number of class meetings. Students must verify with the professor the number of classes required in a one or four hour course.

The ABA requires attendance at 75 percent of all scheduled class times.

3-Credit Course (meeting three times a week for 55 minutes each):

<u>Class Meetings</u>	<u>Must Attend</u>
40	30
41	31
42	32

2-Credit Course (meeting twice a week for 55 minutes each) or a 3-Credit Course (meeting twice a week for 80 minutes each):

<u>Class Meetings</u>	<u>Must Attend</u>
26	20
27	20
28	21

Class Rank

Students are ranked by class at the end of each of the fall and spring semesters once the faculty have submitted all grades. Class rankings will be available in the Front Office. Students can choose to have their spring class ranking letter mailed to them if they provide the Front Office with a self-addressed, stamped envelope. Transfer students to the College of Law shall not be ranked with other UW students until they have completed two full-time semesters at UW (or a minimum of 24 UW credits). Students who visit out at other ABA accredited law schools or who graduate early are ranked based on their ranking at the end of their last semester at UW.

Experiential Learning Requirement

As a condition of graduation, each student must successfully complete no fewer than 6.0 credit hours in experiential learning courses. Experiential learning courses include a simulation course, a law clinic, or an externship field placement. Simulation courses provide substantial experience not involving legal representation of an actual client, that (1) is reasonably similar to the experience of a lawyer advising or representing a client or engaging in other lawyering tasks in a set of facts and circumstances devised or adopted by a faculty member; and (2) includes: direct supervision of the student's performance by the faculty member; opportunities for performance, feedback from a faculty member, and self-evaluation; and a classroom instructional component (ABA Standard 303).

Typically students may fulfill the experiential learning requirement by successfully completing 6.0 credit hours in any of the following upper- class elective courses:

- Advanced Appellate Advocacy (LAW 6520)
- Advanced Legal Research (LAW 6990)

Advanced Oil & Gas Law (LAW 6992)
 Advanced Persuasive Writing (LAW 6925)
 Alternative Dispute Resolution (LAW 6915)
 Business Planning (LAW 6560)
 Civil Pretrial Practice (LAW 6565)
 Clinic: Civil Legal Services (LAW 6930 or LAW 6931)
 Clinic: Defender Aid (LAW 6932 or LAW 6930)
 Clinic: Energy, Environ. & Natural Resources (LAW 6933 or LAW 6930)
 Clinic: Family & Child Advocacy (LAW 6930 or LAW 6934)
 Clinic: International Human Rights (LAW 6930)
 Clinic: Prosecution Assistance (LAW 6930 or LAW 6936)
 Contract Drafting (LAW 6935)
 Estate Planning (LAW 6670)
 Estate Planning Practicum (LAW 6937 or LAW 6930 or LAW 6915)
 Externships (LAW 6960)
 Interviewing, Counseling & Negotiation (LAW 6166 or LAW 6915)
 Summer Trial Institute (LAW 6850)
 Trial Practice (LAW 6850)

Note: classes may be removed from and/or added to this list each semester.

Grading

Grades are assigned on a plus/minus system. Grades of incomplete (I), and withdrawal (W), are disregarded. A required course in which a grade of F or W or U is received must be repeated. A course cannot otherwise be repeated without the consent of the faculty. If a course is repeated, both grades are included in computing the student's grade point average.

A4.00	B +3.333	C+2.333	D+1.333	F0.000
A-3.667	B3.000	C2.000	D1.000	WF0.000
	B-2.667	C-1.667	D-0.667	

Satisfactory (S) or unsatisfactory (U) grading applies only if the course is offered on an S/U basis or a student takes a non-law graduate-level course as explained above. Students from other colleges who are permitted to take professional courses in the College of Law must take them for S/U credit. The grading scale is at discretion of the instructor for each course.

Bar Exam Passage Rate Improvement Program

Students matriculating after August 2021, a student whose first-year GPA is in the bottom one-third of the class will be required to pass four of the following courses as a requirement of graduation: Business Organizations (or one of either Agency and Partnership or Corporations); Secured Transactions; Trusts and Estates; Criminal Procedure; Criminal Adjudication; Family Law; Constitutional Law II; or Real Estate Finance. During the fall and spring semesters after the 1L year it is required to take at least one of these courses as a minimum each semester, until the requirement has been satisfied.

In order to graduate, a student whose first-year GPA is in the bottom one-third of the class will also be required to take and pass a law school-offered bar examination course as a 3L (typically in their final spring semester), unless for unanticipated reasons the College of Law does not offer that course in a particular year.

Curriculum

Required Courses: First (1L) Year Students (*Additional courses cannot be taken the first year without special permission from a dean*).

Fall Semester

Civil Procedure I (6240) - 3

Contracts I (6110) - 3

Legal Research (6165) - 1

Legal Writing I (6160) - 3

Property I (6120) - 3

Torts I (6130) - 4

Spring Semester

Civil Procedure II (6340) - 2

Constitutional Law I (6250) - 3

Contracts II (6210) - 2

Criminal Law (6140) - 3

Legal Writing II (6260) - 2

Property II (6220) - 2

Required Courses: Second (2L) Year Students (offered once per year)

Evidence (6410) - 3

Professional Responsibility (6420) - 3

Elective Courses: Second (2L) & Third (3L) Year Students (* subject to availability)

See Law Courses section

Graduation with Honors

The degree of Juris Doctor is awarded with honors if the student achieves a grade point average of 3.400 or better on all resident credit in the College of Law.

Honor Roll

Students enrolled in a minimum of 12.0 semester hours of law courses carrying A-F grades, and who have no semester grades of incomplete (I), are eligible for the President's Honor Roll and the Dean's Honor Roll. Students with a semester average of 4.000 will be named to the President's Honor Roll. First-year students with a semester average of 3.250 or better and second-year and third-year students with a semester average of 3.400 or better will be named to the Dean's Honor Roll.

Minimum Hours

The College of Law does not permit students to attend on a part-time basis. Students are required to take the full load of required courses during their first two semesters and to carry at least 9 credit hours in each of the remaining semesters of law study. Notwithstanding, if a student has less than 9 credits remaining in their final semester of study, then said student may register for only the number of remaining credits (e.g. if a student only has 4 credits left to graduate, that student will only be required to register for 4 credits). First year students will be allowed to take less than the full load of required courses only if they present exceptional circumstances, as determined by the Dean or his/her delegate.

Transfer Credits

The College of Law admits transfer students only in the fall of their second year. A student granted transfer admission may transfer credits earned in courses taken at another ABA-accredited law school toward a degree from the UW College of Law up to the number of credits that a traditional UW student would have earned during the student's first year at the University of Wyoming (32 credits as of the 2020-21 academic year). In addition, University of Wyoming law students who visit out for a semester or full year may also transfer credits from other ABA approved law schools, as long as 59 credits are completed at the University of Wyoming. The College of Law will also accept up to 15 hours of transfer credit from another ABA accredited school for an international student previously enrolled in an LL.M. or other post-J.D. program. To receive transfer credit from a course, a grade must be a "C" or better. Transfer credits are recorded on the JD transcript as an "S" (Satisfactory), instead of graded credits. All transfer credits must be approved by the Associate Dean of Academic Affairs in advance.

Withdrawing from a Course &/or the University

Failure to attend class or failure to pay tuition does not constitute withdrawal from a class or from the University. Students who pre-register for classes on WyoWeb will be assessed tuition and fees. Students who drop or withdraw from their last or only class for a given term after the end of the drop/add time period must also meet with the Assistant Dean of the College of Law and complete the official withdraw forms required by the Office of Registrar. Financial aid recipients who withdraw from courses or reduce credit hours must consult with a financial aid counselor regarding repayment of financial aid funds if applicable. For more complete details regarding deadlines, refunds, and cancellations, see the University's Accounts Receivable web page <http://www.uwyo.edu/fsbo/accounts-receivable/>

Exam Procedures and Policies

1. Review the Honor Code before beginning the exam period. It applies to all examinations. If you have any questions about the materials allowed by a professor, please see the professor in advance of the exam.

2. A copy of the final exam schedule will be posted on the web, please check dates and times carefully.
3. We use exam numbers, rather than students' names, so that professors cannot identify the students' exams they are grading. Exam numbers will be available in ExamSoft one to two weeks before the exam period. You must write this number on all of your exams and blue books, or as your identification number for typed exams. **DO NOT** write your name on your exam. Midterm exams and final exams have unique numbers. Save these numbers, as you will use the same number for all of your midterm and final exams respectively. New numbers are assigned each semester.
4. All examinations must be: (A) written in ink in 8 1/2 x 11 size "blue books," OR (B) typed on the student's laptop using the ExamSoft software. Students provide their own blue books, pens or laptops. The law school will supply answer sheets and pencils for any multiple choice exams.
5. If you are using a laptop:
 - Examplify (SofTest) is operable for PC's and Mac's. Please reference this site for the most up to date Minimum System Requirements, Examplify: Minimum System Requirements - ExamSoft
 - You must download the exam software (free for students) well in advance of the exam day.
 - Have your laptop set up and the software running in the designated room before the time to begin the exam.
 - Instructions for using the ExamSoft Examplify (SofTest) software are available at the Examsoft website (use Chrome or Firefox ONLY).
 - If you experience any problems with your computer during the exam, come to the front office immediately and someone will assist you.
 - Once you complete the exam, and have turned in your exam questions, be sure you receive the "upload successful" message to assure that your exam answers have been transmitted.
6. All exam reschedules must be approved by COL Assistant Dean, Lindsay Hoyt or the Registrar. You must meet the criteria published within the exam schedule to reschedule an exam, i.e., two exams on one day, three exams in three days, or four exams in five days. Fill out the exam reschedule request form and turn it into COL Registrar, Dave Bluemel. Please note, that if possible, an elective will be rescheduled rather than a large required class, and rescheduled to a later, rather than an earlier date.
7. Students who are handwriting their exams must return the exam questions and blue books to a staff member in the lobby outside the Dean's office at or before the time indicated on the exam. Laptop users should exit the exam software and turn in the exam questions to a staff member at or before the time indicated. It is your responsibility to determine the precise time the exam is to be returned and to ensure that you meet the deadline. Use the clock in the exam room for reference, not the clock that may appear on your computer or the time on your wristwatch.
8. During the exam, turn off (or leave outside the room) all cell phones, smart watches, pagers, and PDA's. Do not leave them on vibrate, as this may be disturbing to other students.
9. When you finish your exam, please be courteous/quiet as you gather your belongings and leave the exam room. You MAY NOT return to the room to gather your belongings after you have turned in your exam, unless it is after the collection time indicated on the exam. Be aware that students are taking exams in both the morning and the afternoon and are taking exams that have differing ending times -- so please curb your talking in the classroom areas and halls during the administration of exams.
10. If you cannot take the exam at the set time due to illness, or other emergency, you must notify Assistant Dean Lindsay Hoyt, as soon as possible, prior to the exam and be prepared to supply appropriate documentation.
11. Final grades will be available on WyoWeb. No grades will be given over the telephone.

Final Exam Reschedule Policy

No student is required to take exams in the following circumstances as long as they submit a reschedule form two weeks prior to the first day of exams:

- two exams on one day
- Three exams in three consecutive days
- four exams in five consecutive days

Students who have six final exams cannot be provided relief due to the limited number of exam days. Efforts will be made, however, to distribute the six exams so as to avoid three in a row. A student who meets the above criteria must see Assistant Dean Lindsay Hoyt to reschedule. Exams are not normally rescheduled outside of the regular exam period.

Disability Assistance

The University of Wyoming College of Law is committed to making its programs accessible to individuals with disabilities and ensuring a robust academic experience for all students. The College of Law works closely with the Disability Support Services office on the University's main campus to coordinate a variety of services for students with disabilities. The Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973 guarantee equal access to programs and services to those with disabilities. In order to be a qualified individual subject to the protections of these Acts, a person must demonstrate that he or she has a disability that substantially limits a major life activity (e.g., seeing, hearing, walking, breathing, performing manual tasks, learning, caring for oneself, and working) and, as such, requires a reasonable accommodation in order to have equal access. This section of the College of Law's policies explains a student's rights and responsibilities in seeking to receive accommodations from the College of Law because of a disability. The process and procedures outlined here apply to law school classroom accommodations, exam accommodations, and accommodations related to accessing the University's facilities.

I. Rights and Responsibilities in Requesting Reasonable Accommodations

A. Accommodation Request Deadlines

1. The deadlines for students requesting accommodations is 2 weeks before the start of the academic year or semester for classroom and exam accommodations.
2. Extensions to these deadlines may be granted to students who were unable to meet the deadline due to extenuating circumstances. Accommodations are prospective; retroactive accommodations are not available. For this reason, it is important that the student timely submit requests for accommodations.

B. Accommodation Process and Procedure for Classroom and Exam Accommodations

1. A student who believes that he or she has a qualifying disability warranting accommodation for academic programs, exams or access to the University's facilities should submit their requests for accommodations through the University of Wyoming's Disability Support Services (DSS), by contacting udss@uwyo.edu or 307 766-3073 or applying through the website found here: <https://www.uwyo.edu/udss/>.
2. The DSS application process is required and separate from any communication with College of Law staff. Students *should not* go directly to any faculty in an effort to arrange accommodations for disabilities.
3. Once the student submits the completed application and supporting medical documentation, DSS will review the documentation to verify the existence of a qualifying and make a decision regarding the student's eligibility for services. DSS also may request additional documentation at any time or may request that the student's physician or other licensed health professional speak directly to the DSS staff.
4. Following the determination that the student has a qualified disability, DSS and the Assistant Dean of the College of Law, as the designated liaison for the College and its faculty, will consult together to

make a determination regarding the student's requested accommodations related to the student's courses, exams, and access to university facilities.

5. A reasonable accommodation is an accommodation that does not impose an undue financial or administrative burden on the College of Law and does not fundamentally alter the nature of the educational service, program, or activity at the College of Law.
6. DSS is responsible for making determinations about reasonable accommodations after consulting with the Assistant Dean of the College of Law and will then notify the student by email of the decision to deny, grant, or partially grant or provide a reasonable alternative to the requested accommodations. This email is required prior to any accommodations being made.
7. Information regarding a student's disability and any accommodations provided shall be disclosed only when necessary in furtherance of the student's education or to individuals who have a need to know the information as determined by the University. As a general rule, when feasible, student anonymity will be maintained.
8. For any exam condition accommodations, DSS will notify the Assistant Dean of the College of Law who will oversee the implementation of the accommodation. DSS will also notify any other law school staff designated by the Assistant Dean of the College of Law who are needed to implement the accommodation (e.g. the designated testing coordinator, faculty etc.). Students will be provided notice of the time and place of their accommodated testing by DSS.
9. For classroom accommodations, the Assistant Dean of the College of Law will oversee implementation of the accommodations and notify the faculty of the particular course if the accommodations provided affect the conduct of the class.
10. If a student is denied eligibility for DSS or requested reasonable accommodations, the student may request a review of these determinations by the Vice President for Student Affairs consistent with the process mentioned here <https://www.uwyo.edu/udss/laws-and-complaint-processes/if-and-when-you-disagree.html> Students who have questions about the review process may contact DSS for more information. The Vice President for Student Affairs may consult with the Dean of the College of Law prior to making a final determination.

II. Rights and Responsibilities of the Student after Receiving Classroom and Exam Accommodations

- A. A student must renew his or her request for accommodations each semester by meeting with DSS in order to determine whether new and different accommodations are necessary for the student's disability to be accommodated. Requests for classroom and exam accommodations must be made two weeks prior to the beginning of the semester. At these meetings, DSS may request that the student submit updated documentation verifying the nature and extent of the student's disability.
- B. If a student's condition changes at any time, thereby affecting the nature and extent of his or her disability, the student must notify the DSS immediately and DSS will consult with the Assistant Dean of the College of Law, as the designated liaison for the College to engage in the interactive process set forth in section I(B)(4).
- C. If there is a problem with any accommodations that a student receives, whether it is related to a course, an exam, or access to a facility, the student must promptly notify DSS who will coordinate with the Assistant Dean of the College of Law so that steps may be taken, to the extent practicable, to resolve the problem.
- D. Communication via accommodations (including exam schedules and room assignments) will be made using the student's email account. A student is responsible for checking email on a timely basis to determine the status of any issue relating to the accommodation that has been put in place for a particular disability. If the student's disability prevents physical access to email, an alternative

method of communication will be determined in consultation with DSS, the College of Law, and the student.

III. Requests for Accommodations Related to the College of Law Facilities

Any requests for disability accommodations related to the College of Law buildings or University grounds may be initiated by contacting DSS or the Assistant Dean of the College. DSS and/or the College of Law will work collaboratively regarding any requests and may involve other campus units, including but not limited to the UW Operations, in order to process and/or implement reasonable accommodations related to the College of Law facilities.

Joint Degree Programs

JD/MA in ENR Program

A joint Juris Doctor/Master of Arts of Environment and Natural Resources degree is available to all admitted law students upon application. Students in this joint degree program must take 18 credits outside the law school in ENR courses, and must take 12 law school credits from a menu of ENR related law courses to qualify for this joint degree. Students in the joint degree program must also complete a supervised research project. Additionally, nine (9) credits of approved MA coursework (see Academic Regulations) will be applied to the Juris Doctor degree.

Current core courses: ENR 5000, ENR 5900, ENR 5890.

JD/MBA Program

A joint Juris Doctor/Master of Business Administration program is available in the College of Law and the College of Business. This program will take approximately four years to complete. Students spend three years on-campus engaged in law studies. In either their second or third year, students will be enrolled full-time in the MBA Program, taking core Fall and Spring business courses followed by participation in an MBA Summer Project. The MBA Capstone course will be completed during the student's third year for a total of 38 MBA Program credits. Nine (9) credit hours of approved Law coursework will be transferred as elective hours to the MBA Program for a total of 47 credit hours. Additionally, nine (9) credits of approved MBA coursework (see Academic Regulations) will be applied to the Juris Doctor degree. Students successfully completing this lock-step program will earn dual Juris Doctor and Masters of Business Administration degrees.

Current core courses: MBAM 5102, MBAM 5104, MBAM 5107, MBAM 5202, MBAM 5204, MBAM 5207, MBAM 5208, MBAM 5209, MBAM 5305, MBAM 5330.

JD/MPA Program

A student in the joint Juris Doctor/Master of Public Administration program must be admitted to both the College of Law and College of Arts and Sciences. The degrees are awarded concurrently by each college upon successful completion of the combined degree program requirements. In fulfillment of the J.D. degree, the College of Law will accept up to nine hours of MPA credits in courses approved by the law faculty (see Academic Regulations). In fulfillment of the MPA degree, the College of Arts and Sciences will accept up to 12 hours of credits earned in specified courses in the J.D. program. For additional information regarding these joint degree programs, contact the College of Law or the joint program of interest.

Current core courses: POLS 5000, POLS 5400, POLS 5410, POLS 5440, POLS 5684, POLS 5510, POLS 5690, POLS 5080, POLS 5060, POLS 5450, POLS 5460, POLS 5480

Nonprofessional Degree Students

Graduate students from other colleges of the University of Wyoming may be permitted to take one or more law courses on an S/U basis for non-law credit when the following conditions are met: the law course taken is acceptable for their degree program and the prior written approval of the professor assigned to the course and the Associate Dean or Assistant Dean has been obtained. In order to obtain audit or visitor privileges, students must obtain prior written approval of the professor assigned to the course and the Associate Dean or Assistant Dean. For further information and requirements contact the Associate Dean of Academic Affairs, College of Law, Dept. 3035, 1000 E. University Ave., Laramie, WY 82071.

Course descriptions may be obtained online at www.uwyo.edu/law.

Graduate

Juris Doctor

The goal of the College of Law is to provide a sound and thorough education in the law that will prepare the student to practice law in accordance with the highest standards of professional competence and responsibility.

Curriculum

Overall Hours

For students matriculating in or after the fall 2013 semester, each student must successfully complete (grade of "D-" or better for courses taken at this school, grade of "C" or better for courses taken elsewhere) 90 credit hours (required for graduation) in accordance with the official curriculum as adopted by the College of Law faculty. At least 59 of these credits must be completed at the University of Wyoming College of Law.

The College of Law automatically approves up to 9 hours of any joint degree core courses with the corresponding prefix to their joint degree (i.e. MBAM, POLS, ENR) that meet the grade requirement, of a letter grade of B or better, to transfer in toward their law degree. If additional courses are needed outside of these respective prefixes, these will be approved on a case by case basis. Those students enrolled in a joint degree program may take up to 9 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree.

Law A-F hours

Regardless of the matriculation date, students must complete at least 76 credit hours through graded (A-F) courses.

Those students enrolled in a joint degree program may take up to 9 hours required for graduation in non-law school graduate level courses (online courses will not be approved) and apply them toward their law degree. Students in a joint degree program who use 9 non-law credit hours toward their J.D. degree may reduce their required number of graded credits from 76 to 73 so that they can participate in other S/U offerings at the College of Law.

Required Courses: First (1L) Year Students

(Additional courses cannot be taken the first year without special permission from a dean).

Fall Semester

LAW6240 - Civil Procedure I

Credits: 3
Max Credit (Max. 3)

A study of modern practice in civil cases under Rules of Civil Procedure and other sources of procedural law. Civil Procedure I and its continuation, Civil Procedure II, cover all aspects of jurisdiction and other issues bearing on what court(s) may hear a case; choice of state or federal law; pleading; joinder of claims and parties; class actions; discovery and other pre-trial procedures; summary judgment; non-jury and jury trials; appeals; and claim and issue preclusion.

LAW6110 - Contract I

Credits: 3
Max Credit (Max. 3)

A study of the elements of simple contracts, including offer and acceptance, consideration, conditions, defenses, and damages. The impact of the Uniform Commercial Code on contracts is considered.

LAW6165 - Legal Research

Credits: 1
Max Credit (Max. 1)

Introduction to paper and electronic resources that cover primary & secondary legal materials, including case law, statutes, agency regulations for federal and state jurisdictions, & treatises, journals, restatements, and other secondary sources. Discusses research plans and develops brief research strategies for hypothetical situations.

LAW6160 - Legal Writing I

Credits: 3
Max Credit (Max. 3)

In this course students are introduced to the fundamentals of legal reasoning and analysis and the basics of legal writing.

LAW6120 - Property I

Credits: 3
Max Credit (Max. 4)

Covers two general areas. The first area is the rights that define property ownership, in relation to neighbors, the world, and others with interests in the property. Subjects include rights to use the land and its products, estates, concurrent ownership, and landlord-tenant law. The second area is private limitations on those rights, in the form of covenants and easements.

LAW6130 - Torts I

Credits: 4
Max Credit (Max. 4)

Study of the methods and policies for allocating risks of harm; intentionally inflicted harms; negligence in its general aspects and its application to products liability, landowners, and automobile traffic; emotional harms; defamation; and fraud. Principal areas of coverage typically include wrongful death, defenses, vicarious liability, strict liability, nuisance, products liability and defamation. If time permits we will also cover privacy, misrepresentation and other topics.

Spring Semester

LAW6340 - Civil Procedure II

Credits: 2
Max Credit (Max. 2)

A study of modern practice in civil cases under Rules of Civil Procedure and other sources of procedural law. Civil Procedure I and its continuation, Civil Procedure II, cover all aspects of jurisdiction and other issues bearing on what court(s) may hear a case; choice of state or federal law; pleading; joinder of claims and parties; class actions; discovery and other pre-trial procedures; summary judgment; non-jury and jury trials; appeals; and claim and issue preclusion.

LAW6250 - Constitutional Law I

Credits: 3
Max Credit (Max. 3)

Constitutional Law I is divided into two parts. Part I focuses on governmental structures. Part II begins our coverage of individual rights and liberties. Part I's coverage includes the power of judicial review, separation of powers, federalism, and congressional powers. Part II focuses on equal protection.

LAW6210 - Contracts II

Credits: 2
Max Credit (Max. 2)

A study of the elements of simple contracts, including offer and acceptance, consideration, conditions, defenses, and damages. The impact of the Uniform Commercial Code on contracts is considered.

LAW6140 - Criminal Law

Credits: 3
Max Credit (Max. 3)

The sources of criminal law and the purposes of criminal punishment, the constituent parts of criminal conduct, including act (or omission), culpable mental state, result, and causation. These general principles are brought to bear on homicide and sexual assault. Also considers common defenses to criminal charges, including self-defense, necessity, duress, insanity, and intoxication. Students are required to consider the constitutional limits of the criminal law and the relationship of substantive principles to practice.

LAW6260 - Legal Writing II

Credits: 2
Max Credit (Max. 2)

This course builds on the first semester Legal Writing course by introducing students to: (1) more sophisticated aspects of legal reasoning, analysis and legal research; (2) the basics of persuasive legal writing; (3) the basics of appellate procedure and an appellate brief; and (4) the basics of oral advocacy.

LAW6220 - Property II

Credits: 2
Max Credit (Max. 2)

First covers some private and public limitations on owners' property rights, primarily easements and zoning. The rest of the semester deals with acquiring ownership rights, possession and transfers, including the law relating to deeds and titles.

Required Courses: Second (2L) Year Students

(offered once per year)

LAW6410 - Evidence

Credits: 3
Max Credit (Max. 3)

A study of the means by which any alleged fact is established or disproved, including competency of witnesses; direct examination; cross-examination and impeachment; privileges; basic and special issues of relevancy; the hearsay rule and its exceptions; real, demonstrative, and documentary evidence; opinion and scientific evidence; judicial notice; and the responsibility of proof.

LAW6420 - Professional Responsibility

Credits: 3
Max Credit (Max. 3)

A study of the duties of attorneys to their clients and the public under the Model Rules of Professional Conduct and case law.

Experiential Hours

Each student must successfully complete no fewer than 6.0 credit hours in experiential learning courses:

LAW6166 - Interview, Counseling and Negotiation

Credits: 3
Introduction to the basic lawyering skills of interviewing, fact investigation, counseling, and negotiation. Employs simulation exercises, self-critiques, and feedback from the faculty member as well as other students. In addition to the exercises, exposure to the theoretical underpinnings of the skills and examine some of the ethical issues involved in creating and maintaining professional relationships with clients and opposing parties and counsel.

LAW6560 - Business Planning

Credits: 3

Max Credit (Max. 3)

Focus is primarily on a problem involving several persons who are organizing a business entity. Consideration will be given to the characteristics of several kinds of business organizations and to making a judgment as to which organization should be used to house the business being set up. Considers tax and non-tax aspects with respect to business organizations.

LAW6565 - Civil Pretrial Practice

Credits: 3

Max Credit (Max. 3)

Includes the civil litigation process from the filing of a complaint and decisions related to the complaint, to discovery including written discovery and depositions, to pre-trial motions such as motions to change venue, to exclude evidence, and for summary judgment, to preparation for pre-trial conferences and trial. Sample cases provide the basis for the drafting of various discovery documents and motions. There will be no exam.

LAW6670 - Estate Planning

Credits: 2

Max Credit (Max. 2)

Applies estate and gift tax principles in a survey of estate planning principles and techniques. Traditional estate planning tools including wills, trusts, and durable powers of attorney are discussed as well as post-mortem planning, administration issues, and planning for special situations, such as owners of closely held businesses, entrepreneurs, and the disabled.

LAW6850 - Trial Practice

Credits: 3

Max Credit (Max. 3)

Trial Practice is a rigorous learn-by-doing course designed to build courtroom skills. Through a combination of exercises, lectures, demonstrations, drills and complete trials, students are prepared to advocate before judges and juries. The first half of the course focuses on basic examination and exhibit skills, including direct, cross, redirect, making and responding to objections, and the introduction and use of real and demonstrative evidence. In the sixth week, students conduct bench trials. The second half of the course builds on the basic skills and covers advanced ones, including examination of expert witnesses, opening statement, closing argument and voir dire. Jury trials are conducted in the final two weeks.

LAW6930 - Legal Clinic

Credits: 2-3

Max Credit (Max. 6)

Supervised clinical training in law office and court procedures. Clinical programs available are the Defender Aid Program, Legal Services Program, and the Prosecution Assistance Program.

Prerequisite: Students must have completed first year of law school.

LAW6931 - Clinic: Civil Legal Services

Credits: 3

Max Credit (Max. 12)

The Civil Legal Services Clinic has provided legal assistance to Wyoming citizens for over 20 years. Students represent low-income and marginalized individuals across the state who could not otherwise afford legal representation. The CLSC's mission is to provide legal services in a broad range of general civil legal matters.

LAW6932 - Clinic: Defender Aid

Credits: 3

Max Credit (Max. 12)

Provides representation to indigent persons in Wyoming state and federal courts. We represent clients pending trial, on direct appeal from their convictions, and handle post-conviction matters in state and federal court.

LAW6933 - Clinic: Energy, Environment and Natural Resources

Credits: 3

Max Credit (Max. 12)

Fall: Classroom component of the Clinic will provide a practitioner's view of key aspects of federal court litigation practice in cases involving natural resources issues. Spring: Clinic will provide an overview of the Wyoming Administrative Procedure Act and the Wyoming statutes that govern the regulation of energy production, environmental protection, and natural resources management in Wyoming.

LAW6934 - Clinic: Family and Child Advocacy

Credits: 3

Max Credit (Max. 12)

Handle a wide array of cases including divorce, child custody, domestic violence protection orders, stalking orders, guardian ad litem appointments in juvenile and domestic relations cases, and other family law matters. In addition, law students represent children or their parents in child abuse and neglect cases, termination of parental rights, children in need of supervision and delinquency actions.

LAW6935 - Contract Drafting

Credits: 3

Max Credit (Max. 3)

Covers fact investigation and the role of the lawyer in a transaction proposed by the client, including possible negotiations with other parties; drafting a contract in Plain English; and the ethical obligations of a transactional lawyer, through simulations and problem-solving exercises.

Prerequisite: LAW 6110.

LAW6936 - Clinic: Prosecution Assistance

Credits: 3
Max Credit (Max. 12)

The program is heavily involved with the Wyoming Attorney General's office, usually in representing the state in criminal appeals before the Wyoming Supreme Court. In handling these appeals, students are responsible for the entire preparation of appellate briefs and the presentation of oral argument to the Supreme Court.

LAW6937 - Estate Planning Practicum

Credits: 3
Max Credit (Max. 12)

Provides students the opportunity to work with low-income clients around the State of Wyoming in a transactional law setting. Prepare wills, powers of attorney, advance health care directives, deeds, affidavits of distribution and other probate documents for small estates and will learn how to plan an estate for beneficiaries who are minors or who have special needs.

LAW6960 - Legal Externships

Credits: 1-3
Max Credit (Max. 6)

The externship program provides second and third year students with an opportunity to learn through practice by working directly with attorneys or judges for academic credit. Externship placements are limited to judges, government agencies and nonprofit organizations, and must be pre-approved by the College of Law faculty.

LAW6925 - Advanced Persuasive Writing

Credits: 3
Max Credit (Max. 3)

Art and science of written legal persuasion. Specifically, course explores the nature of legal persuasion from the standpoints of numerous disciplines, including classical rhetoric, psychology, literary theory, and morality theory, and based on these principles, covers specific strategies lawyers can use to make their writing more persuasive.

Prerequisite: LAW 6160 and LAW 6260, and completion of first year of law school.

LAW6992 - Advanced Oil and Gas Law

Credits: 3
Simulate the work of an oil and gas attorney. Explore oil and gas financing arrangements including the farmout, JOA, and productions sharing agreements, drilling and service agreements, downstream marketing and purchase agreements, conveyances of oil and gas real property interests, the purchase and sale of petroleum properties, oil and gas development on federal lands, and title examination.

Prerequisite: C or better in LAW 6790.

Advanced Writing

As a condition of graduation, all students must complete an upper-level writing requirement.

Elective Courses:

Second (2L) & Third (3L) Year Students (* subject to availability);

See **Law Courses** section

Juris Doctor/Master of Arts in Environment and Natural Resources

Students working toward the J.D./M.A. in ENR consult a Haub School advisor to design a program of study tailored to meet their educational goals.

Academic Regulations

A joint Juris Doctor/Master of Arts of Environment and Natural Resources degree is available to all admitted law students upon application. Students in this joint degree program must take 18 credits outside the law school in ENR courses, and must take 12 law school credits from a menu of ENR-related law courses to qualify for this joint degree. Students in the joint degree program must also complete a supervised research project. Additionally, nine (9) credits of approved MA coursework (see Academic Regulations) will be applied to the Juris Doctor degree. Current core courses: ENR 5100, ENR 5900, ENR 5890, ENR 5750.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

Environmental & Natural Resources, J.D./M.A.

Here is where you will find the requirements for the Environment & Natural Resources, J.D./M.A.

Juris Doctor/Master of Business Administration

The Juris Doctor/MBA program offered with the UW Colleges of Law and Business provides students with a high ROI. Optimize time and money spent by pursuing this dual program and tapping into quality education, networking, and career possibilities.

Academic Regulations

A dual Juris Doctor/Master of Business Administration program is available in the College of Law and the College of Business. This program will take approximately four years to complete. Students spend three years on-campus engaged in law studies. In their second year, students will be enrolled full-time in the MBA Program taking required core business courses during the Fall, Spring, and Summer as well as participating in additional required program activities (orientation, Experiential Leadership Program, Jackson Leadership Summit, MBA Executive Speaker Series,

Professional Development activities, etc.). The MBA Capstone course will be the final course completed in the summer term for a total of up to 36 MBA program credits. Nine (9) credit hours of approved coursework will be transferred as elective hours to the Juris Doctor degree and up to six (6) credit hours of approved coursework will be transferred as elective hours to the MBA degree. Students successfully completing this dual program will earn dual Juris Doctor and Masters of Business Administration degrees.

Current Core Courses:

MBAM5101 - MBA Foundations

Credits: 1

The purpose of this course is to prepare students for the academic rigors of the MBA program.

Restricted Enrollment in MBAM or MBAF degree program.

Prerequisite: Admission to full-time MBA program.

MBAM5102 - Operations Management

Credits: 3

Production and operations management. Topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, and scheduling.

Prerequisite: Admission to the MBAM program.

MBAM5104 - Organization Behavior and Human Resource Management

Credits: 3

Enables students to recognize psychological phenomena influencing individual, group & organizational behavior and helps them understand different HRM functions and how HRM fits within the overall organization's strategy.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5107 - Decision Making I

Credits: 1

This course develops a systematic process for making decisions in complex business situations, by integrating six dimensions of business risk: competitive, financial, organizational, legal, social, and ethical. The process combines analytical and ethical reasoning methods that compensate for the flawed decision making common in business organizations.

Prerequisite: Admission to the MBAM program.

MBAM5202 - Data and Decision Modeling

Credits: 3

This course will prepare students to use computer-based models for solving problems in the areas of operations, finance, supply chain, and marketing by using tools associated with predictive and prescriptive data analytics including, but not limited to forecasting, optimization modeling, and Monte Carlo simulation. #304.

Prerequisite: Admission to the MBAM program.

MBAM5204 - Financial Management

Credits: 3

Students taking this course should expect to learn the fundamentals principles of environmental influences on corporate financial decision-making and measurement devices useful in corporate financial management. Provides an in-depth understanding of the financial manager's role in a corporate setting and exposes students to other aspects of finance in the economy. #304.

Prerequisite: Admission to the MBAM program.

MBAM5207 - Marketing Management

Credits: 3

Provide an in-depth understanding of marketing management. Marketing managers are responsible for co-creating customer value for a sustained competitive advantage.

Restricted Admitted to MBA, MBAE or MBAF program.

Prerequisite: Admission to the MBAM program.

MBAM5208 - Managerial Accounting

Credits: 3

This course introduces concepts and methodologies of managerial accounting focusing on the use of accounting information for internal decision-making purposes. The primary objective is to learn how cost-based information is used to make informed business decisions for strategic planning and control as well as performance evaluation of business decisions.

Prerequisite: Admission to the MBAM program.

MBAM5209 - Decision Making II

Credits: 1

An experiential learning course that builds on MBAM 5107. Students apply systematic business decision making process to real-world business situations. Student teams work directly with owners and managers of Wyoming companies to address their strategic, competitive, operational, financial, and/or administrative challenges in real time.

Prerequisite: MBAM 5107.

MBAM5305 - Strategic Management

Credits: 3

Business strategy is a core function of executive leadership. Students learn methods, models and frameworks for formulating business and corporate level strategies for assessing and sustaining competitive advantage in dynamic and global business environments. Students master these tools through in-depth application and analysis of business programs resulting in strategic recommendations.

Prerequisite: Admission to the MBAM program. #304.

MBAM5330 - Global Business Environment

Credits: 3

Max Credit 3

Introduction to international business through theoretical and applied macroeconomics and the environment in which global business occurs. Focuses on interest/exchange rates; effects of culture on consumers and organizational environments; product/information flows; budget/trade balances; organizations central to a functioning global economy; demand/fulfillment; and legal/ethical issues.

Restricted Admission to the MBA, MBAE, or MBAF program.

Prerequisite: Admission to the MBA program, or permission from the MBA Program Director.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

MBA

Here is where you will find informatin on the Business Administration, M.B.A.

Juris Doctor/Master of Public Administration

The Master's in Public Administration degree offered at the University of Wyoming is considered an ethics based program where complicated issues of administrative decision making are the hallmarks of professional life.

Academic Regulations

A student in the joint Juris Doctor/Master of Public Administration program must be admitted to both the College of Law and College of Arts and Sciences. The degrees are awarded concurrently by each college upon successful completion of the combined degree program requirements. In fulfillment of the J.D. degree, the College of Law will accept up to nine hours of MPA credits in courses approved by the law faculty (see Academic Regulations). In

fulfillment of the MPA degree, the College of Arts and Sciences will accept up to 12 hours of credits earned in specified courses in the J.D. program. For additional information regarding these joint degree programs, contact the College of Law or the joint program of interest.

Juris Doctor

The Juris Doctor requirements are found here: [Juris Doctor](#)

MPA/JD

Here you will find information on the Public Administration (MPA/JD)

Geospatial Information Science and Technology

Geospatial Information Science and Technology

Wyoming Geographic Information Science Center
337 Agriculture C Building

Ramesh Sivanpillai, Program Director
(307)766-2532
Web site: www.uwyo.edu/WyGISC

The Wyoming Geographic Information Science Center (WyGISC) offers undergraduate and graduate courses, degrees, and certificates in Geospatial Information Science and Technology under the GIST prefix. These provide fundamental geospatial science education to undergraduate and graduate students from across disciplines at UW and are appropriate for science and non-science majors. They cover core and advanced geospatial concepts and subdisciplines including Geographic Information Systems (GIS), remote sensing, spatial data analysis, spatial visualization, spatial databases, cartography, programming, and other topics.

Faculty:

SHANNON E. ALBEKE, B.A. University of Colorado, Boulder 1997; Ph.D. University of Georgia 2010. Associate Research Scientist 2019, 2010.

KENNETH L. DRIESE, B.S. University of Virginia 1981; M.S. University of Wyoming 1992; Ph.D. 2004; Senior Lecturer in Geospatial Information Science and Technology 2019, 2002.

JEFFREY D. HAMERLINCK, B.S. University of North Dakota 1988; M.P. University of Wyoming 1992; Ph.D. University of Colorado - Boulder 2011; Senior Research Scientist 2004.

PADDINGTON HODZA, BSC, University of Zimbabwe, 1994; MSC, University of Zimbabwe, 1998; Ph.D. West Virginia University, 2007; Associate Research Scientist 2016, 2013.

AUSTIN MADSON, B.A. University of California, Los Angeles 2012; M.A. 2015; Ph.D. 2020; Assistant Professor of Geospatial Information Science and Technology 2021.

RAMESH SIVANPILLAI, B.Sc. Bharathiar University 1987; M.Sc. Cochin University of Science and Technology 1990; M.Phil. Bharathiar University 1992; M.S. University of Wisconsin, Green Bay 1995; Ph.D. Texas A&M University 2002; Senior Research Scientist 2012.

CHEN XU, B.S. Sichuan University, China 1999; M.S. Sam Houston State University 2005; Ph.D. Texas A&M University 2010; Associate Professor of Geospatial Information Science and Technology 2019.

DI YANG, B.S. Liaoning University of Petroleum and Chemical Technology 2011; M.S. Texas A&M 2013; Ph.D. University of Florida 2019; Assistant Professor of Geospatial Information Science and Technology 2020.

Geographic Information Science and Technology Degrees and Certificates

GIST degrees and certificates include a Bachelor of Science Degree in GIST (to launch Fall 2022 contingent on demonstration of student demand), undergraduate certificates in GIST and Remote Sensing, each of which can contribute to the B.S. degree; a Research Master's Degree (with thesis), an online Professional Master's Degree (no thesis), and three online graduate certificates, in GIST, Remote Sensing, and Unmanned Aerial Systems (UAS, a.k.a. drones).

Drawing on expertise from geography, computer science, mathematics, statistics, psychology, design, and others, geospatial information science refers to the multi-disciplinary research enterprise that addresses the nature of geospatial information and the application of geospatial technologies to scientific questions. Geospatial information technology is a specialized set of information and communication technologies that support the acquisition, management, analysis, and visualization of geo-referenced data. Examples include: geographic information systems; global navigation satellite systems; and satellite, airborne, drone-based, shipboard and ground-based remote sensing and image processing systems.

Successful students in Geospatial Information Science and Technology (GIST) combine proficiency in spatial thinking and geospatial data science analysis with fluency in geographic information systems, remote sensing, data analytics, and visualization. As professionals, graduates apply their knowledge and skills in a wide range of fields, from environmental management and public health, to civil engineering and urban planning, to economic analysis and marketing.

Any courses listed in degree plans that are not described in the GIST course list are under development and will be added in future catalogs as they are approved.

Undergraduate Certificates

Undergraduate certificates in GIS and Remote Sensing provide a means of adding credentials to your degree that reflect expertise in geospatial science.

Graduate Certificates

Graduate certificates provide a means for students and professionals to earn marketable credentials over the course of 1-2 semesters. These certificates require a combination of core and elective courses as outlined below and will be delivered primarily online.

Graduate

Geospatial Information Science with Thesis, Research M.S.

The Research Master of Science degree (with thesis) is delivered mainly on the UW campus but with many online courses. Students work with a graduate advisor who will guide their thesis research and chair their graduate committee. This degree requires a combination of core and elective courses that can be completed in 2 years.

Program Specific Admission Requirements

In addition to University of Wyoming graduate admission requirements, prospective students for the Research Master of Science Degree are required to submit a statement of purpose describing their background and interest in the degree, a CV or resume, and two letters of recommendation addressing their potential for success in this master's program. Students are encouraged to initiate correspondence with a faculty member who shares their research interests before applying.

Semester 1

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5200 - Geographic Visualization

Credits: 3

This online lecture and lab course emphasizes advanced theory and hands-on practice for creating applying interactive, dynamic, and multidimensional graphical representations of geographic data. Students will be introduced to web programming to allow them to develop mobile and online visualization tools.

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Former Course Number GEOG 5050] **Restricted** Grad students only

Semester 2

- GIST Elective Credits 6

GIST5220 - Spatial Modeling & Data Analysis

Credits: 3

Using raster modeling, hybrid vector/raster approaches, and geo-computational techniques, this course will explore a variety of modeling concepts and related issues. This course will examine a variety of both practical and theoretical issues, with special emphasis on understanding spatial questions that are not readily addressed by basic GIS. We will also consider issues related to error, resolution, scale, and a variety of other factors.

Former Course Number GEOG 5220

Semester 3

- GIST Electives Credits: 9

Semester 4

GIST5002 - Geospatial Forum

Credits: 1

Students attend a geospatial sciences speaker series and contribute by presenting their proposed or completed research to faculty and other students in a professional manner analogous to presenting scientific research at professional meetings.

- GIST 5960 - Thesis Research Credits: 4-12

Geospatial Information Science without Thesis, Professional M.S.

The Professional Master of Science Degree (no thesis) is delivered online. It provides a pathway for traditional students and professionals to earn a graduate credential in 2 years, but students may choose to take longer depending on their professional or personal time constraints.

Program Specific Admission Requirements

In addition to University of Wyoming graduate admission requirements, prospective students for the Professional Master of Science Degree are required to submit a statement of purpose describing their background and interest in the degree and a CV or resume.

Course Sequence

Semester 1

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are

demonstrated using project-based examples.

Former Course Number GEOG 5050] **Restricted** Grad students only

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5200 - Geographic Visualization

Credits: 3

This online lecture and lab course emphasizes advanced theory and hands-on practice for creating applying interactive, dynamic, and multidimensional graphical representations of geographic data. Students will be introduced to web programming to allow them to develop mobile and online visualization tools.

GIST5280 - Navigating GIST Professions

Credits: 1

An introduction to work in the geospatial profession for online GIST master's program students. Focus is on workplace, management and occupation-specific competencies across and within specific domain application areas. Topics include evaluation and appropriate use of technology and data, developing career pathway options, the role of professional certification, and the value of continuing education and professional network connections.

Semester 2

- GIST Electives Credits: 6

GIST5220 - Spatial Modeling & Data Analysis

Credits: 3

Using raster modeling, hybrid vector/raster approaches, and geo-computational techniques, this course will explore a variety of modeling concepts and related issues. This course will examine a variety of both practical and theoretical issues, with special emphasis on understanding spatial questions that are not readily addressed by basic GIS. We will also consider issues related to error, resolution, scale, and a variety of other factors.

Former Course Number GEOG 5220

Semester 3

- GIST Electives Credits: 3

GIST5300 - Web Mapping and Internet GIS

Credits: 3

With a combination of lecture-based information and hands-on lab exercises, students learn to design, develop, and implement web- and internet-based GIS and mapping applications. Commonly used web and internet GIS tools are used, and students learn to assess the quality, utility, and legal aspects of web GIS products.

GIST5350 - Enterprise GIS

Credits: 3

This course provides a comprehensive overview of the design, development, and management of enterprise GIS platforms. In addition to learning about enterprise architecture, students set up cloud services for managing, sharing, and processing spatial data using proprietary and open source tools.

GIST5002 - Geospatial Forum

Credits: 1

Students attend a geospatial sciences speaker series and contribute by presenting their proposed or completed research to faculty and other students in a professional manner analogous to presenting scientific research at professional meetings.

Semester 4

- GIST 5780 Credits: 3

GIST5002 - Geospatial Forum

Credits: 1

Students attend a geospatial sciences speaker series and contribute by presenting their proposed or completed research to faculty and other students in a professional manner analogous to presenting scientific research at professional meetings.

Certificate

Geospatial Information Science and Technology Graduate Certificate

This 15-credit graduate certificate gives you a rigorous academic credential in GIS that includes exposure to fundamental and advanced concepts and the chance to pursue your own interests with generous elective opportunities.

Core (9 Credits)

GIST5050 - Basics of Spatial Data Science

Credits: 3

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e.g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Former Course Number GEOG 5050]Restricted Grad students only

GIST5150 - Advanced Programming in Spatial Sciences

Credits: 3

Introduces GIS programming to motivated students with little or no prior experience in programming; students develop programming skills used to understand geospatial data and to model geographical changes. Programming skills for handling emerging data types are emphasized.

GIST5220 - Spatial Modeling & Data Analysis

Credits: 3

Using raster modeling, hybrid vector/raster approaches, and geo-computational techniques, this course will explore a variety of modeling concepts and related issues. This course will examine a variety of both practical and theoretical issues, with special emphasis on understanding spatial questions that are not readily addressed by basic GIS. We will also consider issues related to error, resolution, scale, and a variety of other factors.

Former Course Number GEOG 5220

Electives (6 Credits)

- Choose from other GIST courses (see M.S. courses) or interdisciplinary courses

Total: 15 Credits

Remote Sensing Graduate Certificate

Remote sensing scientists use data collected by satellites, aircraft, and Unmanned Aerial Systems (drones) to address questions important for agriculture, natural resource and wildlife management, global change science, energy development and other applications. From Google Earth to complex spectral analysis, remote sensing is playing an increasingly important role in many fields. This 15-credit online graduate certificate teaches you the fundamentals of remote sensing and digital image processing, and the freedom to use elective courses to pursue your own interests in related topics.

Core (6 Credits)

- BOT 5111 - Introduction to Remote Sensing of the Environment Credits: 3
OR

GIST5111 - Introduction to Remote Sensing

Credits: 3

Combined online lecture and laboratory course introduces students to fundamental principles and techniques of remote sensing and the application of digital satellite and aerial imagery to the study of the earth's surface. Includes hands-on application of digital imaging processing techniques discussed in lecture.

Former Course Number [BOT 5111; GEOG 5111]

GIST5120 - Integration of RS and GIS Data

Credits: 3

Many geospatial analyses involve combining remotely sensed (RS) data and products with other geospatial data stored in GIS. This 3-credit online course will overview the topics pertaining to the integration of RS data in raster format with GIS data stored in vector format.

Prerequisite: graduate standing.

Electives (9 Credits)

- Choose from other remote sensing and UAS courses or interdisciplinary RS courses

Total: 15 Credits

Undergraduate Certificate in GIS

Undergraduate certificate in GIS provides a means of adding credentials to your degree that reflect expertise in geospatial science.

Core (10 credits)

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

Undergraduate Certificate in Remote Sensing

Undergraduate certificate in Remote Sensing provides a means of adding credentials to your degree that reflect expertise in geospatial science.

Undergraduate Certificate in Remote Sensing Core (3 credits)

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

Electives (6 credits)

Select any remote sensing or UAS courses (6 credits)

Total: (9 credits)

Unmanned Aerial Systems Graduate Certificate

In this certificate program, you will learn to safely use Unmanned Aerial Systems (drones) and to collect and process geospatial data acquired by them. Demand for professionals trained to operate drones and process drone imagery is growing rapidly in agriculture, natural resource management, construction, energy, transportation, business, and many other fields. A significant aspect of this 11-credit online graduate certificate (with a 2-credit, field-based flight school) is to prepare you to become an FAA certified pilot and to use industry-standard image processing techniques.

Core (8 Credits)

GIST5410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 4410.

GIST5420 - UAS Mission Planning

Credits: 1

This 1-credit online course provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 4420.

GIST5430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 4430.

GIST5440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 4440.

GIST5450 - UAS Photogrammetry and Imagery Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery data acquired by unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 4450.

Prerequisite: graduate standing or approval from the instructor.

Electives (3 Credits)

(may be optional for some graduate students, depending on their program of study)

- Choose from remote sensing courses or interdisciplinary UAS applications courses

Total: 8-11 Credits

Information Literacy

Information Literacy

Coe Library 304

Phone: (307) 766-5313

The University Libraries offer research assistance and information literacy instruction to students and faculty. Librarians provide customized class orientations to information sources in every discipline, as well as individual research consultations. Students needing research help may call, text, email, instant message, or visit any library branch.

The University of Wyoming addresses information competencies utilizing the [Framework for Information Literacy for Higher Education](#) as approved by the Association of College & Research Libraries (ACRL) and endorsed by the American Association for Higher Education. Librarians collaborate with teaching faculty in addressing these information competencies in course assignments or lectures. Information literacy is the ability to recognize and define the need for information, then locate, evaluate, and use that information effectively and ethically.

Information literacy learning outcomes are included in University Studies First Year Seminar (FYS) and Communication (COM) courses and are similar to the critical thinking learning outcomes in the H, PN, and V courses.

The Libraries also offer credit courses to help students improve research skills and to meet the Communications 2 requirement of the University Studies Program.

Learning Outcomes

We expect that students completing LBRY courses will become knowledgeable consumers of information through learning how to:

1. Recognize and define the need for information;
2. Efficiently locate information in the library or on the Internet;
3. Evaluate the quality of information;
4. Utilize information effectively, ethically, and legally.

Librarians

TAMSEN EMERSON HERT, B.A. Colorado State University 1979; M.L.S. Emporia State University 1984; M.A. 1988; Librarian, 2014, 1986.

DAVID D. KRUGER, B.S. South Dakota State University 1991; B.S.Ed. Minot State University 1994; M.A. Kansas State University 1996; M.L.S. University of Missouri at Columbia 1998; Librarian 2016, 1998.

LAWRENCE O. SCHMIDT, B.S. Montana State University 1987; M.S. 1995; M.L.S. Emporia State University 2002; Librarian 2020, 2008.

Associate Librarians

KALISA J. CALKINS, B.A. University of Washington, Bothell 2001, M.L.I.S. University of Washington, Seattle 2004; Associate Librarian 2012, 2006.

JANICE GROVER, B.A. University of Wyoming 2005; M.L.S. Emporia State University 2009; M.A. University of Wyoming 2017; Associate Librarian 2021.

Assistant Librarians

SAMANTHA PETER, B.A. University of Wyoming 2016; M.S.I.S. University of Texas at Austin 2018; Assistant Librarian 2018.

JESSICA RARDIN, B.A. Beloit College 2013; M.L.I.S. University of Wisconsin-Milwaukee 2021; Assistant Librarian 2021.

Intercollegiate Athletics

Interdisciplinary Programs

Interdisciplinary Programs

Biomedical Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website <http://www.uwyo.edu/biomedphd/>
Email: bms@uwyo.edu

Program Director: Sreejayan Nair, Ph.D.

Degree Offered

Ph.D. in Biomedical Sciences

Biomedical sciences is the study of human biological processes; the complex interactions between physiological, genetic and environmental factors that influence disease and health. It spans the spectrum from fundamental discovery to innovation and application.

Areas of focus may include but not limited to cardiac health, nutrition, reproductive biology, toxicology, diagnostic & imaging and medical engineering.

The PhD program in biomedical sciences is designed to position graduates for long-term competitive success in the rapidly changing and multifaceted health-related arena in the 21st century. It is a comprehensive, interdisciplinary

program, making connections between various disciplines to gain new insights, discover and apply new knowledge, and promote self-directed, life-long learning.

Biomedical Sciences is a research & discovery focused program balancing depth and breadth of content knowledge with "enabling" skills including problem solving, innovation, entrepreneurship, communication and leadership.

Program Specific Admission Requirements

1. Minimum requirements. Applicants who do not meet the minimum requirements may be conditionally accepted at the discretion of the BMS Admission Committee. Please submit the application packet comprising the following documents for pre-admission screening:

a. Faculty sponsor. Contact potential biomedical sciences graduate program faculty sponsor in your area of interest prior to submitting an application. NOTE: a letter indicating the sponsorship by a faculty is strongly recommended as the program does not have sufficient number of graduate assistantships to support all students.

b. Official academic transcripts. Successful completion of a bachelor's degree from an accredited institution with one or more semesters of biology, physics, anatomy, physiology, chemistry, biochemistry/molecular biology, math are recommended. All applicants should have at least a 3.0 cumulative GPA (scale of 4.0). While a master's degree is not required for admissions into the biomedical sciences Ph.D. program, a master's degree with a strong background in the research area of focus is a plus.

c. TOEFL/IELTS/Duolingo: The minimum acceptable scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/ cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores or 110 or higher as proof of English proficiency, until further notice.

d. GRE: A composite minimum score of 291 on the verbal and quantitative sections of the GRE is recommended. The GRE may be waived at the discretion of the admission committee if the applicant already possesses a master's degree, and/or documented research accomplishment in the chosen discipline.

e. Three letters of recommendation.

f. Statement of research interests and career objectives. A letter stating research & career interests and goals, prior research experience and outcomes, reasons for interest in BMS program. Include your contact information in the letter.

g. Current professional resume

2. Application Process. The BMS admissions committee reviews the completed application.

a. Contact faculty in your area of interest and obtain their endorsement. Faculty may choose to interview the candidate on-campus or via zoom.

b. Submit your application materials (pdf files of cover letter/statement of purpose, letter of sponsorship from the faculty, three letters of reference, transcripts, TOEFL/GRE scores to the admissions office via the University's admission portal.

c. To ensure full application review for fall semester admission, applications should be received by **February 15**.

- d. Review by BMS Admissions Committee.
- e. Forward application packet with BMS recommendation to the faculty and host department.
- f. Notification of decision to applicant by **May 1**.

Program of Study

Rationale: The program of study is designed according to student learning goals and research opportunities. It blends depth and breadth of preparation by providing broad core requirements with electives promoting specialization in a "parent" discipline. This is recognized on program documentation by a Doctorate in Biomedical Sciences/"specialization" area. For example, Doctorate in Biomedical Sciences/Reproductive Biology.

Student Learning Outcomes: The BMS program provides unique array of formal courses and informal discovery experiences focused on ensuring aptitudes, behaviors, and skills necessary for leadership and competitive success in the biomedical science arena.

Although the foundation enabling innovative, independent thinking and knowledge discovery is deep discipline knowledge, the BMS program is also designed to promote student competency in information assessment, synthesis and integration, communication and translation to the broader community, teamwork, leadership, and project management.

The BMS program trains graduates to be competent, skilled experimentalists, problem solvers, critical and independent thinkers, expert in their field, with both depth and breadth of knowledge.

In addition, the program aims to instill characteristics that are essential to long-term professional success, preparing scientists who are effective and dedicated mentors and teachers, organized administrators, exemplars of high ethical standards, and effective collaborators.

Upon completion of the program, graduates will demonstrate:

- Independent, critical thinking skills
- Ability to identify appropriate biographical resources
- Knowledge of recent advances in discipline and related areas
- Understanding of a broad spectrum of research methodologies and their applications
- Ability to critically analyze research findings
- Ability to design and independently execute research
- Ability to use appropriate information technology to record, manage, and disseminate information
- Understanding of issues related to researcher and subject rights
- Motivation and aptitude needed to acquire knowledge
- Communication skills that are appropriate for a range of audiences and purposes
- Ability to construct and articulate arguments to a wide range of audiences
- Ability to effectively support the acquisition of knowledge by others when teaching or mentoring students
- Willingness to assume responsibility for their work
- Ability to design and teach undergraduate or graduate courses
- Ability to publish single/first authored papers in peer-reviewed journals.

Program in Ecology, Ph.D. Program

Office of Graduate Education
Old Main 310

Phone: (307) 766-4128
Website: <http://www.uwyo.edu/pie/>
Email: ecology@uwyo.edu

Program Director: Melanie Murphy, Ph.D.

Degree Offered

Ph.D. in Ecology

The Program in Ecology prepares doctoral students to lead the discipline of ecology during the coming decades. The program is grounded in the natural history of organisms in their environment, but incorporates tools and perspectives from across the biological, physical, mathematical, computational, and earth sciences. Students develop conceptual, historical, and philosophical perspectives spanning the entire range of subdisciplines in ecology, while receiving advanced training in the subdiscipline of their individual interest.

The program fosters long-term career development by exploring the linkages of ecology with other disciplines, and by scanning the ecological horizon for emerging questions, concepts, and approaches that will shape the field in years to come.

Faculty members from 11 departments and 3 colleges participate in the Program in Ecology. Their interests span the full range of topics covered in the field of ecology, and students in the program reflect this diversity.

Program Specific Admission Requirements

The Program in Ecology (PiE) is an interdisciplinary graduate program leading to the Doctor of Philosophy degree in Ecology. Students and faculty from multiple departments and colleges at the University of Wyoming participate in the Program. Graduate students admitted to the Program will have a home department, which will typically be the home department of the respective committee chair or co-chair. Those interested in graduate study in this program, are encouraged to contact individual faculty members in the potential student's area of interest (http://www.uwyo.edu/pie/who_we_are/faculty.html) and the Program in Ecology (307-766-4128; ecology@uwyo.edu) for more information and guidance regarding applying.

In order to apply: 1) **Contact:** Identify a faculty advisor (all PiE students **must** be sponsored by a faculty advisor (http://www.uwyo.edu/pie/who_we_are/faculty.html)). These contacts are generally made in the fall the year before submission, but successful contacts may be made later. 2) **Admission to home department:** Apply to the University of Wyoming via the online application system (<http://www.uwyo.edu/admissions/apply.html>): letter of intent, CV, transcripts, and three letters of recommendation. For department, please select the department of the potential advisor. A minimum of three letters of recommendation are required and up to two additional letters may be submitted. A suggested deadline for application is January 31 to be considered for fall admission, but applications will be continued to be considered. A minimum of a 3.0 undergraduate cumulative GPA is required for admission or MS degree. International applicants, who are not native English-speakers, must submit TOEFL (recommended minimum 525) or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) if you have questions regarding the English proficiency requirements. 3) **Admission to PiE:** Submit a letter of interest to the Program in Ecology (ecology@uwyo.edu), stating explicitly why you would wish to be considered for PiE and identifying the faculty advisor immediately after completing your online application. Admission to PiE requires admission is predicated on admission to home department. All applications to the Program will be reviewed by the Graduate Affairs Committee, which has authority on admissions. Students applying to the Program who lack a Master's degree must show exceptional promise and commitment (e.g., through undergraduate or post-graduate research experiences, peer-reviewed publications, and/or success in competing for

research fellowships). Such students are encouraged to consult with their prospective advisor on whether to apply directly to PiE or to Master's programs in individual home departments of PiE faculty.

Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the Program. Students who wish to transfer into the Program from department-based doctoral programs must submit a formal application and must satisfy all the admission requirements specified above. Such application will consist of copies of all the application materials originally submitted to the program in which the student is currently enrolled, as well as a letter of recommendation from their prospective PiE advisor. In addition, they must submit a letter stating their reasons for seeking this transfer. All applications will be reviewed by the Graduate Affairs Committee. In addition, the following apply to transfer students:

- Students enrolled in departmental programs who have not yet taken their preliminary examinations may pursue the PhD in Ecology provided they (a) appoint an Advisory Committee under Program rules before they take their preliminary examinations, and (b) fulfill the curricular requirements.
- Students who have been admitted to departmental programs, and who have already taken their preliminary examinations, may pursue the PhD in Ecology provided they (a) appoint an Advisory Committee under Program rules within one month of admission to the Program, and (b) fulfill the curricular requirements. The student's Advisory Committee has the option of requiring a new preliminary examination.

Program Specific Degree Requirements

Advisory Committee

Before the end of the second semester of study, the student should nominate a (minimum) five-member advisory committee to the Office of the Registrar. At least three members of the committee, including the committee chair (usually the student's adviser), will be members of the PiE faculty. One other member, who will serve as Graduate Faculty representative, must be from outside the home department of the major adviser, although (s)he can be a faculty member in a department that participates in the program and/or a faculty member of PiE. The committee will advise the student on his/her program of graduate study, execute and evaluate the student's preliminary examination, evaluate the student's dissertation proposal and dissertation, and conduct the student's dissertation defense.

Program of Study

All students are required to take ECOL 5100 or equivalent. This course should be taken during the first year of residency. Exceptions or substitutions of these requirements are subject to approval by the graduate affairs committee.

The program of study must include at least 6 credit hours aimed at developing a tool skill, which except for rare cases shall be in the quantitative/analytical domain (e.g., statistics, modeling, GIS, remote sensing, bioinformatics). Courses relating to research tools should be taken early in the student's residency to ensure that they can be used in thesis research and advanced studies. Specific coursework and tool-skill development for the student's program of study will be developed in consultation with and subject to approval by the student's advisory committee.

Admission to Candidacy

Admission to candidacy for the Ph.D. requires two steps: 1) providing evidence that the student is prepared to identify a research question, design an approach for investigating that question, and a plan for executing the approach, all in the format of an NSF-style research proposal, and 2) illustrating adequate proficiency in the subject matter of ecology through a process involving both written and oral exams.

Proposal

Students must submit a NSF-style proposal to their committee outlining their project, typically by the end of the fourth semester. Each committee member will provide feedback to the student on the proposed research and indicate approval of the proposal or request revision. The proposal must be approved by all committee members prior to starting the preliminary exams.

While this proposal should be a plan for actual dissertation research, unforeseen circumstances may require altering the student's dissertation work after the proposal has been approved by the committee. In the case of a major alteration, the student should reformulate a research plan and submit it to the committee in writing for committee approval.

Preliminary Exam

Passing the preliminary exam is the official admission to candidacy.

Written Portion of the Preliminary Exam. The student will take the written exam portion of the preliminary exam no fewer than two weeks following approval of the research proposal. The goal of this exam is to test breadth of knowledge in ecology. The design of this exam will be coordinated by the graduate committee under the leadership of the adviser. Each written exam will cover the following topics:

Ecological topics ranging from organismal/evolutionary to ecosystem-level perspectives, integrating concepts and perspectives from across the discipline, over a wide range of spatial and temporal scales.

The philosophical and historical development of ecology.

The conceptual background of the student's area of specialization.

The exam will consist of four to six questions developed collectively by the committee and organized by the student's major professor. The exam will be open book; however, the answers will be solely the work of the student. Answers should be fully cited and collectively should be no longer than 30 pages double-spaced exclusive of references cited. Students will have one full week (seven days) to complete the exam. Committee members will indicate pass/fail within one week following completion of written exams. Four of five passing votes are required.

Oral Portion of the Preliminary Exam. No sooner than two weeks after successfully passing the written exam, the student may proceed to an oral exam administered by his/her graduate committee. Oral exams center around three goals from which questions will be derived:

To verify that the student is prepared, conceptually and methodologically, to carry out successful dissertation research.

To evaluate the student's ability to conceptualize specific questions in a broad, integrative context.

To evaluate the student's ability to think spontaneously and creatively and to articulate responses about unexpected or novel questions.

The advisory committee will discuss and organize specific questions based on these goals in a short session at the beginning of the exam period before admitting the student to the examination room and starting the exam. Following the exam each committee member will provide non-binding paper votes of pass/ fail for each of the three goals of the oral exam. Following discussion of the student's performance, committee members will each assign a grade of pass/fail for the overall exam. Four of five committee members must vote for passing the overall oral exam.

Students whose performance is unsatisfactory will be given one opportunity for retaking the oral examination. This retake will occur no later than the academic-year semester following the first examination.

Public Seminars

Students are required to give two oral presentations on their research. The purposes of these presentations are to provide the student with practice in oral presentations and to keep the PiE community informed of the student's progress. The first will describe the student's dissertation research proposal. This presentation will be given before the student submits his/her thesis proposal. The second presentation will summarize the student's completed dissertation research, and will normally be given the same semester as the student's dissertation defense. Under extraordinary circumstances (subject to approval by the Graduate Affairs Committee), this presentation may be given at an earlier time. These presentations must be open to the public, and may comprise part of a departmental or Program in Ecology seminar or brown-bag series.

Hydrologic Sciences (WRESE), Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/wrese>
E-mail: wrese@uwyo.edu

Program Director: Andrew D. Parsekian, Ph.D.

Degree Offered

Ph.D. in Hydrologic Sciences

The Water Resources/Environmental Science and Engineering (WRESE) program facilitates Ph.D. level course offerings in water-related disciplines, and coordinates offerings of these courses. Furthermore, the WRESE program serves as a focal-point for water-related graduate research and education at the University of Wyoming.

This interdisciplinary degree program encourages cross-department and inter-college coordination for research and education in hydrology and water resources.

The WRESE Program grants a PhD in Hydrological Sciences.

Program Specific Admission Requirements

Ph.D. in Hydrologic Sciences

The WRESE Program only admits students seeking a doctoral degree.

Those interested in graduate study in this program, are encouraged to contact the WRESE program (wrese@uwyo.edu) for more information and guidance regarding applying. In order to apply, please submit an application to the program via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>). Prospective students applying to the WRESE program must satisfy the minimum criteria for admission of their advisor's home department (i.e., number of reference letters required; minimum GRE scores, if requested; other supporting documents, if requested; etc.). Similarly, applicants should adhere to the submission deadline indicated by their advisor's home department.

Minimum criteria for admission to the WRESE Program are:

- Minimum undergraduate GPA of 3.000
- Agreement by a faculty member affiliated with the WRESE program to sponsor the student

- Admission to a home department at the University of Wyoming

Typically, students admitted into the program will have previously obtained a Masters-level degree. Under certain circumstance, students may be admitted directly after an undergraduate degree if they show exceptional promise and commitment. Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the WRESE program.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwo.edu/elc/>) if you have questions regarding the English proficiency requirements.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Program Specific Degree Requirements

Students in the WRESE Program are expected to create their graduate committee within the first year of study. The committee should be composed of three faculty members within the PhD program in Hydrology and 2 should be from the student's departmental home. A committee shall be composed of no fewer than 5 members, of which only one may be from outside the University. Additional committee members may be added to support the student's learning and objectives on the discretion of the committee and WRESE Program chair.

Program of Study

Students enrolled in the Program should complete their Program of Study within the first 3 semesters. The student shall work with his/her research advisor and committee to determine the appropriate course of study relative to the student's research agenda. Students are expected to complete a rigorous course of study in quantitative hydrological sciences. Minimum requirements for the PhD include:

- Coursework credits: 42 hours (26 can be from an MS)
- Total credits: 72 hours
- Math expectations: students are encouraged to pursue a high level of math proficiency, with typical students progressing through differential equations. Individual math expectations will be determined by the committee and program chair.

A dissertation proposal should be approved by the end of the 4th semester. Students shall submit their proposal to their committee for review two weeks prior to a holding a committee meeting where the student (a) presents their proposal in a public presentation and (b) defends the proposal to the committee in a closed meeting. After the meeting, the student shall amend the proposal as required by the committee within a timely manner.

Admission to Candidacy / Preliminary Examination

Advance to candidacy is attained by passing preliminary exams within 3 years of initiating a degree program. Students should complete their preliminary exams as close to the end of their primary coursework as possible. Preliminary exams consist of two parts. The first part is a written examination wherein committee members shall submit written questions to the student. Once the student has passed their written exams, they will be administered an oral examination.

The written exam shall be administered by the student's research adviser, who will coordinate the questions so as to obtain a comprehensive review of the student's knowledge of the materials the student has learned in the classroom and needs to complete his/her research topic. Written questions should cover both conceptual and theoretical underpinnings in hydrological sciences and technical questions related to the student's research area.

The written exam will consist of a series of questions as decided upon by the committee and should take no more than two weeks to complete.

Each committee member shall grade their portion of the exam as pass/fail. The student shall be viewed as passing the written exam if no more than one person grades their portion of the exam as failing.

The oral examination will be held no sooner than two weeks after the written exams, and only after the student has passed their written examinations. The oral exam should be no less than 90 minutes long and no longer than 3 hours.

Following the exam, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Dissertation

The student will prepare a dissertation and make the document available to the committee at least two weeks in advance of an oral defense of the document. The oral defense must be at least 15 weeks after the student has been advanced to candidacy. Students shall present a public defense to the university community that is expected to be approximately 45 minutes long, with a public question-and-answer period after the presentation. If the committee determines that the student has presented a suitable oral presentation of his/her research findings, a closed session meeting will be held in which the student defends their research to the committee. At the conclusion of the defense, each committee member must vote pass/fail. The student will be deemed as passing if they receive no more than one failing vote.

Other information:

Students in the WRESE Program may participate from any college, with the expectation that their program of study and dissertation will focus on quantitative issues of hydrology and water resources. The Program welcomes academic diversity, and students in WRESE have entered into the Program from a wide range of academic backgrounds and have hailed from numerous home departments, including Ecosystem Science and Management, Civil and Architectural Engineering, Botany, Zoology and Physiology, and Geology and Geophysics.

Molecular and Cellular Life Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/mcls/>
Email: mcls@uwyo.edu

Program Director: Daniel Levy, Ph.D.

Degree Offered

Ph.D. in Molecular and Cellular Life Sciences

This interdisciplinary program with more than 30 faculty participants spans a wide range of research topics, such as:

Biotechnology-bioengineering, biomaterials, pharmacology, cell biology and signaling, genetics and development, genomics, proteomics, computational biology, microbiology and infectious disease, structural biology, and biophysics.

Coursework focuses on core courses in biochemistry and molecular biology, with electives that include such diverse courses as:

Topics in Genomics, Biophysics, Microbial Physiology and Metabolism, Cell and Developmental Genetics, Mass Spectrometry and Analytical Chemistry, Biomedical Engineering, Mammalian Endocrinology, Cell Culture and Virology, Introduction to Bioinformatics, Protein Structure and Function, Microbial Genetics, Computational Biology, and Quantitative Microscopy.

Program Specific Admission Requirements

1. Applicants should apply through the online graduate application link. This process requires uploading a statement of purpose, a CV, academic transcripts, and test scores. The statement of purpose should include a brief narrative that describes the applicant's motivation to pursue graduate studies in the life sciences, relevant experiences, and specific reasons for applying to the MCLS program at the University of Wyoming. The program does not adhere to strict test score minimums, however, for international applicants minimum suggested scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS, respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries will be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency until further notice. More information for international applicants can be found on the University of Wyoming graduate admissions website. The application also requests that three reference letters be submitted in support of the candidate's application. Completed applications are due on January 1.

2. The MCLS admissions committee reviews completed applications starting in early January of each application cycle. Promising applications are selected based on research experience, grades, test scores, and reference letters. The most compelling statements of purpose convincingly describe why the applicant is interested in pursuing graduate studies in the life sciences, detailing relevant past research experience and how it has prepared the student for PhD studies. Reference letters that include specific details and anecdotes about the applicant are most useful. The committee generally looks for grades of B or better in life science and chemistry courses, although lower grades can be balanced by a sufficiently strong research background. Successful applicants will be notified of admission decisions by May 1 at the latest, although the majority of decisions will be made by March 15.

3. Following the initial reviews, selected applicants are invited for a Zoom interview. Applicants will be provided with a primary research paper that they should read in preparation for the interview.

4. Zoom interviews are conducted with at least two members of the admissions committee. Applicants are asked a variety of questions, including why they are interested in the MCLS program, how their previous research experience has prepared them for PhD studies, their perceived strengths and weaknesses as a scientist, and future career goals. The interviewers also ask questions about the research paper and more general molecular biology questions to determine if the applicants have a sufficiently strong background to succeed in the MCLS program.

5. Shortly after the interview sessions, the MCLS admissions committee discusses the results of the Zoom interviews and ranks applicants for offers of admission, conditional upon approval by the Office of Admissions.

Program Specific Degree Requirements

MCLS doctoral students must fulfill the minimum requirements outlined by the university. In addition, students must obtain a high level of proficiency in the core foundations of the molecular and cellular life sciences through required courses in biochemistry/ molecular biology, scientific literature analysis proficiency, and the MCLS cornerstone course. Because of the broad range of research interests pursued by MCLS faculty and students, considerable flexibility will be exercised regarding the specific nature of the graduate level elective courses that students may take. Students must successfully complete four eight-week rotations in MCLS laboratories of their choice during the first year. Additionally, students must pass a comprehensive assessment exam at the end of the first year. Near the end of

their second year in the program, students will undertake a qualifying examination in order to be formally admitted to graduate degree candidacy. This exam will have both written and oral components and will cover areas of science that are relevant to the students' proposed research. Annual meetings with a research-specific dissertation committee will facilitate and evaluate the research progress of MCLS students beginning in the second year. Students must also attend weekly outside seminars on topics in the molecular life sciences for the durations of their studies. For more information, please see the program's Website at: <http://www.uwyo.edu/MCLS/>.

Neuroscience, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/neuroscience/>
Email: neuroscience@uwyo.edu

Program Director: Kara Pratt, Ph.D.

Degree Offered

Ph.D. in Neuroscience

The Graduate Neuroscience Program offers training leading to the Ph.D. degree in Neuroscience. The Neuroscience Program emphasizes systems and integrative approaches, and our goal is to provide the students with the necessary background to be broadly trained research neuroscientists and to carry out independent research in neuroscience. The Neuroscience Program emphasizes continuing interaction with faculty from several departments and we have a low student to faculty ratio. Advisors spend considerable time supervising and training each doctoral student. The educational philosophy of the Neuroscience Program is to encourage a problem-oriented rather than a strict discipline-bound approach to research. You will emerge from this program with the scientific and experimental training needed to comprehensively address a very wide range of research questions using a variety of techniques and analytic tools.

The Graduate Neuroscience Program is designed to enable graduate students to acquire competence in the various disciplines necessary for research and teaching careers in neuroscience. The current interests of the Neuroscience faculty include sensory neurophysiology, behavioral neuropharmacology, neurodevelopment, neurodegeneration, and synaptic plasticity.

Students and faculty have access to outstanding resources established by NIH Neuroscience and Sensory Biology Core grants. The Microscopy Core houses both light (Zeiss laser scanning, fluorescent) and electron (Transmission and Scanning) microscopes. Resources needed to conduct research ranging from molecular, cellular circuit level to behavior are readily available within the Neuroscience Center.

Program Specific Admission Requirements

[Steps for applying to the Program in Neuroscience:](#)

Step 1: Contact faculty whose research is of interest.

Although not mandatory, applicants are encouraged to read through the faculty research summaries to identify faculty that they are interested in training with. It is strongly recommended that prospective students contact individual faculty for more information regarding their research programs and openings in their laboratories before submitting an application. This initial step is recommended because, due to the limited availability of Graduate Assistantships (GA's), graduate students are oftentimes recruited directly into a laboratory and supported straight away by the advisor's NIH or NSF funding.

Step 2: Submit the online application packet via the University of Wyoming's online application system (<http://www.uwyo.edu/admissions/apply.html>).

For full consideration for fall and spring admissions, applications should be submitted by January 1 and June 30, respectively. The application packet is comprised of the following items:

- **Application form**
- **Official academic transcripts:** Applicants should have at least a 3.0 cumulative GPA (scale of 4.0), and a bachelor's degree in a discipline that is related to neuroscience such as biology, psychology, physiology, chemistry, physics, or chemical or bioengineering. We encourage motivated applicants from degrees in diverse areas that are interested in transitioning to neuroscience. Students with an MS degree in neuroscience or related fields are also encouraged to apply.
- **GRE scores:** Accepted but not required
- **Three letters of recommendation**
- **TOEFL/IELTS:** For international students whose native language is not English. The minimum acceptable scores are 550 (79 iBT) and 6.5 for TOEFL and IELTS, respectively. (The University of Wyoming's school code for TOEFL = 4855.)
- **Personal statement:** A 1-3 page personal statement describing the student's motivation for pursuing a PhD in the field of neuroscience. Please describe areas of interest and any specific research topics or techniques with which you have experience. If your interests are still broad, indicate your general interests and graduate training goals.
- We are also interested in learning about your long-term career goals. What do you aspire to do after graduation? What are you specifically interested in the University of Wyoming? Finally, if you have established a potential faculty advisor (step 1), this should be clearly stated here in the personal statement.

Step 3: The interview

The graduate advisory committee reviews submitted application packets. Only complete packets are reviewed. Applicants deemed strong by the committee will be invited to participate in either an in-person or virtual (via zoom or phone) interview. The interview allows for the committee to learn more about the applicant, and, likewise, for the applicant to interview the committee.

Step 4: Verification of admittance by UW Admissions Office. Applicants that are chosen for admission to the Program in Neuroscience will then be requested to complete the application process through the University of Wyoming Admissions Department. Eligibility for enrollment will be verified by the UW Admissions Office, including the receipt of official transcripts and documents.

Program Specific Degree Requirements

Doctoral Program

All doctoral Neuroscience students are required to complete a program of core classwork that includes the following required courses: Introduction to Neuroscience, Structure and Function of the Nervous System and Neurophysiology. Students are required to take one course in Statistics (e.g. STAT 5050, STAT 5210) and the course that meets this requirement will be arranged with the student's committee. The statistics requirement must be met by the end of the second year. The Neuroscience Program is a research-oriented program and students are expected to take a minimum of 2 to 3 credit hours of research per semester. Students are also expected to enroll in an on-going Seminar in

Neuroscience. The Neuroscience Seminar, which meets weekly and is attended by students and faculty members, provides an opportunity for intellectual and social exchange, as well as for the development of professional skills in critical thinking. The topic for seminar and the faculty member directing the seminar changes each semester. The remainder of the coursework for the doctor of philosophy degree is selected from designated courses in Neuroscience, physiology, pharmacology, and molecular biology. A grade of B or better is required for all Neuroscience courses.

A student is expected to have a graduate adviser at all times. The faculty adviser must be a participating member of the Neuroscience faculty. The adviser is responsible for directing the student's research and academic coursework. During the second year, the student will have an advisory committee. The advisory committee will consist of at least three neuroscience faculty members and an outside member. Normally, the student's adviser will chair the committee and help identify members of the committee who best match the student's area of interest. The role of the advisory committee is to oversee all aspects of the student's education after the first year.

In the student's second or third year, the advisory committee will set and evaluate the student's qualifying examination. After successful completion of the preliminary examination the student will profess to Ph.D. candidate status.

The dissertation is the single most important component of the graduate program. It reports the results and significance of the student's research. In addition to the written dissertation, the doctoral candidate will deliver a formal seminar based on their research. The seminar will be followed by an examination by the student's advisory committee.

Science and Mathematics Teaching Center Master's Degrees

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/smtc/>
Email: smtc@uwyo.edu

Program Director: Sylvia Parker

The Science and Mathematics Teaching Center (SMTC) was established in 1970 and is committed to excellence in science, mathematics, technology and STEM education. As part of the Office of Graduate Education in Academic Affairs, the SMTC, in cooperation with the Wyoming Department of Education (WDE) and the Professional Teaching Standards Board (PTSB), serves as a resource and professional development center for the state. The SMTC offers transdisciplinary graduate degree programs with multiple degree concentrations, certification options, and endorsement options. All of the programs emphasize both strong content knowledge and instructional practices. The affiliate faculty for the SMTC includes faculty from the Colleges of Agriculture and Natural Resources, Arts and Science, Education, and Engineering and Applied Science, and the Haub School of Environment and Natural Sciences.

The SMTC provides extensive off-campus professional development that serves teachers, students, administrators, school districts and communities throughout Wyoming and the region. SMTC in-service and extension courses, workshops, institutes, and conferences are designed collaboratively to improve science and mathematics teaching in Wyoming.

The SMTC administers and supports five master's degree programs:

- (1) the Master of Science degrees in Natural Science with concentrations in Middle Level Math (MMA) and

(2) Middle Level Science (MSC); these programs are designed for Wyoming's in-service elementary, middle, and high school teachers. They focus on general science and mathematics content with an emphasis on teaching middle school level learners. The course work leads to middle level endorsement provided by the Wyoming PTSB. Teachers must have two years of teaching experience to participate in these programs.

(3) Master of Science in Teaching - Natural Science (MST - Natural Science). This is a self-directed master's degree program working with the SMTC, SER, and the Haub School as well as other colleges. The program is developed individually with the guidance of a graduate committee based on the interests of the graduate student. This program may be used by teachers to take the 18 graduate-level credits often needed to teach Advanced Placement and community college courses.

(4) Master of Science - Natural Science (MS - Natural Science). This is a self-directed master's degree program working with the SMTC, the College of Arts and Sciences, SER, and the Haub School and other colleges. The program is developed individually based on the interests of the graduate student and may emphasize formal or informal learning settings. Interdisciplinary study is encouraged.

(5) Master of Science in Natural Science with a concentration in Natural Science Education (NED). This Master's degree program is designed for students pursuing careers as environmental and natural science educators in non-public school or non-formal education settings. These students spend one year at the Teton Science Schools (TSS) in Jackson. A long-standing MOU between the SMTC and TSS allows students to use 15 graduate credit hours earned at TSS towards a master's degree if they are accepted into the second year at UW within the SMTC.

SMTC Student Learner Outcomes

Upon successful completion of the MS degree program in Natural Science, a student will be able to:

- Engage in teacher research to transform STEM instruction:
 - Design and implement a research project that asks and answers a question using appropriate materials, concepts and methods, and ethical practices, and
 - Effectively communicate all aspects of the research project in both oral and written forms.
- Use professional and academic standards to ensure high-quality interdisciplinary instruction (i.e., place-based, culturally relevant, and/or social justice pedagogy) to maximize learning for all students.
- Engage in mathematical and/or scientific discourse and scientific thinking as active participants in communities of practice.
- Use emerging technology and science investigations as tools to engage students.

Program Specific Admission Requirements

For the MSC, MMA, MST and MS-Natural Science Master's Degrees:

Two years of teaching experience and a valid teaching license (required for MSC and MMA; may be waived for MST and MS-Natural Science)

Application Fee, unless a UW Graduate

Official Transcripts from all Institutions attended and Bachelor Degree conferring institution

3.0 undergraduate grade point average; provisional admission with a lesser GPA only with consent from Academic Affairs

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence (These items are not required of applicants who hold a prior master's degree)

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from the teacher's principal and two other colleagues.

The NED Degree - First Year Application:

Official Transcripts from all institutions attended and Bachelor Degree conferring institution Application Fee, unless a UW Graduate

Acceptance and admission by the Graduate Program at the Teton Science Schools in Jackson, WY

The NED Degree - Second Year Application:

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from a TSS Graduate Program Faculty Member, one from another TSS employee such as a Classroom Instructor or Field Instructor, and one from the first year application

Applicants complete a UW graduate application and upload all of the information on the Admissions Office website (<http://www.uwyo.edu/admissions/apply.html>). Application packets are reviewed by SMTC Admissions Committees and recommendations for admissions are submitted to the University of Wyoming Admissions Office. Any of the above requirements plus the university's minimum 3.00 grade point average may be waived if proper documentation and reasoning are given by the SMTC and approved by the Associate Vice Provost of Graduate Education.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) for more information.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Application Due Dates for Master of Science - Natural Science with Concentrations in the following areas:

Middle-level Science (MSC): applications are accepted on an ongoing basis; new students may begin only in summer each year; final due date for admission in summer is April 1.

Middle-level Mathematics (MMA): applications are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Natural Science Education (NED): applications deadlines for Year 1 are established by Teton Science Schools (<https://www.tetonscience.org/programs/graduate-program/admissions/>); due date for admission to begin Year 2 in the fall at UW is February 1.

MST and the MS- Natural Science Masters Degree: applications for these self-designed programs are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Graduate Assistantships and Scholarships

The SMTC often has scholarships and graduate assistantships available for graduates accepted for the above Master's degree programs. More information upon admission and acceptance.

Graduate

Biomedical Sciences, Ph.D.

The Biomedical Sciences graduate program seeks to provide the students with a unique research training environment to integrate a variety of scientific approaches to address complex health-related challenges.

Additional Information

Biomedical Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website <http://www.uwyo.edu/biomedphd/>
Email: bms@uwyo.edu

Program Director: Sreejayan Nair, Ph.D.

Degree Offered

Ph.D. in Biomedical Sciences

Biomedical sciences is the study of human biological processes; the complex interactions between physiological, genetic and environmental factors that influence disease and health. It spans the spectrum from fundamental discovery to innovation and application.

Areas of focus may include but not limited to cardiac health, nutrition, reproductive biology, toxicology, diagnostic & imaging and medical engineering.

The PhD program in biomedical sciences is designed to position graduates for long-term competitive success in the rapidly changing and multifaceted health-related arena in the 21st century. It is a comprehensive, interdisciplinary program, making connections between various disciplines to gain new insights, discover and apply new knowledge, and promote self-directed, life-long learning.

Biomedical Sciences is a research & discovery focused program balancing depth and breadth of content knowledge with "enabling" skills including problem solving, innovation, entrepreneurship, communication and leadership.

Admission to the Biomedical Sciences PhD Program

1. Minimum requirements. Applicants who do not meet the minimum requirements may be conditionally accepted at the discretion of the BMS Admission Committee. Please submit the application packet comprising the following documents for pre-admission screening:

a. Faculty sponsor. Contact potential biomedical sciences graduate program faculty sponsor in your area of interest prior to submitting an application. NOTE: a letter indicating the sponsorship by a faculty is strongly recommended as the program does not have sufficient number of graduate assistantships to support all students.

b. Official academic transcripts. Successful completion of a bachelor's degree from an accredited institution with one or more semesters of biology, physics, anatomy, physiology, chemistry, biochemistry/molecular biology, math are recommended. All applicants should have at least a 3.0 cumulative GPA (scale of 4.0). While a master's degree is not required for admissions into the biomedical sciences Ph.D. program, a master's degree with a strong background in the research area of focus is a plus.

c. TOEFL/IELTS/Duoling: The minimum acceptable scores are 540 (76 iBT) and 6.5 for TOEFL and IELTS respectively. An applicant whose native language is English and is a citizen of one of the following countries or has earned a university level degree from a school in one of the following countries may be exempt from providing additional proof of English proficiency: Antigua & Barbuda, Bahamas, Belize, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, Dominica, St. Vincent & the Grenadines, Trinidad & Tobago, Australia, Bermuda, Canada (all provinces except Quebec), Ireland, New Zealand, United Kingdom, and the United States. Due to COVID-19 related postponements/cancellations of TOEFL/IELTS exams, we will be accepting Duolingo scores of 110 or higher as proof of English proficiency, until further notice.

d. GRE: A composite minimum score of 291 on the verbal and quantitative sections of the GRE is recommended. The GRE may be waived at the discretion of the admission committee if the applicant already possesses a master's degree, and/or documented research accomplishment in the chosen discipline.

e. Three letters of recommendation.

f. Statement of research interests and career objectives. A letter stating research & career interests and goals, prior research experience and outcomes, reasons for interest in BMS program. Include your contact information in the letter.

g. Current professional resume

2. Application Process. The BMS admissions committee reviews the completed application.

a. Contact faculty in your area of interest and obtain their endorsement. Faculty may choose to interview the candidate on-campus or via zoom.

b. Submit your application materials (pdf files of cover letter/statement of purpose, letter of sponsorship from the faculty, three letters of reference, transcripts, TOEFL/GRE scores to the admissions office via the University's admission portal.

c. To ensure full application review for fall semester admission, applications should be received by **February 15**.

d. Review by BMS Admissions Committee.

- e. Forward application packet with BMS recommendation to the faculty and host department.
- f. Notification of decision to applicant by **May 1**.

Program of Study

Rationale: The program of study is designed according to student learning goals and research opportunities. It blends depth and breadth of preparation by providing broad core requirements with electives promoting specialization in a "parent" discipline. This is recognized on program documentation by a Doctorate in Biomedical Sciences/"specialization" area. For example, Doctorate in Biomedical Sciences/Reproductive Biology.

Student Learning Outcomes: The BMS program provides unique array of formal courses and informal discovery experiences focused on ensuring aptitudes, behaviors and skills necessary for leadership and competitive success in the biomedical science arena.

Although the foundation enabling innovative, independent thinking and knowledge discovery is deep discipline knowledge, the BMS program is also designed to promote student competency in information assessment, synthesis and integration, communication and translation to the broader community, teamwork, leadership and project management.

The BMS program trains graduates to be competent, skilled experimentalists, problem solvers, critical and independent thinkers, expert in their field, with both depth and breadth of knowledge.

In addition, the program aims to instill characteristics that are essential to long-term professional success, preparing scientists who are effective and dedicated mentors and teachers, organized administrators, exemplars of high ethical standards, and effective collaborators. Upon completion of the program, graduates will demonstrate:

- Independent, critical thinking skills
- Ability to identify appropriate biographical resources
- Knowledge of recent advances in discipline and related areas
- Understanding of a broad spectrum of research methodologies and their applications
- Ability to critically analyze research findings
- Ability to design and independently execute research
- Ability to use appropriate information technology to record, manage, and disseminate information
- Understanding of issues related to researcher and subject rights
- Motivation and aptitude needed to acquire knowledge
- Communication skills that are appropriate for a range of audiences and purposes
- Ability to construct and articulate arguments to a wide range of audiences
- Ability to effectively support the acquisition of knowledge by others when teaching or mentoring students
- Willingness to assume responsibility for their work
- Ability to design and teach undergraduate or graduate courses
- Ability to publish single/first authored papers in peer-reviewed journals

Additional Course Information:

The BMS Ph.D. program requires a minimum of 72 hours of credit from UW or another approved university. At least 42 hours of the 72 hours minimum must be earned in formal classroom courses. Twelve hours of credit at 4000-level coursework are permitted towards this. This 72-hour requirement may include graduate credits earned while working toward the M.S. degree in the same area but in that case, at least 42 hours of the 72 must be earned through formal course work. Additional credits toward the 72-hour requirement will comprise mainly or entirely of Dissertation

Research (BMS 5980) credits. As indicated above, to be considered a full-time graduate student at the University of Wyoming students must be signed up for 9 credit hours each semester.

Required course work (12 credits):

Biomedical Sciences Research ethics (2 credits)

Graduate-level Physiology course (3 credits)

Epidemiology (3 credits)

Interdisciplinary Seminar in Biomedical Science (1 credit)

Beyond the Bench: Fundamental Skill Sets for Biomed. Researchers (3 Credits)

Three courses from the following list (9 credits):

STAT 5050 (or other statistics course; 3 credits)

MOLB 5600, General Biochemistry (3 credits)

BIOL 4600, Cell Biology (4 credits)

MOLB 5670, Develop. & Molecular Cell Biology (3 credits)

PHCY 6230, Pharmacology I (4 credits)

Recommended Program Electives (9 Credits)

KIN 5025, Exercise Physiology (3 credits)

KIN 5047, Research Biomechanics (3 credits)

FCSC 5145 Advanced Nutrition (4 credits)

FCSC 5147 Nutrition and Weight Control (3 credits)

KIN 5062, Applied Concepts in Human Aging (3 credits)

CHE 5100, Biomedical Engineering (3 credits)

PATB 5510, Introduction to Virology (3 credits)

HLSC 4700, Health Informatics (3 credits)

HLSC/MOLB 4520, Public Health Issues in Developing Countries (3 credits)

HLSC/MOLB 4530 Global Experience in Public Health (2 credits)

HLSC/MOLB 4310 Foundations of Scholarship and Discovery (1 credit)

Concentration Area (12 credits)

Research/Dissertation (remaining): Students are expected to conduct research leading to a publishable dissertation. While publication expectations are determined largely by the major advisor, it is required that one manuscript be submitted to a peer-reviewed journal prior to the defense. Students will need to demonstrate lead authorship on articles published in their dissertation.

Courses

BMS5880 - Biomedical Sciences Research Ethics

Credits: 2

Introduction to the field of bioethics, including major ethical theories and principles, with an emphasis on understanding the ethical issues that may arise while conducting biomedical research and potential strategies for properly addressing these ethical issues.

BMS5920 - Continuing Registration: On Campus,

Credits: 1-12

Max Credit (Max. 24)

Prerequisite: graduate standing.

BMS5940 - Continuing Registration: Off Campus,

Credits: 1-24

Max Credit (Max. 24)

Prerequisite: graduate standing.

BMS5980 - Dissertation Research,

Credits: 1-24

Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

BMS5985 - Seminar

Credits: 1

Max Credit (Max. 3)

A series of weekly seminars presented by faculty from other universities, private or public sector health industries or by Biomedical Science Program faculty and students. Examines current topics and research in biomedical sciences through oral presentations and discussion.

Prerequisite: graduate standing and consent of instructor.

Ecology, Ph.D.

The Program in Ecology (PiE) provides you with long-term career development by exploring the linkages of ecology and evolution with other disciplines, and by reaching for emerging questions, concepts, and approaches that will shape the future of the field.

Additional Information

Program in Ecology, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/pie/>
Email: ecology@uwyo.edu

Program Director: Melanie Murphy, Ph.D.

Degree Offered

Ph.D. in Ecology

The Program in Ecology prepares doctoral students to lead the discipline of ecology during the coming decades. The program is grounded in the natural history of organisms in their environment, but incorporates tools and perspectives from across the biological, physical, mathematical, computational, and earth sciences. Students develop conceptual, historical, and philosophical perspectives spanning the entire range of subdisciplines in ecology, while receiving advanced training in the subdiscipline of their individual interest.

The program fosters long-term career development by exploring the linkages of ecology with other disciplines, and by scanning the ecological horizon for emerging questions, concepts, and approaches that will shape the field in years to come.

Faculty members from several departments and colleges participate in the Program in Ecology. Their interests span the full range of topics covered in the field of ecology, and students in the program reflect this diversity.

Program Specific Admission Requirements

Only students seeking a doctoral degree will be admitted into the program. Minimum criteria for admission to the Program in Ecology are:

- Minimum undergraduate GPA of 3.000
- Agreement by a member of the PiE faculty to sponsor the student, or to co-sponsor the student together with a PiE affiliate
- Admission to a home department at the University of Wyoming

All applications to the program will be reviewed by the Graduate Affairs Committee, which has authority on admissions. Students applying to the program who lack a master's degree must show exceptional promise and

commitment (e.g., through undergraduate or post-graduate research experiences, peer-reviewed publications, and/or success in competing for research fellowships). Such students are encouraged to consult with their prospective adviser on whether to apply directly to PiE or to master's programs in individual home departments of PiE faculty.

Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the program. Transfer is not pro forma. Transfer applications are subject to the same criteria as for entering students, and admission to the program for transfer students must be approved by the Graduate Affairs Committee.

Program Specific Degree Requirements

Advisory Committee

Before the end of the second semester of study, the student should nominate a five-member advisory committee to the Office of the Registrar. At least three members of the committee, including the committee chair (usually the student's adviser), will be members of the PiE faculty. One other member, who will serve as Graduate Faculty representative, must be from outside the home department of the major adviser, although (s)he can be a faculty member in a department that participates in the program. The committee will advise the student on his/her program of graduate study, execute and evaluate the student's preliminary examination, evaluate the student's dissertation proposal and dissertation, and conduct the student's dissertation defense.

Program of Study

All students are required to take ECOL 5100 or equivalent. This course should be taken during the first year of residency. Exceptions or substitutions of these requirements are subject to approval by the graduate affairs committee.

The program of study must include at least 6 credit hours aimed at developing a tool skill, which except for rare cases shall be in the quantitative/analytical domain (e.g., statistics, modeling, GIS, remote sensing, bioinformatics). Courses relating to research tools should be taken early in the student's residency to ensure that they can be used in thesis research and advanced studies. Specific coursework and tool-skill development for the student's program of study will be developed in consultation with and subject to approval by the student's advisory committee.

Admission to Candidacy

Admission to candidacy for the Ph.D. requires two steps: 1) providing evidence that the student is prepared to identify a research question, design an approach for investigating that question, and a plan for executing the approach, all in the format of an NSF-style research proposal, and 2) illustrating adequate proficiency in the subject matter of ecology through a process involving both written and oral exams.

Proposal

Students must submit a NSF-style proposal to their committee outlining their project, typically by the end of the fourth semester. Each committee member will provide feedback to the student on the proposed research and indicate approval of the proposal or request revision. The proposal must be approved by all committee members prior to starting the preliminary exams.

While this proposal should be a plan for actual dissertation research, unforeseen circumstances may require altering the student's dissertation work after the proposal has been approved by the committee. In the case of a major alteration, the student should reformulate a research plan and submit it to the committee in writing for committee approval.

Preliminary Exam

Passing the preliminary exam is the official admission to candidacy.

Written portion of the preliminary exam. The student will take the written exam portion of the preliminary exam no fewer than two weeks following approval of the research proposal. The goal of this exam is to test breadth of

knowledge in ecology. The design of this exam will be coordinated by the graduate committee under the leadership of the adviser. Each written exam will cover the following topics:

- Ecological topics ranging from organismal/evolutionary to ecosystem-level perspectives, integrating concepts and perspectives from across the discipline, over a wide range of spatial and temporal scales.
- The philosophical and historical development of ecology.
- The conceptual background of the student's area of specialization.

The exam will consist of four to six questions developed collectively by the committee and organized by the student's major professor. The exam will be open book; however, the answers will be solely the work of the student. Answers should be fully cited and collectively should be no longer than 30 pages double-spaced exclusive of references cited. Students will have one full week (seven days) to complete the exam. Committee members will indicate pass/fail within one week following completion of written exams. Four of five passing votes are required.

Oral Portion of the Preliminary Exam. No sooner than two weeks after successfully passing the written exam, the student may proceed to an oral exam administered by his/her graduate committee. Oral exams center around three goals from which questions will be derived:

- To verify that the student is prepared, conceptually and methodologically, to carry out successful dissertation research.
- To evaluate the student's ability to conceptualize specific questions in a broad, integrative context.
- To evaluate the student's ability to think spontaneously and creatively and to articulate responses about unexpected or novel questions.

The advisory committee will discuss and organize specific questions based on these goals in a short session at the beginning of the exam period before admitting the student to the examination room and starting the exam. Following the exam each committee member will provide non-binding paper votes of pass/ fail for each of the three goals of the oral exam. Following discussion of the student's performance, committee members will each assign a grade of pass/fail for the overall exam. Four of five committee members must vote for passing the overall oral exam.

Students whose performance is unsatisfactory will be given one opportunity for retaking the oral examination. This retake will occur no later than the academic-year semester following the first examination.

Public Seminars

Students are required to give two oral presentations on their research. The purposes of these presentations are to provide the student with practice in oral presentations and to keep the PiE community informed of the student's progress. The first will describe the student's dissertation research proposal. This presentation will be given before the student submits his/her thesis proposal. The second presentation will summarize the student's completed dissertation research, and will normally be given the same semester as the student's dissertation defense. Under extraordinary circumstances (subject to approval by the Graduate Affairs Committee), this presentation may be given at an earlier time. These presentations must be open to the public, and may comprise part of a departmental or Program in Ecology seminar or brown-bag series.

Courses

ECOL5050 - Techniques in Environmental Data Management

Credits: 4

Centers on the role of information technology in support of scientific research. Through integration of multiple software packages (e. g. Relational databases, ProgramR and ArcGIS), proven database designs, and SQL scripting, increased efficiency and utility will occur during data analyses. These information science principles are demonstrated using project-based examples.

Cross Listed ENR 5050/GEOG 5050.

Prerequisite: graduate standing.

ECOL5060 - Advanced Concepts in Evolution

Credits: 3

Explores fundamental concepts in evolutionary biology including evolutionary ecology, population genetics, and speciation with an emphasis on both theoretical frameworks and practical applications. Discussion included.

Cross Listed BOT 5060/ZOO 5060.

When Offered (Offered every other year)

Prerequisite: graduate student in good standing.

ECOL5100 - Ecology as a Discipline

Credits: 3

Covers the range of ecological questions, processes, scales, and research approaches, in context of the history and philosophy of science in general and of ecology in particular. Aimed at first-year students in the doctoral program in Ecology, although students in other graduate programs are welcome.

Prerequisite: graduate standing.

ECOL5400 - Community Ecology

Credits: 3

Community ecology is the study of interactions within and among groups of species. This course focuses on (1) the major classical concepts and theories in community ecology, (2) the ways in which population dynamics can impact communities and how community dynamics can impact ecosystem processes and functioning, and (3) implementation of quantitative methods for conducting research that includes community ecology.

Cross Listed REWM 5400.

Prerequisite: LIFE 3410 or equivalent.

ECOL5500 - Quantitative Analyses of Field Data

Credits: 4

A practical guide to the analysis of messy field data, including data exploration, generalized linear and additive models, mixed models, autocorrelation, and model selection using Program R. Students will have bootcamp to learn methods and spend the rest of the semester analyzing their own data.

Prerequisite: graduate standing.

ECOL5520 - Habitat Selection

Credits: 2

In this course we will cover theory and behavioral/evolutionary concepts related to the process of habitat selection, the contexts under which habitat choices are adaptive or maladaptive, and different types of anthropogenic habitat change

and the consequences for animals in the wild. Prerequisite: Graduate students in good standing.

Cross Listed ZOO 5520

Prerequisite: Graduate students in good standing.

ECOL5540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design.

Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540/SOIL 4540.

Dual Listed MOLB 5540/SOIL 5540.

Prerequisite: MOLB 2210.

ECOL5550 - Ecology as a Scientific Profession

Credits: 2

A capstone that prepares doctoral students for success and leadership in their careers as professional ecologists.

Intended for students enrolled in the doctoral Program in Ecology in their final year.

Prerequisite: graduate standing.

ECOL5580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic factors. Application of ecological principles to rehabilitate vegetation and restore ecosystem function. Strong emphasis on current research to formulate restoration strategies.

Cross Listed REWM 5580.

ECOL5610 - Quantitative Modeling in Landscape Ecology

Credits: 3

Emphasis on quantitative, spatial analysis of landscapes and application of these quantitative tools to making sound management decisions. Work with real data, acquire high-level quantitative skills, develop problem-solving skills, and discuss management application of model results. Analysis will encompass abiotic, biotic (plant and animal), and human use of ecological systems in a spatial context.

Cross Listed REWM 5610.

When Offered (Offered during even-year fall semesters)

Prerequisite: upper division stats course (e. g. , STAT 4015 or STAT 4025) and graduate standing.

ECOL5620 - Advanced Topics in Ecology

Credits: 1-4
Max Credit (Max. 12)

Provides advanced treatment of specific topics in ecology that are not covered in regular courses.

Prerequisite: graduate standing and consent of instructor.

ECOL5650 - Tropical Field Ecology Ecuador

Credits: 4
Course comprises 10 days in Ecuador in January (before spring semester), followed by one lecture per week during spring semester. Focus will be ecology, biodiversity and conservation of tropical forests and behavioral ecology of birds and mammals. Field site is at 1100m on west slope of the Andes.

Cross Listed ECOL 5650.

Prerequisite: graduate standing.

ECOL5680 - Landscape Genetics

Credits: 3-4
Provides a unique opportunity for interdisciplinary training and international collaboration uniting some of the most active landscape genetics groups in North America and Europe. A key objective of landscape genetics is to study how landscape modification and habitat fragmentation affect organism dispersal and gene flow across the landscape. Meeting this and other landscape genetic objectives requires highly interdisciplinary specialized skills making intensive use of technical population genetic skills and spatial analysis tools (spatial statistics, GIS tools and remote sensing). To bring these diverse topics and skills together effectively, we are using a distributed model of teaching. Population genetics, spatial analysis/ statistics, and previous experience in Rare all extremely useful but not required.

Cross Listed Cross listed with: REWM 5680.

ECOL5775 - Forest Ecology

Credits: 4
Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 5775 and BOT 5775.

When Offered (Offered during even-year fall semesters)

Prerequisite: LIFE 3400.

ECOL5780 - Research in Ecology

Credits: 1-6
Max Credit (Max. 12)

Designed for doctoral students pursuing exploratory research before they have determined a dissertation project, and for students to pursue independent research that will not comprise part of their dissertation. Research must be conducted under supervision of an Ecology Faculty member or Affiliate.

Prerequisite: admission to doctoral Program in Ecology.

ECOL5920 - Continuing Registration: On Campus,

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: graduate standing.

ECOL5940 - Continuing Registration: Off Campus,

Credits: 1-12
Max Credit (Max. 16)

Prerequisite: graduate standing.

ECOL5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

Designed for students who are involved in research for their dissertation project. Also used for students whose coursework is complete and are writing their dissertation.

Prerequisite: enrollment in a graduate level degree program.

Hydrologic Sciences, Ph.D. (WRESE)

The Water Resources/Environmental Science and Engineering (WRESE) program facilitates Ph.D.-level course offerings in water-related disciplines, and coordinates offerings of these courses. Furthermore, the WRESE program serves as a focal-point for water-related graduate research and education at the University of Wyoming.

This interdisciplinary degree program encourages cross-department and inter-college coordination for research and education in hydrology and water resources.

Additional Requirements

Program Specific Admission Requirements

The WRESE Program only admits students seeking a doctoral degree.

Minimum criteria for admission to the Program are:

- Minimum undergraduate GPA of 3.000
- Agreement by a faculty member affiliated with the WRESE program to sponsor the student
- Admission to a home department at the University of Wyoming

Typically, students admitted into the program will have previously obtained a Masters-level degree. Under exceptional circumstance, students may be admitted directly after an undergraduate degree if they show exceptional promise and commitment. Students already admitted to doctoral programs in individual departments at the University of Wyoming may apply to transfer to the program.

Program Specific Degree Requirements

Students in the WRESE Program are expected to create their graduate committee within the first year of study. The committee should be composed of three faculty members within the PhD program in Hydrology and 2 should be from the student's departmental home. A committee shall be composed of no fewer than 5 members, of which only one may be from outside the University. Additional committee members may be added to support the student's learning and objectives on the discretion of the committee and WRESE Program chair.

Program of Study

Students enrolled in the Program should complete their Program of Study within the first 3 semesters. The student shall work with his/her research advisor and committee to determine the appropriate course of study relative to the student's research agenda. Students are expected to complete a rigorous course of study in quantitative hydrological sciences. Minimum requirements for the PhD include:

- Coursework credits: 42 hours (26 can be from an MS)
- Total credits: 72 hours
- Math expectations: students are encouraged to pursue a high level of math proficiency, with typical students progressing through differential equations. Individual math expectations will be determined by the committee and program chair.

A dissertation proposal should be approved by the end of the 4th semester. Students shall submit their proposal to their committee for review two weeks prior to a holding a committee meeting where the student (a) presents their proposal in a public presentation and (b) defends the proposal to the committee in a closed meeting. After the meeting, the student shall amend the proposal as required by the committee within a timely manner.

Admission to Candidacy / Preliminary Examination

Advance to candidacy is attained by passing preliminary exams within 3 years of initiating a degree program. Students should complete their preliminary exams as close to the end of their primary coursework as possible. Preliminary exams consist of two parts. The first part is a written examination wherein committee members shall submit written questions to the student. Once the student has passed their written exams, they will be administered an oral examination.

The written exam shall be administered by the student's research adviser, who will coordinate the questions so as to obtain a comprehensive review of the student's knowledge of the materials the student has learned in the classroom and needs to complete his/her research topic. Written questions should cover both conceptual and theoretical underpinnings in hydrological sciences and technical questions related to the student's research area.

Molecular and Cellular Life Sciences, Ph.D.

The Molecular and Cellular Life Sciences (MCLS) program serves as an inclusive and integrative graduate program for students being trained in basic biological and biomedical research at the molecular and cellular levels.

Additional Information

Molecular and Cellular Life Sciences, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/mcls/>
Email: mcls@uwyo.edu

Program Director: Daniel Levy, Ph.D.

Degree Offered

Ph.D. in Molecular and Cellular Life Sciences

This interdisciplinary program with more than 30 faculty participants spans a wide range of research topics, such as: Biotechnology, bioengineering, biomaterials, and pharmacology, Cell biology and signaling, Genetics and development, Genomics, proteomics, and computational biology, Microbiology and infectious disease, and Structural biology and biophysics.

Coursework focuses on core courses in biochemistry and molecular biology, with electives that include such diverse courses as: Topics in Genomics, Biophysics, Microbial Physiology and Metabolism, Cell and Developmental Genetics, Mass Spectrometry and Analytical Chemistry, Biomedical Engineering, Mammalian Endocrinology, Cell Culture and Virology, Introduction to Bioinformatics, Protein Structure and Function, Microbial Genetics, Computational Biology, and Quantitative Microscopy.

Program Specific Admission Requirements

Admission to MCLS is a two-step process. The first level of evaluation is carried out by the MCLS admissions committee. This step does not require any fee but does require that all requested materials be submitted as described on our website. After an initial review of all complete applications, a subset of qualified applicants will be selected for video conference interviews with members of the MCLS admissions committee. Applicants who are chosen for admission to the MCLS program will then complete the final application step through the University of Wyoming Admissions office. This latter step requires the completion of several additional forms. Students are then officially notified by the university of their acceptance into the MCLS program.

We encourage students to submit their completed applications at the very latest by January 15 of each calendar year. However, because our review of applications will begin in the late fall, early submissions are encouraged and may stand a greater likelihood of success. Also note that we will continue to review new applications received after January 15 in the event that additional slots are available.

Program Specific Degree Requirements

MCLS doctoral students must fulfill the minimum requirements outlined by the university. In addition, students must obtain a high level of proficiency in the core foundations of the molecular and cellular life sciences through required courses in biochemistry/ molecular biology, scientific literature analysis proficiency, and the MCLS cornerstone

course. Because of the broad range of research interests pursued by MCLS faculty and students, considerable flexibility will be exercised regarding the specific nature of the graduate-level elective courses that students may take.

Students must successfully complete four eight-week rotations in MCLS laboratories of their choice during the first year.

Students must pass a comprehensive assessment exam at the end of the first year. Towards the end of the second year, students will undertake a qualifying examination in order to be formally admitted to graduate degree candidacy. This exam will have both written and oral components and will cover areas of science that are relevant to the students' research.

The research and coursework progress of MCLS students will also be monitored and evaluated every year by the MCLS curriculum committee. In addition, an annual meeting with a research-specific dissertation committee will facilitate and evaluate the research progress of MCLS students beginning in the second year.

Students must attend weekly outside seminars on topics in the molecular life sciences for the durations of their studies.

For more information, please see the program's Web site at: www.uwyo.edu/MCLS/.

Neuroscience, Ph.D.

The Graduate Program in Neuroscience is interdisciplinary. Students receive broad and integrative training in neuroscience with emphasis on core concepts, skills, and methodologies.

Additional Information

Neuroscience, Ph.D. Program

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/neuroscience/>
Email: neuroscience@uwyo.edu

Program Director: Kara Pratt, Ph.D.

Degree Offered

Ph.D. in Neuroscience

The Graduate Neuroscience Program offers training leading to the Ph.D. degree in Neuroscience. The Neuroscience Program emphasizes systems and integrative approaches, and our goal is to provide the students with the necessary background to be broadly trained research neuroscientists and to carry out independent research in neuroscience. The Neuroscience Program emphasizes continuing interaction with faculty from several departments and we have a low student to faculty ratio. Advisors spend considerable time supervising and training each doctoral student. The educational philosophy of the Neuroscience Program is to encourage a problem-oriented rather than a strict discipline-bound approach to research. You will emerge from this program with the scientific and experimental training needed to comprehensively address a very wide range of research questions using a variety of techniques and analytic tools.

The Graduate Neuroscience Program is designed to enable graduate students to acquire competence in the various disciplines necessary for research and teaching careers in neuroscience. The current interests of the Neuroscience faculty include sensory neurophysiology, behavioral neuropharmacology, neurodevelopment, neurodegeneration, and synaptic plasticity.

Students and faculty have access to outstanding resources established by NIH Neuroscience and Sensory Biology Core grants. The Microscopy Core houses both light (Zeiss laser scanning, fluorescent) and electron (Transmission and Scanning) microscopes. Resources needed to conduct research ranging from molecular, cellular circuit level to behavior are readily available within the Neuroscience Center.

Doctoral Program Admission Minimum Requirements

- GRE: Accepted but not required;
- GPA: 3.000 (4.000 scale);
- Three favorable letters of recommendation;
- Bachelor's degree in a biological science from an accredited institution;
- Statement of research interests and career objectives. We recommend that students study the Neuroscience faculty web sites and contact faculty regarding openings and shared research interests.

You will be best prepared for our program if you have successfully completed courses in neuroscience, chemistry, biology, physiology, and cell/molecular biology. Students may be admitted with deficiencies in some of the areas if they are strong in many or all others. If so, the student's advisory committee will determine what additional work is necessary during the first year to correct any deficiency.

Program Specific Degree Requirements

All doctoral Neuroscience students are required to complete a program of core classwork that includes the following required courses: Introduction to Neuroscience, Structure and Function of the Nervous System and Neurophysiology. Students are required to take one course in Statistics (e.g. STAT 5050, STAT 5210) and the course that meets this requirement will be arranged with the student's committee. The statistics requirement must be met by the end of the second year. The Neuroscience Program is a research-oriented program and students are expected to take a minimum of 2 to 3 credit hours of research per semester. Students are also expected to enroll in an on-going Seminar in Neuroscience. The Neuroscience Seminar, which meets weekly and is attended by students and faculty members, provides an opportunity for intellectual and social exchange, as well as for the development of professional skills in critical thinking. The topic for seminar and the faculty member directing the seminar changes each semester. The remainder of the coursework for the doctor of philosophy degree is selected from designated courses in Neuroscience, physiology, pharmacology, and molecular biology. A grade of B or better is required for all Neuroscience courses.

A student is expected to have a graduate adviser at all times. The faculty adviser must be a participating member of the Neuroscience faculty. The adviser is responsible for directing the student's research and academic coursework. During the second year, the student will have an advisory committee. The advisory committee will consist of at least three neuroscience faculty members and an outside member. Normally, the student's adviser will chair the committee and help identify members of the committee who best match the student's area of interest. The role of the advisory committee is to oversee all aspects of the student's education after the first year.

In the student's second or third year, the advisory committee will set and evaluate the student's qualifying examination. After successful completion of the preliminary examination the student will profess to Ph.D. candidate status.

The dissertation is the single most important component of the graduate program. It reports the results and significance of the student's research. In addition to the written dissertation, the doctoral candidate will deliver a formal seminar based on their research. The seminar will be followed by an examination by the student's advisory committee.

Courses

NEUR4295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (*Xenopus* tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and *Drosophila*).

Cross Listed ZOO 4295.

Dual Listed NEUR 5295.

Prerequisite: ZOO 4280.

NEUR4720 - Neuroscience Speaker Seminar

Credits: 2

Max Credit (Max. 6)

The purpose of this course is to use the Neuroscience/sensory biology visiting speaker series to build student knowledge in neuroscience, as well as skills in critical evaluation of the research literature, and oral/ written communication. This will maximize student learning from the speaker series. The course may be taken up to three times.

Dual Listed NEUR 5720.

Prerequisite: Graduate level standing in neuroscience, biomedical sciences, zoology/physiology, or other life science programs. Undergraduates: concurrent or prior ZOO 4280.

NEUR5100 - Structure and Function of the Nervous System

Credits: 4

Aimed at understanding the structure and interconnections within the nervous system, and how structure gives rise to the complex functions mediated by the brain. This is an essential feature of neuroscience. Covers gross anatomy of the central and peripheral nervous system, followed by detailed consideration of the divisions of the brain and their functional significance.

Cross Listed ZOO 5100.

Prerequisite: admission to the graduate neuroscience program, or graduate standing in another related program, or permission for undergraduate enrollment following discussion with the instructor.

NEUR5280 - Introduction to Neuroscience

Credits: 3

Examines the basic properties of neurons and from there identifies determinants of brain development and how neuronal circuits are formed. How neuronal circuits underlie processing sensory information, coordinated movement, complex functions (e. g. sleep, learning) and homeostasis are discussed.

Cross Listed ZOO 5280.

Prerequisite: ZOO 3115 or equivalent.

NEUR5295 - Neurodevelopment

Credits: 3

Through lecture and discussion of research articles, students learn mechanisms of nervous system development, from the birth and differentiation of neurons to the formation of synapses and circuits. Focus is on classical experiments done in vertebrates (Xenopus tadpole, chick, zebrafish, and mouse) and invertebrates (nematode and drosophila).

Cross Listed ZOO 5295.

Dual Listed NEUR 4295.

NEUR5685 - Neurophysiology

Credits: 3

Designed to investigate the structure and function of nervous systems, drawing information from both vertebrate and invertebrate organisms. Topics such as sensory systems, motor coordination and central integrative mechanisms will be covered in addition to the basic neurophysiology of nerve cells.

Cross Listed ZOO 5685.

Prerequisite: one course in physiology, chemistry, physics.

NEUR5715 - Seminar in Neuroscience

Credits: 1-2

Max Credit (Max. 20)

A continuing seminar. All students in the graduate neuroscience program are expected to register for this seminar each semester. The interdisciplinary approach to the nervous system is used employing work from physiology, neuroanatomy and neurochemistry, psychology, pharmacology and biochemistry.

Cross Listed ZOO 5715.

Prerequisite: admission to the graduate neuroscience program or graduate standing.

NEUR5720 - Neuroscience Speaker Seminar

Credits: 2

Max Credit (Max. 6)

The purpose of this course is to use the Neuroscience/sensory biology visiting speaker series to build student knowledge in neuroscience, as well as skills in critical evaluation of the research literature, and oral/ written communication. This will maximize student learning from the speaker series. The course maybe taken up to three times.

Dual Listed NEUR 4720.

Prerequisite: Graduate level standing in neuroscience, biomedical sciences, zoology/physiology, or other life science programs. Undergraduates: concurrent or prior ZOO 4280.

NEUR5800 - Research in Neuroscience

Credits: 1-16
Max Credit (Max. 16)

The research must be conducted under the supervision of one of the neuroscience program faculty. Laboratory opportunities for research include neuroendocrinology, behavioral neuroscience, sensory neurophysiology, neuroanatomy, neuropharmacology, neurotoxicology, neural cell biology, and neurochemistry.

Prerequisite: admission to the graduate neuroscience program or graduate standing.

NEUR5887 - Molecular Neuropharmacology

Credits: 3
Focus on the molecularly-induced functional changes within the nervous system in normal and disease states. In addition, will provide a thorough explanation of the cellular and molecular actions of drugs on synaptic transmission and discuss the neurochemical basis of behavior.

Prerequisite: PharmD current standing and instructor's permission or NEUR 5280.

NEUR5920 - Continuing Registration: On Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NEUR5940 - Continuing Registration: Off Campus

Credits: 1-2
Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NEUR5980 - Dissertation Research

Credits: 1-12
Max Credit (Max. 48)

First-Year Seminar.

Prerequisite: advanced degree candidacy.

Science & Mathematics Teaching Center Master's Degrees

30 graduate-level semester hours, B or better grades in all required courses and overall GPA of 3.0 required for majors. Required courses taken 6 or more years ago must be petitioned and approved to be used to satisfy degree requirements.

Additional Information

Science and Mathematics Teaching Center

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/smtc/>
Email: smtc@uwyo.edu

Program Director: Sylvia Parker

The Science and Mathematics Teaching Center (SMTC) was established in 1970 and is committed to excellence in science, mathematics, technology and STEM education. As part of the Office of Graduate Education in Academic Affairs, the SMTC, in cooperation with the Wyoming Department of Education (WDE) and the Professional Teaching Standards Board (PTSB), serves as a resource and professional development center for the state. The SMTC offers transdisciplinary graduate degree programs with multiple degree concentrations, certification options, and endorsement options. All of the programs emphasize both strong content knowledge and instructional practices. Faculty from throughout the university collaborate with the SMTC by teaching classes, reviewing applications, serving on committees, advising students, and working on externally funded research projects.

The SMTC provides extensive off-campus professional development that serves teachers, students, administrators, school districts and communities throughout Wyoming and the region. SMTC in-service and extension courses, workshops, institutes, and conferences are designed collaboratively to improve science and mathematics teaching in Wyoming.

The SMTC administers and supports five master's degree programs:

- (1) the Master of Science degrees in Natural Science with concentrations in Middle Level Math (MMA) and
- (2) Middle Level Science (MSC); these programs are designed for Wyoming's in-service elementary, middle, and high school teachers. They focus on general science and mathematics content with an emphasis on teaching middle school level learners. The course work leads to middle level endorsements provided by the Wyoming PTSB. Teachers must have two years of teaching experience to participate in these programs.
- (3) Master of Science in Teaching - Natural Science (MST - Natural Science). This is a self-directed master's degree program working with the SMTC, SER, and the Haub School as well as other colleges. The program is developed individually with the guidance of a graduate committee based on the interests of the graduate student. This program is primarily intended for individuals teaching at the secondary level and may be used take the 18 graduate-level credits in a specific teaching area often needed to teach Advanced Placement and community college courses.
- (4) Master of Science - Natural Science (MS - Natural Science). This is a self-directed master's degree program working with the SMTC, the College of Arts and Sciences, SER, and the Haub School and other colleges. The program is developed individually based on the interests of the graduate student and may emphasize formal or informal learning settings. Interdisciplinary study is encouraged.

(5) Master of Science in Natural Science with a concentration in Natural Science Education (NED). This Master's degree program is designed for students pursuing careers as environmental and natural science educators in non-public school or non-formal education settings. These students spend one year at the Teton Science Schools (TSS) in Jackson. A long-standing MOU between the SMTC and TSS allows students to use 15 graduate credit hours earned at TSS towards a master's degree if they are accepted into the second year at UW within the SMTC.

SMTC Student Learner Outcomes

Upon successful completion of the MS degree program in Natural Science, a student will be able to:

- Engage in teacher research to transform STEM instruction:
 - Design and implement a research project that asks and answers a question using appropriate materials, concepts and methods, and ethical practices, and
 - Effectively communicate all aspects of the research project in both oral and written forms.
- Use professional and academic standards to ensure high-quality interdisciplinary instruction (i.e., place-based, culturally relevant, and/or social justice pedagogy) to maximize learning for all students.
- Engage in mathematical and/or scientific discourse and scientific thinking as active participants in communities of practice.
- Use emerging technology and science investigations as tools to engage students.

Program Specific Admission Requirements

For the MS-Natural Science Master's Degrees (with concentrations in MSC and MMA) and the MST:

Two years of teaching experience and a valid teaching license (required for MSC and MMA; may be waived for MST and MS-Natural Science)

Application Fee

Official Transcripts from all Institutions attended and Bachelor Degree conferring institution

3.0 undergraduate grade point average; provisional admission with a lesser GPA only with consent from Academic Affairs

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence (These items are not required of applicants who hold a prior master's degree)

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from the teacher's principal or an employers and two other colleagues.

For the MS-Natural Science Master's Degrees (with concentration in NED) - First Year Application:

Official Transcripts from all institutions attended and Bachelor Degree conferring institution Application Fee

Acceptance and admission by the Graduate Program at the Teton Science Schools in Jackson, WY

For the MS-Natural Science Master's Degrees (with concentration in NED) - Second Year Application:

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from a TSS Graduate Program Faculty Member, one from another TSS employee such as a Classroom Instructor or Field Instructor, and one from the first year application

Applicants complete a UW graduate application and upload all of the information on the Admissions Office website (<http://www.uwyo.edu/admissions/apply.html>). Application packets are reviewed by SMTC Admissions Committees and recommendations for admissions are submitted to the University of Wyoming Admissions Office. Any of the above requirements plus the university's minimum 3.00 grade point average may be waived if proper documentation and reasoning are given by the SMTC and approved by the Associate Vice Provost of Graduate Education.

International applicants, who are not native English-speakers, must submit TOEFL or IELTS scores. If an international applicant wishes to be considered for Graduate Assistantship funding, the applicant should also submit the results of an Oral Proficiency Interview (OPI). Please contact the UW English Language Center (<http://www.uwyo.edu/elc/>) for more information.

Please see the Graduate Admissions and Graduate Student Regulations and Policies entries in the front section of the UW Catalog for more information.

Application Due Dates for Master of Science - Natural Science with Concentrations in the following areas:

Middle-level Science (MSC): applications are accepted on an ongoing basis; new students may begin only in summer each year; final due date for admission in summer is April 1.

Middle-level Mathematics (MMA): applications are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Natural Science Education (NED): applications deadlines for Year 1 are established by Teton Science Schools (<https://www.tetonscience.org/programs/graduate-program/admissions/>); due date for admission to begin Year 2 in the fall at UW is February 1.

MST and the MS- Natural Science Masters Degree: applications for these self-designed programs are accepted on an ongoing basis; new students may begin any semester (fall, spring, summer); final due date for admission in fall is July 1; summer is April 1; spring is November 1.

Graduate Assistantships and Scholarships

The SMTC often has scholarships and graduate assistantships available for graduates accepted for the above Master's degree programs. More information upon admission and acceptance.

For the Master of Science in Natural Science Master's Degrees

Plan B (non-thesis)

- 30 Credit Hours of graduate-level coursework is required in all of the programs. This includes 24 credit hours in required coursework depending on the program plus 6 credit hours of additional coursework that may include a research class, Plan B independent research and an elective.
- The Middle Level Science (MSC) concentration is a 3-year program, for the required coursework, in the summers only on UW's main campus. Courses are offered on a 3-year rotation cycle; students may enter the program in any year.
- The Middle Level Math (MMA) concentration is a 2-year program with classes offered virtually in the fall and spring and in-person on the main campus in the summer, for the required courses. Students may enter the program in any semester.
- The Natural Science Education (NED) concentration is a 2-year program with classes offered in the graduate program at the Teton Science Schools in Jackson, WY, in year 1, and additional classes offered at the UW main campus in year 2.
- The MST (Master's of Science in Teaching) and the MS- Natural Science Master's Degrees are Main campus degrees. They are self-directed master's degree programs designed individually based on the student's interests and needs.
- All students must complete and defend a Plan B research project.
- A Plan A (thesis) may be completed with an extra year of research.

NOTE: Middle-Level Science & Middle-Level Mathematics; 24 credit hours in the core courses are required for institutional recommendation for WY middle-level endorsement from the Professional Teaching Standards Board, PTSB.

NOTE: *NASC 5810 Middle-Level Science and Mathematics 3 credit hour course Practica (required course for teachers without previous coursework or experience teaching middle-level students. Offered spring semester in even years only).

Other Degrees and their Requirements

The MST in Natural Science and the MS - Natural Science programs are self-directed master's degree programs designed individually based on the student's interests and needs. The programs require 30 graduate level credits plus a Plan B research project that is defended publicly. Requirements are based on the university minimum requirements.

For the NED Concentration - Year 1 (at Teton Science Schools)

These students spend their first year at the Teton Science Schools in Jackson, Wyoming. Students earn 15 credits that may be used towards the master's degree at the University of Wyoming in Year 2.

For the NED Concentration - Year 2 (at the University of Wyoming)

Plan B (non-thesis)

- This is a one-year program on the main campus.
- 30 credit hours of coursework is required for the master's degree, of which 15 credit hours of agreed upon courses are earned at TSS in year 1. The other 15 credit hours include two required courses: NASC 5650 (3 credits) and a graduate level research class (minimum 3 credits). Additional courses in environmental science and science pedagogy classes are chosen by the graduate student and their advisor.
- A concurrent major in Environmental and Natural Resources is an option with this Master's program.
- Students must complete and defend a Plan B research project.
- A Plan A (thesis) may be completed with an extra year of research.

Middle-Level Science Concentration and Master's Degree

Life Science Summer Core (2023, 2026, 2029, etc...)

BOT5790 - Special Topics in Ecology

Credits: 1-3
Max Credit (Max. 6)

Designed to acquaint advanced students with various topics not covered in other courses. Emphasis is placed on recent developments appearing in the journal literature.

Dual Listed BOT 4790.

Prerequisite: two courses in ecology.

ENTO5601 - Insects for Teachers: Collection and Identification of Insects

Credits: 1

Designed for school teachers K-12. Basic concepts such as insect classification, insect habitats, insect metamorphosis, and destructive and beneficial insects are discussed with emphasis on the presentation of these concepts in the school classroom. Half of the class is devoted to field trips, laboratories, workshop activities, and films. Each student will make an insect collection, and learn how to preserve, mount, and identify specimens to order level. Course may be taken independently of ENTO 5602. Identical to NASC 4790.

Prerequisite: junior standing. Offered summer term only.

NASC4790 - Topics in Natural Science

Credits: 1-6

Presents selected science topics to acquaint teachers or prospective teachers with new concepts, materials or techniques, as introduced in various new school curricula. Topics may include earth science for the middle school, computer learning and/or elementary school environmental science. Includes laboratory.

Prerequisite: junior standing.

NASC5130 - Life Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Investigates ecosystem composition and processes, and biological responses to changes in ecosystem parameters. Examines terrestrial and aquatic communities, photosynthesis, energy flow, biogeochemical cycles, global climate change, climate warming, deforestation, population ecology, DNA/ RNA structure, function, genetic engineering and forensic applications.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science education.

NASC5660 - Standards, Pedagogy and Research

Credits: 2

This course is designed to provide Master of Science in Natural Science students with background in three areas:

current science standards, pedagogical practices, and the understanding of various types of educational research as well as some of the practices related to conducting their own research projects.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

Physical Science Summer Core (2021, 2024, 2027, etc...)

EE4800 - Problems in _____

Credits: 1-6
Max Credit (Max. 6)

Section 1 is individual study. Other sections are group study by seminar or class format. Features topics not included in regularly offered courses.

Prerequisite: consent of instructor.

NASC5110 - Physical Science in Global Context, MSC

Credits: 3
One in a series of three courses investigating earth as a system. Examines the global dynamics of energy, hydrocarbon combustion, and the physics and chemistry of water. Investigates relationships between energy transformations and pollutants. Considers environmental limitations of fresh water availability and the buffering effect of sea and fresh water.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in Elementary, middle school or general science education.

NASC5510 - Integrated Instructional Strategies, MSC

Credits: 2
Appropriate instructional strategies are discussed and modeled for aligning standards, expectations, and experiences in an integrated science environment. Attention is given to unique characteristics of each strategy, including a review of research on the effectiveness of each strategy on student achievement and attitudes.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5600 - Mathematics and Statistics in Science Teaching, MSC

Credits: 2
Provides science teachers with the knowledge and experience necessary to help students use statistics in the scientific process. Activities emphasize a hands-on inductive approach closely related to the school science curriculum. Important statistical ideas and methods are studied as they arise naturally in the biological, physical, and earth sciences.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

Earth Science Summer Core (2022, 2025, 2028, etc...)

ASTR4000 - Astronomy for Teachers

Credits: 1-5

Specifically designed for elementary school teachers. Presents basic concepts (time, seasons, light and its properties); planetary systems of the sun; the sun and stars; the Milky Way and galaxies; and cosmology and relativity. Emphasizes presenting these concepts to elementary school children. Half the class is devoted to laboratory and workshop activities to develop techniques for presenting these concepts through visual aides, demonstrations and films. Students may receive a maximum of 5 credits in a combination of ASTR 4000 and ASTR 4100.

When Offered (Offered summer session)

Prerequisite: 6 hours of physical or biological science, junior standing in education.

NASC5120 - Earth Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Emphasizes the lithosphere and atmosphere and their interactions with the hydrosphere and biosphere. Examines the interplay between tectonic processes, earth's radiation balance, ocean processes, ozone depletion and the greenhouse effect. Includes evaluation of methods of measuring and monitoring these phenomena.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teach certification in elementary, middle school or general science education.

NASC5300 - Classroom Assessment in Middle-level Science, MSC

Credits: 2

Deals with the design, construction, and testing of curriculum materials to bring the spirit of scientific inquiry to elementary school pupils. Research to be conducted in the Science and Mathematics Teaching Center.

NASC5400 - Spatial Data Instructional Technology

Credits: 1

Teaching strategies appropriate for elementary/middle school students' conceptual level of development. Positive attitudes toward teaching children about the Earth, its physical environment and human/environment relationships will be promoted. The course content will be supported by the use of geospatial technologies, such as GPS and GIS.

Prerequisite: graduate standing.

Middle-Level Mathematics Concentration and Master's Degree (courses in this program are cross listed with other departments)

MMA Even Years (2022, 2024, 2026...)

NASC5140 - Numbers, Operations, and Patterns for the Middle-Level Learner, MMA

Credits: 3

Provides working middle-level mathematics teachers opportunities to understand and discuss numbers, their representations, and operations on them, from an abstract perspective that includes elegant proof. Also emphasized is the role of language and purpose in composing definitions.

Cross Listed MATH 5140.

Prerequisite: admission to a UW graduate program, either degree or non-degree seeking status, and acceptance into the Middle-level mathematics program.

NASC5160 - Social and Historical Issues in Mathematics and the Middle-Level Learner, MMA

Credits: 3

Empowers teachers of middle-level mathematics to design engaging experiences. Emphasizes the historical context for the development of mathematics, especially its symbols, tools, personalities, and classic problems.

Cross Listed MATH 5160.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5185 - Analysis of Data in the Media for the Middle-Level Learner, MMA

Credits: 3

Focuses on data collection, analysis, interpretation, and communication, using contexts relevant to everyday situations. Topics chosen integrate well with the concerns of middle-level teachers and connect with such curriculum areas as health, science, and social studies. This is not a research methods course.

Cross Listed STAT 5185

Prerequisite: Admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5215 - Using Technology for Middle-Level Mathematics

Credits: 3

Covers the use of technology appropriate to middle-level mathematics teaching, such as microworlds, geographic information systems, spreadsheets, and other content appropriate technologies. Cross Listed with EDCI 5215.

Prerequisite: admission to the SMTC Program.

Cross Listed EDCI 5215

Prerequisite: Admission to the SMTC Program.

MMA Odd Years (2021, 2023, 2025...)

NASC5170 - Connecting Geometry with Problem- Solving for the Middle-Level Learner, MMA

Credits: 3

Showcases two aspects of 2D and 3D geometry: measurement and transformation. Emphasis reflects current State and National standards for middle-level mathematics classroom and teacher preparation, especially appropriate uses of technology, geometric tools, mathematical language, and problem-solving strategies.

Cross Listed MATH 5170.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, acceptance into the Middle-level mathematics program.

NASC5190 - Mathematics of Change and the Middle-Level Learner, MMA

Credits: 3

Students gain a solid understanding of data and functions in the service of calculus. Hands-on, project-driven, and focuses on the essential concepts of functions and calculus and their role in middle-level mathematics. Emphasis is on writing and technology (calculators and probeware).

Cross Listed MATH 5190.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5205 - Methods of Teaching Middle-Level Mathematics, MMA

Credits: 3

Research-based pedagogy and pedagogical content knowledge for teaching middle-level mathematics. Designed for practicing teachers of middle-grades mathematics.

Cross Listed EDCI 5205.

Prerequisite: admission to the SMTC Program.

NASC5225 - Assessment for Middle-Level Mathematics, MMA

Credits: 3

Middle-level Mathematics Initiative teacher participants examine, analyze, and implement a variety of assessments that are aligned with standards and instruction appropriate to the middle level math learner.

Cross Listed EDCI 5225.

Prerequisite: admission to the SMTC Program.

Natural Science Education (NED)

Teton Science Schools Graduate Program - Year 1

EDCI5790 - Learning Theories and Instructional Principles

Credits: 3

This course focuses on making connections between theoretical perspectives on teaching and learning, empirical work, and the actual practice of teaching. As a result, learners should expect to examine multiple learning theories, read research based on those theories, explore pedagogy that grows out of these theories, and integrate theory into practice in their own classrooms.

Prerequisite: graduate standing.

NASC5610 - Field Studies in Environmental Education, NED

Credits: 4

Expands student's knowledge of ecological and physiological animal and plant adaptations to environmental conditions, the use of teaching methods and tools of naturalists, the range of resources available for designing and evaluating curriculum, and promotes an appreciation and understanding of the diversity of environments. Contains 4 modules.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5620 - Advanced Elements of Field Ecology Course Design, NED

Credits: 5

Max Credit (Max. 6)

Addresses designing field ecology courses that include research, outdoor leadership, and natural history components. Opportunities are provided to gain deeper understanding of key natural history and ecology concepts of the bioregion; practical strategies for teaching these concepts in field programs; and to formally present student work.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5625 - Place-Based Education-Teton Science School

Credits: 3

Introduces graduate students at Teton Science Schools to the theory and practice of place-based education. The design of the course exposes students to the historical, political, and eco-social underpinnings of place-based education while supporting students in developing thoughtful place-based pedagogies.

Prerequisite: graduate student status.

NASC5630 - Teaching Practicum-Teton Science School

Credits: 2-4
Max Credit (Max. 6)

To improve teaching methods and techniques and expand professional skills. Integrates the foundation of Teton Science Schools, applies coursework content understanding and develops leadership. The course is intended to challenge previously held instructional beliefs and nurture an evolving set of skills and instructional identity. Not equivalent to EDSE 4500 or EDCI 5990 or EDEL 4500.

Prerequisite: current enrollment at Teton Science School.

NASC5640 - Introduction to Field Science Teaching

Credits: 3
Designed to introduce graduate students at Teton Science Schools' to the field of environmental education and instructional concepts for teaching environmental science in the outdoors. Learn field science content, principals of connecting to place, teaching techniques, and learning theories related to environmental education and field science teaching.

Prerequisite: current enrollment at Teton Science School.

ZOO5405 - Winter Ecology of the Yellowstone Ecosystem

Credits: 2
Winter Ecology emphasizes the effects of winter abiotic conditions on organisms and organismal adaptations. Energy flux, snowpack physics, organismal adaptations, avalanche awareness, and the influence of winter on wildlife management are emphasized through lectures and field laboratories. Students will develop an independent research project and present their results.

Prerequisite: graduate standing.

ZOO5420 - Ecological Inquiry

Credits: 3
Addresses basic ecological concepts and natural resource management issues in the Greater Yellowstone Ecosystem (GYE). Emphasis will be placed on developing critical thinking skills and exploring the effects of resource management policy and actions. Course direction will involve moving from a known facts way of thinking in to realm of evaluating effects of human management of the GYE.

Prerequisite: LIFE 2022, LIFE 3400, and graduate standing.

ZOO5430 - Ecology of the Greater Yellowstone Ecosystem

Credits: 3
Covers plant and animal community ecology from both a qualitative and quantitative perspective. Topics include: community interaction of plants and animals; community dynamics, succession, and disturbance; basic data collection

and statistical analysis of habitat association data; and the effect of abiotic factors on community structure.

Prerequisite: LIFE 2022, LIFE 3400, and graduate standing.

Natural Science Education (NED) - Year 2

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

Other Courses offered by SMTC available to Graduate Students in SMTC programs:

NASC5670 - Research Methodology

Credits: 4

This course provides foundational information on asking appropriate questions, researching (including IRB), writing, formatting, and defending a Plan B project. At the end of the semester students will have a committee, a preliminary draft, and present their research. Spring semester will be used to complete projects with committee members.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5700 - Seminar in Science for Secondary School Teachers

Credits: 1-6

Max Credit (Max. 6)

A course to give graduate students in education, or in-service teachers, an in-depth view of the new materials for teaching science in secondary schools.

Prerequisite: consent of instructor.

NASC5770 - Investigation in Natural Science for Secondary Teachers

Credits: 1-5

Max Credit (Max. 10)

Deals with the design, construction, and testing of curricula materials to bring the spirit of scientific inquiry to secondary school students. Research to be conducted in the Science and Mathematics Teaching Center.

Prerequisite: consent of instructor.

NASC5890 - Directed Professional Study

Credits: 1-6
Max Credit (Max. 6)

Primarily for upper-division students who can benefit from independent study with minimal supervision. Given to allow interested students to pursue specific aspects of curriculum and instruction.

Prerequisite: consent of instructor and graduate standing.

NASC5900 - Practicum in College Teaching

Credits: 1-3
Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

NASC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

NASC5961 - Plan B Project

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have program approval.

NASC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

NASC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: graduate standing.

Courses

NASC4790 - Topics in Natural Science

Credits: 1-6

Presents selected science topics to acquaint teachers or prospective teachers with new concepts, materials or techniques, as introduced in various new school curricula. Topics may include earth science for the middle school, computer learning and/or elementary school environmental science. Includes laboratory.

Prerequisite: junior standing.

NASC4800 - Field Studies in Natural Science

Credits: 1-6

Explores topics best studied in the field, on location, or otherwise outside the traditional classroom. Topics may include grassland ecosystem, geology field trips for elementary children and/or schoolyard study areas. Includes laboratory.

Prerequisite: junior standing.

NASC5110 - Physical Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Examines the global dynamics of energy, hydrocarbon combustion, and the physics and chemistry of water. Investigates relationships between energy transformations and pollutants. Considers environmental limitations of fresh water availability and the buffering effect of sea and fresh water.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in Elementary, middle school or general science education.

NASC5120 - Earth Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Emphasizes the lithosphere and atmosphere and their interactions with the hydrosphere and biosphere. Examines the interplay between tectonic processes, earth's radiation balance, ocean processes, ozone depletion and the greenhouse effect. Includes evaluation of methods of measuring and monitoring these phenomena.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teach certification in elementary, middle school or general science education.

NASC5130 - Life Science in Global Context, MSC

Credits: 3

One in a series of three courses investigating earth as a system. Investigates ecosystem composition and processes, and biological responses to changes in ecosystem parameters. Examines terrestrial and aquatic communities, photosynthesis, energy flow, biogeochemical cycles, global climate change, climate warning, deforestation, population ecology, DNA/ RNA structure, function, genetic engineering and forensic applications.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science education.

NASC5140 - Numbers, Operations, and Patterns for the Middle-Level Learner, MMA

Credits: 3

Provides working middle-level mathematics teachers opportunities to understand and discuss numbers, their representations, and operations on them, from an abstract perspective that includes elegant proof. Also emphasized is the role of language and purpose in composing definitions.

Cross Listed MATH 5140.

Prerequisite: admission to a UW graduate program, either degree or non-degree seeking status, and acceptance into the Middle-level mathematics program.

NASC5160 - Social and Historical Issues in Mathematics and the Middle-Level Learner, MMA

Credits: 3

Empowers teachers of middle-level mathematics to design engaging experiences. Emphasizes the historical context for the development of mathematics, especially its symbols, tools, personalities, and classic problems.

Cross Listed MATH 5160.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5170 - Connecting Geometry with Problem- Solving for the Middle-Level Learner, MMA

Credits: 3

Showcases two aspects of 2D and 3D geometry: measurement and transformation. Emphasis reflects current State and National standards for middle-level mathematics classroom and teacher preparation, especially appropriate uses of technology, geometric tools, mathematical language, and problem-solving strategies.

Cross Listed MATH 5170.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, acceptance into the Middle-level mathematics program.

NASC5185 - Analysis of Data in the Media for the Middle-Level Learner, MMA

Credits: 3

Focuses on data collection, analysis, interpretation, and communication, using contexts relevant to everyday situations. Topics chosen integrate well with the concerns of middle-level teachers and connect with such curriculum areas as health, science, and social studies. This is not a research methods course.

Cross Listed STAT 5185

Prerequisite: Admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5190 - Mathematics of Change and the Middle-Level Learner, MMA

Credits: 3

Students gain a solid understanding of data and functions in the service of calculus. Hands-on, project-driven, and focuses on the essential concepts of functions and calculus and their role in middle-level mathematics. Emphasis is on writing and technology (calculators and probeware).

Cross Listed MATH 5190.

Prerequisite: admission to a UW graduate program, in either degree or non-degree seeking status, and acceptance into the Middle-level Mathematics program.

NASC5205 - Methods of Teaching Middle-Level Mathematics, MMA

Credits: 3

Research-based pedagogy and pedagogical content knowledge for teaching middle-level mathematics. Designed for practicing teachers of middle-grades mathematics.

Cross Listed EDCI 5205.

Prerequisite: admission to the SMTC Program.

NASC5215 - Using Technology for Middle-Level Mathematics

Credits: 3

Covers the use of technology appropriate to middle-level mathematics teaching, such as microworlds, geographic information systems, spreadsheets, and other content appropriate technologies. Cross Listed with EDCI 5215. Prerequisite: admission to the SMTC Program.

Cross Listed EDCI 5215

Prerequisite: Admission to the SMTC Program.

NASC5225 - Assessment for Middle-Level Mathematics, MMA

Credits: 3

Middle-level Mathematics Initiative teacher participants examine, analyze, and implement a variety of assessments that are aligned with standards and instruction appropriate to the middle level math learner.

Cross Listed EDCI 5225.

Prerequisite: admission to the SMTC Program.

NASC5300 - Classroom Assessment in Middle-level Science, MSC

Credits: 2

Deals with the design, construction, and testing of curriculum materials to bring the spirit of scientific inquiry to elementary school pupils. Research to be conducted in the Science and Mathematics Teaching Center.

NASC5400 - Spatial Data Instructional Technology

Credits: 1

Teaching strategies appropriate for elementary/middle school students' conceptual level of development. Positive attitudes toward teaching children about the Earth, its physical environment and human/environment relationships will be promoted. The course content will be supported by the use of geospatial technologies, such as GPS and GIS.

Prerequisite: graduate standing.

NASC5510 - Integrated Instructional Strategies, MSC

Credits: 2

Appropriate instructional strategies are discussed and modeled for aligning standards, expectations, and experiences in an integrated science environment. Attention is given to unique characteristics of each strategy, including a review of research on the effectiveness of each strategy on student achievement and attitudes.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5600 - Mathematics and Statistics in Science Teaching, MSC

Credits: 2

Provides science teachers with the knowledge and experience necessary to help students use statistics in the scientific process. Activities emphasize a hands-on inductive approach closely related to the school science curriculum. Important statistical ideas and methods are studied as they arise naturally in the biological, physical, and earth sciences.

Prerequisite: graduate standing and teaching certification in elementary, middle school or general science; or, graduate standing and concurrent enrollment in a program leading to teacher certification in elementary, middle school or general science education.

NASC5610 - Field Studies in Environmental Education, NED

Credits: 4

Expands student's knowledge of ecological and physiological animal and plant adaptations to environmental conditions, the use of teaching methods and tools of naturalists, the range of resources available for designing and evaluating curriculum, and promotes an appreciation and understanding of the diversity of environments. Contains 4 modules.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5620 - Advanced Elements of Field Ecology Course Design, NED

Credits: 5

Max Credit (Max. 6)

Addresses designing field ecology courses that include research, outdoor leadership, and natural history components. Opportunities are provided to gain deeper understanding of key natural history and ecology concepts of the bioregion; practical strategies for teaching these concepts in field programs; and to formally present student work.

Prerequisite: graduate standing; must be accepted into the Teton Science School Program and matriculating at the TSS site.

NASC5625 - Place-Based Education-Teton Science School

Credits: 3

Introduces graduate students at Teton Science Schools to the theory and practice of place-based education. The design of the course exposes students to the historical, political, and eco-social underpinnings of place-based education while supporting students in developing thoughtful place-based pedagogies.

Prerequisite: graduate student status.

NASC5630 - Teaching Practicum-Teton Science School

Credits: 2-4

Max Credit (Max. 6)

To improve teaching methods and techniques and expand professional skills. Integrates the foundation of Teton Science Schools, applies coursework content understanding and develops leadership. The course is intended to challenge previously held instructional beliefs and nurture an evolving set of skills and instructional identity. Not equivalent to EDSE 4500 or EDCI 5990 or EDEL 4500.

Prerequisite: current enrollment at Teton Science School.

NASC5640 - Introduction to Field Science Teaching

Credits: 3

Designed to introduce graduate students at Teton Science Schools' to the field of environmental education and instructional concepts for teaching environmental science in the outdoors. Learn field science content, principals of connecting to place, teaching techniques, and learning theories related to environmental education and field science

teaching.

Prerequisite: current enrollment at Teton Science School.

NASC5650 - Place-Based Learning

Credits: 3

Place-based learning is explored and related to cognitive development, assessment, and education for a democracy. The focus is on science and mathematics and how to use "place" to provide meaningful learning experiences for students while making contributions to the community. Students develop a local place-based project.

NASC5660 - Standards, Pedagogy and Research

Credits: 2

This course is designed to provide Master of Science in Natural Science students with background in three areas: current science standards, pedagogical practices, and the understanding of various types of educational research as well as some of the practices related to conducting their own research projects.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5670 - Research Methodology

Credits: 4

This course provides foundational information on asking appropriate questions, researching (including IRB), writing, formatting, and defending a Plan B project. At the end of the semester students will have a committee, a preliminary draft, and present their research. Spring semester will be used to complete projects with committee members.

Prerequisite: Master of Natural Science - MMA, MSC, or NED who have completed at least one year of coursework, or permission of the instructor or SMTC program coordinator; graduate standing.

NASC5700 - Seminar in Science for Secondary School Teachers

Credits: 1-6

Max Credit (Max. 6)

A course to give graduate students in education, or in-service teachers, an in-depth view of the new materials for teaching science in secondary schools.

Prerequisite: consent of instructor.

NASC5770 - Investigation in Natural Science for Secondary Teachers

Credits: 1-5

Max Credit (Max. 10)

Deals with the design, construction, and testing of curricula materials to bring the spirit of scientific inquiry to

secondary school students. Research to be conducted in the Science and Mathematics Teaching Center.

Prerequisite: consent of instructor.

NASC5810 - ML Science & Math Practicum

Credits: 3

Practica for graduate students in the MS-Natural Science MSC and MMA programs in Middle and Junior High schools. Mathematics and science classrooms will serve as sites for assignments. Students complete assignments for the content area of certification as well as appropriate discussions.

Prerequisite: Graduate students in department who have passed at least four departmental courses or consent of the instructor.

NASC5890 - Directed Professional Study

Credits: 1-6

Max Credit (Max. 6)

Primarily for upper-division students who can benefit from independent study with minimal supervision. Given to allow interested students to pursue specific aspects of curriculum and instruction.

Prerequisite: consent of instructor and graduate standing.

NASC5900 - Practicum in College Teaching

Credits: 1-3

Max Credit (Max. 3)

Work in classroom with a major professor. Expected to give some lectures and gain classroom experience.

Prerequisite: graduate status.

NASC5920 - Continuing Registration: On Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NASC5940 - Continuing Registration: Off Campus

Credits: 1-2

Max Credit (Max. 16)

Prerequisite: advanced degree candidacy.

NASC5959 - Enrichment Studies

Credits: 1-3
Max Credit (Max. 99)

Designed to provide an enrichment experience in a variety of topics.

A&S College Core 2015 Note: credit in this course may not be included in a graduate program of study for degree purposes.

Prerequisite: graduate standing.

NASC5960 - Thesis Research

Credits: 1-12
Max Credit (Max. 24)

Designed for students who are involved in research for their thesis project. Also used for students whose coursework is complete and are writing their thesis.

Prerequisite: enrollment in a graduate degree program.

NASC5961 - Plan B Project

Credits: 1-4
Max Credit (Max. 4)

Limited to those students enrolled in a Plan B graduate program. Students should be involved in non-course scholarly activities in support of their Plan B project.

Prerequisite: must be enrolled in Plan B program and have program approval.

NASC5990 - Internship

Credits: 1-12
Max Credit (Max. 24)

Prerequisite: graduate standing.

School of Energy Resources

School of Energy Resources

301 Energy Innovation Center
Phone: (307)766-6879 FAX (307)766-6701

Holly Krutka, Executive Director

Website: www.uwyo.edu/ser

The School of Energy Resources facilitates interdisciplinary academic and research programs in engineering and science, economics, and environment and natural resources policy to address critical energy-related issues faced by our society.

Our mission is to leverage and add to the already significant energy-related talent and resources in the University of Wyoming colleges to develop human resources, know-how, and technical solutions to ensure a secure and sustainable energy future for the state, region, and nation.

The University of Wyoming (UW) School of Energy Resources (SER) was created in 2006 by the Wyoming Legislature through State Statute 21-17-117. Our goal is to enhance the university's energy-related education, research, and engagement. SER directs and funds cutting-edge energy research and technology development, which integrates with the formulation and conduct of academic programs at UW and bridges academics and industry through targeted engagement efforts. The bridges formed between academics and industry ensure programs are relevant, current, and deliver impact and high value to stakeholders and the state. Since its inception in 2006, SER has maintained flexibility in its focus and structure to meet the changing needs of Wyoming's energy industries and the state's economy which is now more critical than ever.

Professors:

TIMOTHY J. CONSIDINE, B.A. Loyola University 1975; M.S. Purdue University 1977; Ph.D. Cornell University 1981; SER Professor of Energy Economics 2008.

CRAIG C. DOUGLAS, A.B. Chicago University 1977; M.S. Yale University 1978; M.Phil. 1980; Ph.D. 1982; SER Professor of Mathematics 2008.

MAOHONG FAN, B.S. Wuhan University of Science and Engineering, 1984; M.S. Beijing University of Science and Technology, 1992; Ph.D. Chinese Academy of Sciences, 1997; Ph.D. Iowa State University, 2000; Ph.D. Osaka University 2003; SER Professor of Chemical Engineering 2015, 2008.

JOHN P. KASZUBA, B.S. Beloit College, 1982; M.S. Virginia Polytechnic Institute & State University 1986; Ph.D. Colorado School of Mines, 1997; SER Professor Geology & Geophysics, 2019, 2008.

SUBHASHIS MALLICK, B.Sc. Indian Institute of Technology 1976; M.Sc. 1978; Ph.D. University of Hawaii 1987; SER Professor of Geology & Geophysics 2008.

BRUCE A. PARKINSON, B.S. Iowa State University 1972; Ph.D. California Institute of Technology 1977; SER Professor of Chemistry 2008.

TARA RIGHETTI, B.A. University of Colorado Boulder 2005; J.D. 2007; SER Professor of Law 2020, 2017, 2014.

Associate Professors:

PO CHEN, B.S. Beijing University 2000; Ph.D. University of Southern California 2005; SER Associate Professor of Geology and Geophysics 2014, 2008.

DARIO GRANA, B.S. University of Pavia, 2003; M.S. 2005; M.S. University of Milano Bicocca, 2006; Ph.D. Stanford University, 2013; SER Associate Professor of Geology and Geophysics 2019, 2013.

Academic Professional:

KRISTOPHER KOSKI, B.S. Colorado School of Mines, 2005; J.D. University of Wyoming, 2008; Associate Lecturer 2017.

Accreditation

All programs at the University of Wyoming are accredited by The Higher Learning Commission, a commission of the North Central Association of Colleges and Schools Commission on Institutions of Higher Education. In addition, the Professional Land Management Concentration is one of only a few programs accredited nationally by the American Association of Professional Landmen.

Graduates from the PLM program are afforded the opportunity to sit for the Registered Landman exam. Individuals with certification can increase their salary by 20% on average. Visit landman.org to learn more.

SER Vision Statement

SER pursues the creation, sharing, and implementation of technology and knowledge for sustainable economic production of Wyoming's natural resources to generate additional employment and revenue opportunities for the state that include supply of clean energy and materials and products.

SER Mission Statement

The School of Energy Resources' academic mission is to ensure students within its interdisciplinary academic programs can illustrate a foundational understanding of fundamentals relative to energy companies and systems. In order to prepare students to meet the demands of the modern-day workforce, students will utilize critical thinking skills, negotiation techniques, and problem-solving methods applicable to a diverse array of energy projects.

Program Admission

Undergraduate students will apply for admission to the University of Wyoming and then declare a major or minor within SER at any point during their course of study. To declare a major, students must meet with the SER academic advisor. Any student can add the SER minor without meeting with an SER advisor.

One of the most important challenges of the 21st century will be to develop and manage energy resources in a sustainable manner. Projections show energy consumption worldwide will increase nearly 50 percent by 2035. And half of the leadership in the energy industries is expected to retire in the next five to ten years.

The future of energy will be characterized by increasing knowledge, relentless change, and technological innovation. As global energy industry increases in complexity, demand will dramatically grow for professionals with a multidisciplinary, entrepreneurial skillset. Future leaders must understand complex technology within the context of business, legal, social, and public policy in order to create comprehensive and sustainable solutions.

The Energy Resource Management and Development (ERMD) B.S. program is designed to fill this need through a combination of rigorous courses, real-world internships, and undergraduate research experiences. The curriculum balances depth of learning with the breadth of understanding to train graduates for sustained competitive success in the energy workforce at the frontiers of knowledge and for self-directed, life-long learning. Students learn to focus on continuous improvement, constant assessment, and the importance of a sense of urgency and consideration of profit motive in the energy industry

Our program emphasizes career planning and provides constant one-on-one guidance and assistance to ensure optimal workforce placement. Students are strongly encouraged to complete an industry internship (the minimum GPA requirement is typically 3.000). Opportunities are also available for undergraduate research, a study abroad experience, or a summer field trip. Multiple events during the year connect students to energy industry professionals.

General Policies

- A minimum 2.00 UW GPA is required to apply for the minor.
- It is the student's responsibility to monitor requirements for the minor, along with their advisor.
- Additional courses may be required to meet individual course prerequisites.
- All classes in the minor must be passed with a grade of "C" or better.

Student Learning Outcomes

The School of Energy Resources was created in 2006 to enhance the University of Wyoming's energy-related education, research, and outreach. The Energy Resource Management and Development Program is designed to meet the demands of the energy workforce and enhance social literacy related to complex energy issues. Competency-based learning that integrates problem-solving, critical analysis of uncertain and complex issues, and constant improvement in performance are overarching components of our undergraduate program.

Energy Resource Management and Development B.S. Program Learning Outcomes:

- Identify or describe fundamental concepts of energy systems.
- Illustrate a foundational understanding of business fundamentals relative to energy companies, including organizational structure, management, entrepreneurship, and international commerce.
- Make use of critical thinking and problem-solving methods within a written group energy project.

Energy and Environmental Systems Concentration Learning Outcomes:

- Outline the skills in environmental monitoring and compliance.
- Explain energy regulation and management.
- Demonstrate the necessary skills related to the physical and social science dimensions of sustainability.

Professional Land Management Concentration Learning Outcomes:

- Apply concepts and skills to real-world problems to gain practical understanding and experience.
- Identify and navigate a valid real property transaction from contract to transfer of title.
- Define and navigate the legal and regulatory hurdles for energy development on federal, state, and fee lands.

Energy Resource Management Minor Learning Outcomes:

- Gain appreciation and understanding of fundamental concepts of energy systems.
- Acquire a foundational understanding of the commercial aspects of energy industries.
- Exhibit critical thinking and problem solving related to energy and environmental problems.
- Apply knowledge of energy technology to societal problems requiring economic and policy analysis while working in a multidisciplinary environment.

Minor

Students looking to create a focus for their coursework can add minors to the ERMD program. Courses applying towards the minor must be completed with a grade of "C" or better.

Students not already majoring in BS-Energy Resource Management and Development may add the SER minor to their program of study. More information can be found on the SER website: <http://www.uwyo.edu/ser/academic-programs/minor-erm.html>

Major

Energy Resource Management and Development, Energy & Environmental Systems Concentration, B.S.

ERMD EES Concentration

EES majors can become environmental scientists who collect samples of air, soil, & water to identify environmental impacts, resolve environmental threats, & provide guidance on quality regulation and manage natural resources.

University Studies Program Requirements

The University Studies Program 2015 develops a student's foundational knowledge to prepare them for the Bachelor of Science degree program. Some of the categories of USP will be completed by completing the degree requirements as outlined below. Students should review their degree audits carefully to ensure that USP requirements are completed. Students transferring with a qualifying associate degree will have most of the lower division portion of the USP requirement waived. For more information about qualifying earned associate degree, see the "Articulation: Earned Associate Degrees" information in this catalog.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3
Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3
Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3
Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

EES Curriculum

Students must earn a letter grade of C or better in each course and a cumulative GPA of 2.000 or better.
Students will complete 120 credit hours for the BS in Energy Resources Management and Development.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

OR

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces

statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

COM2 Elective, Pick ONE

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary

conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G

USP 2015 Code U5C2

A&S College Core 2015 ASG

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ERS2500 - Communication Across Topics in Energy

Credits: 3

Students will develop interdisciplinary communication skills from an Energy Resources perspective. Communication will include oral, digital, and written forms. Audiences for communication projects will often be live, and from a variety of backgrounds.

USP 2015 Code U5C2

Prerequisite: WA/COM1.

GEOL2220 - Communicating Earth Science

Credits: 3

This course will focus on communicating science to non-scientists. Students will deliver earth science information through written, digital and oral presentations to be informative and interesting to the public.

USP 2015 Code U5C2

Prerequisite: grade of C or higher in GEOL 2010, COM1.

HP2020 - Honors Colloquium II

Credits: 3

Max Credit 3

Honors Colloquium II is the second course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

USP 2003-2014 Code U3O, U3WB

USP 2015 Code U5C2

Prerequisite: WA. COM I

UWYO1600 - Veterans Transition Course

Credits: 1

Provides returning veterans skills for successful transition to college and civilian life. Reviews tools for academic success, resources available to the veteran, information on veteran related challenges, and career planning resources. Students will develop skills in written, oral, and digital communication.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3I,U3L

USP 2015 Code U5C2

Prerequisite: Students must be a U. S. military veteran or an active duty military member.

COM3 Elective-Pick ONE

AGEC4965 - Agribusiness Entrepreneurship

Credits: 3

Designed for students preparing to launch or work with an entrepreneurial venture. Students develop a business plan, synthesizing knowledge of agricultural economics, agribusiness management and finance, human resources and accounting. Emphasis is placed on advancing student professional communication abilities for agribusiness management careers.

USP 2003-2014 Code U3WC

Prerequisite: senior standing, WB/COM2 writing course and AGECE 2020, or AGECE 4500, or AGECE 4060, or FIN 2100.

AGRI4600 - Developing Organizational Leadership

Credits: 3

A senior capstone experience for Bachelor of Applied Science students, bringing together reading, research, writing, and communication skills to focus on a major project. Leadership skills and approaches to organizational problem-solving are deepened using the structural, human resource, political, and symbolic frames to change and improve leadership and organizational culture.

USP 2015 Code U5C3

Prerequisite: COM1, COM2, AGRI 3000, and senior status.

BOT4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed ZOO 4100.

USP 2003-2014 Code U3L, U3WC

USP 2015 Code U5C3

A&S College Core 2015 Preference given to seniors.

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course.

COJO3010 - Business and Professional Communication

Credits: 3

Studies theories and techniques of professional communication activities including interviewing skills, group processes, and professional presentations; for students who are beyond elementary oral communication level. Students develop oral communication skills through projects and presentations.

USP 2015 Code U5C3

Prerequisite: COJO 1010 or COMM 2010 and junior standing.

ENGL3020 - Culture, Communication, Work

Credits: 3

Examines individual identity and group cultures, and how they influence communication in the workplace. Helps students develop strategies for working across cultural differences and for effective negotiation and conflict resolution skills.

USP 2003-2014 Code [(none)< >COM3]

Prerequisite: Completion of COM2.

ENGL4010 - Technical Writing in the Professions

Credits: 3

Enhances professional writing skills applicable to a variety of professions. Includes audience analysis and adaptation, information design and use of visuals, and a range of formats and genres. Emphasizes clarity and precision of language. May feature primary research and problem-based or service-learning projects.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WA and WB/COM1 and COM2; junior or senior standing.

ENGL4030 - Writing for Magazines

Credits: 3

Students write a variety of articles that would be appropriate for submission to a magazine. Feedback is given through class workshops and consultation with the instructor. Award-winning articles are read and discussed. The business aspect of magazine writing is also covered.

Prerequisite: COM1, COM2, and junior standing.

ENGL4040 - Rhetoric, Media, and Culture

Credits: 3

This class will guide us through the ways in which popular culture shapes the way that we view ourselves and other, and gives us a vocabulary to describe this phenomenon, critique it, and even push back against it.

USP 2003-2014 Code [(none)<>COM3]

Prerequisite: COM1 and COM2.

ENGL4075 - Writing for Non-Profits

Credits: 3

Designed for students interested in working in the non-profit sector. Explores rhetorical, political, and social dimensions of writing and communicating in the non-profit world and features intensive study of special topics and problems related to non-profit communication, including activism, grant writing, organizational rhetoric, and non-profit genres. Content varies.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: WB/COM2.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

Concurrent ENR majors must take ENR 4900

ESS4950 - Exploring the Earth System

Credits: 3

Conduct critical and interdisciplinary assessments on complex topics addressing physical, biological, and human components of the Earth System. Through multiple written, oral, and digital communication products, students will work independently and collaboratively to critically review existing literature, define knowledge gaps, analyze evidence, and synthesize results for multiple audiences.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ESS 1000 and either ESS 3480 or ENR 3450.

POLS4840 - Seminar in Public Law

Credits: 3

Max Credit (Max. 6)

Includes reading and research on selected problems in public law.

Dual Listed POLS 5840.

USP 2015 Code U5C3

Prerequisite: 9 hours of political science or related fields including POLS 1000 and consent of instructor.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

ZOO4100 - Scientific Communication

Credits: 2

This course is designed to provide intensive instruction in written, oral, and digital communication for zoology and physiology, biology, and botany majors. The course teaches students to communicate and execute research using practices common in the biological sciences.

Cross Listed BOT 4100.

USP 2003-2014 Code U3L,U3WC

USP 2015 Code U5C3

Prerequisite: COM1, COM2, and concurrent or prior upper division BOT, ZOO, or LIFE course. Preference given to seniors.

Chemistry Elective- Pick ONE (USP:PN for all listed)

CHEM1000 - Introductory Chemistry

Credits: 4

Deals with principles of chemistry and some applications to inorganic chemistry. For students in family and consumer sciences, nursing, education, general arts and sciences and most agriculture curricula. Students who have credit in CHEM 1020 or CHEM 1050 may not receive duplicate credit for this course.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: Minimum grade of C in MATH 0925, or level 3 on the MPE, or ACT math score of 23 or above.

CHEM1020 - General Chemistry I

Credits: 4

First semester of a one-year introductory series. Provides broad coverage of chemistry principles with inorganic and organic systems applications. Credit will not be allowed for more than one of CHEM 1020, CHEM 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory and discussion: 3 hours per week.

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Prerequisite: ACT Math score of 23 or above, or concurrent enrollment in MATH 1400, or MATH 1405 or CHEM 1050.

CHEM1050 - Advanced General Chemistry I

Credits: 4

First semester of a one-year series covering chemical principles. Emphasizes inorganic chemistry and briefly discusses qualitative analysis. Credit not given for more than one of CHEM 1020, 1050 and CHEM 1000.

Lab/Lecture Hours Laboratory: 3 hours per week.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SP

USP 2015 Code U5PN

Prerequisite: one year high school chemistry, and an ACT Math score of 27 or higher or concurrent enrollment in MATH 2200.

Economics Elective- Pick ONE

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGEC4600 - Community Economic Analysis

Credits: 3

Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic analysis, fiscal impact analysis and benefit cost analysis.

Dual Listed AGEC 5600.

USP 2015 Code U5H

Prerequisite: ECON 3010, ECON 3020, and MATH 1400.

AGEC4700 - Economics of Range Resources

Credits: 3

Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

ECON4420 - Seminar: Economics for ENR

Credits: 2-4

For students with little or no background in economics interested in economic perspectives on ENR. Emphasis is on integrated ecology-economics approach to investigate the economics environmental services, biological resources, and the ecosystems that contain them. CBEC and ECON majors cannot earn upper-division economics credit for this

course.

Prerequisite: successful completion of Q and senior standing.

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

Negotiation Elective-Pick ONE

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

Data Analysis Elective-Pick ONE

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

GEOL2120 - Quantitative GeoMethods

Credits: 3

Focuses on fundamental mathematical concepts used in geosciences. This course provides the tools to solve quantitative problems in geosciences applications. Students should demonstrate mathematical skills needed to formulate, analyze, and interpret quantitative arguments in geosciences.

USP 2003-2014 Code U5Q

Prerequisite: Level 5 in Math Placement Test OR 23 in Math ACT OR 600 in Math SAT.

GEOL4250 - Mathematical Geosciences

Credits: 3

The purpose of this course is to strengthen the quantitative skills of students in geosciences by reviewing basic concepts of linear algebra, precalculus, derivation and integration through applications to real datasets and problem sets, and introducing basic concepts of inverse theory, spatial science, data analytics, and geostatistics. The examples focus on applications to practical geoscience problems.

Dual Listed GEOL 5250

Prerequisite: MATH 1400 and 1405 or consent of instructor.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

Technical Elective- Pick ONE

ENR3000 - Approaches to ENR Problem Solving

Credits: 3

Provides an introduction to environmental and natural resources problem solving and decision making. Students learn how scholars and practitioners define and structure ENR problems for management and policy decision making. Additionally, students learn approaches, processes and techniques that address problems analytically and in a values-oriented context.

USP 2003-2014 Code U3CS, U3WB

USP 2015 Code U5H

Former Course Number [4000]

Prerequisite: ENR 2000.

ENR3050 - Cultures of Nature in the United States

Credits: 3

Uses artistic, philosophical, historical and literary material to investigate how ideas about and representations of nature have changed over time in the U. S. Culminates in an examination of a wide range of contemporary environmental ideas within this broad historical and cultural context.

Cross Listed AMST 3050/GWST 3050.

Prerequisite: 2000-level course in one of the following departments: AMST, American history, American literature, or a 2000-level course approved for the ENR program.

ENR3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed REWM 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

ENR3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed SOIL 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

ENR3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed POLS 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1
Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3
Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR4030 - Ecology of Knowledge

Credits: 3

Examines the development of "disciplines" and explores definitions, theories, methods and practices of interdisciplinary work.

Cross Listed AMST 4030.

Dual Listed ENR 5030.

Prerequisite: 3 hours in any interdisciplinary program.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

ENR4240 - Disease Ecology

Credits: 3

Introduction to 1) how interactions among species, ecosystems, human systems, and abiotic components of the environment affect patterns and processes of disease, and 2) considerations for coevolution of hosts and pathogens, conservation biology, models used to understand disease dynamics, and approaches to manage and control disease in animals, plants, and humans.

Cross Listed PATB 4240.

Dual Listed ENR 5240.

Prerequisite: LIFE 2022 or LIFE 2023 and STAT 2050 or STAT 2070.

ENR4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurs on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed REWM 4285.

Dual Listed ENR 5285.

Prerequisite: University Studies QA.

ENR4310 - Environmental Anthropology

Credits: 3

Addresses how human societies interact with their surroundings, emphasizing cultural understandings of the environment. Introduces variety of theoretical and methodological approaches to topics ranging from problems of the American West to global environmental change.

Cross Listed ANTH 4310.

Dual Listed ENR 5310.

When Offered (Normally offered every third semester)

Prerequisite: ANTH 1200.

ENR4412 - Global Environment History

Credits: 3

This course is designed to introduce undergraduate and graduate students to the new field of global environmental history. The Global Environmental History course will provide a new way of looking at humans, animals, and the lives they've built in the environment and the costs of their decisions to the environment.

Cross Listed HIST 4412.

USP 2015 Code U5H

Prerequisite: 9 hours of HIST or ENR.

ENR4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ENR4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430/CHE 4430.

Prerequisite: CHEM 1020.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

ENR4700 - Media, Science, and Society

Credits: 3

This course discusses why scientific, health, and environmental issues are covered in particular ways in media. We will also examine how these messages impact people's attitudes, opinion, knowledge, and emotions about science, health, and the environment.

Cross Listed COJO 4700.

Dual Listed ENR 5700.

Prerequisite: COMM 1000 or ENR 1200 or ENR 1500 or ENR 2000.

ENR4800 - Historic Preservation

Credits: 3

Review of the roots of historic preservation in Western culture with an emphasis on the historical and legal context of architectural conservation in America. Current issues in preservation are examined through case studies and guest presentations.

Cross Listed AMST 4800.

Dual Listed ENR 5800.

Prerequisite: ARE 3020 or AMST 5400.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ENR4975 - Independent Study

Credits: 1-6

Max Credit (Max. 6)

Offers students the opportunity to independently complete special academic studies under direction of a faculty member. Readings, papers, and projects are completed as directed.

Dual Listed ENR 5975.

Prerequisite: 6 credits in ENR.

GEOG3010 - Geomorphology of Earth's Dynamic Landscapes

Credits: 3

A Systematic exploration of Earth's surface, emphasizing the geographic distribution of various landforms and their evolution over time. Introduces general geomorphic principles and describes the application of these principles to specific landscape features. The processes that drive landscape change are examined through case studies, computer-based mapping exercises, and basic calculations.

Former Course Number [G&R 3010]

Prerequisite: Either GEOG 1010 or GEOL 1500 or equivalent.

GEOG3030 - Geography and Development

Credits: 3

Examines distribution of wealth and poverty in the world; theories of development, from traditional modernization theories through Marxist critiques and sustainable development; and case studies from around the world of development successes and failures, chosen to illustrate and illuminate theories of development.

USP 2003-2014 Code U3CS, U3G
A&S College Core 2015 ASG
Former Course Number [G&R 3030]

Prerequisite: GEOG 1000 or GEOG 1020 or 3 credit hours of social science with global focus.

GEOG3050 - Economic Geography

Credits: 3

Economic Geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

GEOG3400 - Traditional Ecological Knowledge

Credits: 3

Description of the interaction between economy, religion, language and the ecosystem for select indigenous peoples and discussion of the pedagogical methods for preserving their ecological knowledge. An examination of the conflict between contemporary society's demands and preserving traditional society's heritage.

Cross Listed NAIS 3400.

USP 2003-2014 Code U3CS, U3D

A&S College Core 2015 ASD

Prerequisite: one course in American Indian culture.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how

societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480
USP 2003-2014 Code U3G, U3WB
A&S College Core 2015 ASG
Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS
Former Course Number [G&R 3550]

GEOG4000 - Terrain Analysis

Credits: 3

Studies techniques for acquiring and analyzing spatial data from maps, remotely sensed imagery and field surveys for landscape assessment. Emphasizes deriving maps that describe physical suitability of landscapes for specific human activities. Field trip required.

Former Course Number [G&R 4000]

Prerequisite: Completion of USP PN requirement or consent of instructor.

GEOG4013 - Political Geography

Credits: 3

Geographic space mediates political action and is generated by it, and spatial forms are produced by governmental agencies that must respond or adapt to emerging patterns of political disruption and tendencies of social change. Students in this course learn to think about the relationship between politics and space at multiple scales and in global context. They also develop an inter-disciplinary approach to the sub-discipline of political geography in social and historical context, and, in that sense, develop a capacity to think and act as political geographers.

Cross Listed GEOG 5013 , INST 4013, INST 5013
Prerequisite: 6 hours in social science

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.
USP 2003-2014 Code U3WC
Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.
Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOG4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/1405 or MATH 1450.

REWM3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Prerequisite: LIFE 2022 or LIFE 2023.

REWM3390 - Range Judging

Credits: 2

Judging rangelands based on soil, plant and animal resources and applying science-based information to make management decisions. Participation in a field trip and UW SRM judging teams is required including Plant Team and URME. This course is intended for members of the SRM competitive Teams.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000, REWM 2400 and REWM 3020, as well as the Team Coach permission.

REWM3500 - Rangeland Plant Ecophysiology

Credits: 3

Examines plant physiological processes that have application to ecological and land management issues. Topics include carbon assimilation, water relations, mineral nutrition as applied to plant distributions, plant and system responses to grazing, as well as plant tolerance of extreme conditions including drought, excessive temperatures and changes in climate.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 2022 or LIFE 2023.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of public and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Students prepare public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 5103.

When Offered (Normally offered spring semester)

Former Course Number [3103]

Prerequisite: C or better in REWM 2000 and CS course.

REWM4150 - Behavior Modification for Production of Grazing Herbivores

Credits: 3

Strategies for manipulation of behavior and management of the grazing herbivore will be developed from scientific and practical information. Designed to equip the student to manage for animal and natural resource production.

Dual Listed REWM 5150.

When Offered (Normally offered spring semester)

Former Course Number [3150]

Prerequisite: C or better in REWM 2000 and REWM 3020 or ANSC 3100.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 5300.

When Offered (Normally offered spring semester)

Former Course Number [3320]

Prerequisite: REWM 2500 or LIFE 2023.

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4340 - Reclamation Techniques Field Trip

Credits: 2

Provides increased comprehension of current land reclamation problems and solutions by means of a field trip to sites in region where land reclamation is occurring.

When Offered (Normally offered fall semester)

Prerequisite: REWM 4200.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

REWM4500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 5500.

Prerequisite: REWM 4285.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4540 - Problems

Credits: 1-4
Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

REWM4550 - Internship in:

Credits: 1
Max Credit (Max. 4)

Supervised field experience in range management or disturbed land reclamation. No more than 4 credits.

Prerequisite: basic course work in subject selected and consent of instructor.

REWM4600 - Drone-Based Remote Sensing

Credits: 3
This class teaches the basics of remote sensing applications in environmental sciences with a focus on unmanned aerial vehicles (UAVs, aka "drones"). Students will receive training in drone operation, data collection and analysis, and will be prepared to take the FAA Remote Pilot Certification.

Prerequisite: MATH 1400 or higher

REWM4750 - Wildlife Habitat Restoration Ecology

Credits: 3
Emphasis on fundamental and applied aspects of restoration ecology for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 5750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM4810 - Experiments in Restoration

Credits: 2
Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 5810.

Prerequisite: STAT 2050 or equivalent.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

REWM4990 - Undergraduate Teaching Practicum

Credits: 1

Max Credit (Max. 2)

Teaching experience in classroom or laboratory assisting faculty instructor.

When Offered (Offered based on sufficient demand and resources)

RNEW3000 - Tropical Ecology

Credits: 3

Examines the characteristics of tropical ecosystems, how they evolved, their value to humans, their present status, and current issues relating to biodiversity, deforestation, extinction, and conservation.

Prerequisite: LIFE 1101 or LIFE 1010.

RNEW4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn

techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed PLNT 4130/GIST 4130.

Prerequisite: QA course and 9 credit hours in student's major field and junior/senior standing or permission of instructor.

RNEW4400 - Invasive Plant Ecology

Credits: 3

Ecological impacts of invasive, non-indigenous plant species, the ecological, genetic and evolutionary hypotheses for invasiveness, as well as management strategies for invasive plant species.

Cross Listed RNEW 4400, PLNT 4400, RNEW 5400, PLNT 5400

Dual Listed RNEW 5400.

Prerequisite: LIFE 3400.

RNEW4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed BOT 4775.

Prerequisite: LIFE 3400.

RNEW4800 - Undergraduate Research

Credits: 1-3

Max Credit (Max. 18)

Undergraduate student research can be an important component in the intellectual and professional development of future scientists and land managers. Undergraduate students working with a faculty member in a research capacity can register for up to 3 credit hours per semester. The student and faculty member will identify an academic outcome that is associated with their research effort, such as a research paper, oral presentation, or poster session at an appropriate venue. Instructor's permission required.

RNEW4990 - Topics in:

Credits: 1-4

Max Credit (Max. 8)

Special topics pertaining to renewable natural resource management. Intended to accommodate instruction in various specialized subjects not offered on a regular basis. Students may enroll in more than one section of this course provided topics are different.

Dual Listed RNEW 5990.

Prerequisite: consent of the instructor to pursue study of the topic.

SOIL3000 - Irrigated Agriculture

Credits: 3

Study of the complexity of plant/soil water relationships and its importance on irrigation. Soil and water relations, reference/crops evapotranspiration, and management of the water balance. Principles of chemigation, computer modeling/ monitoring included. Methods for irrigation scheduling and the importance of water use efficiency as a strategy for water conservation.

Cross Listed PLNT 3000.

Prerequisite: MATH 1400, SOIL 2010.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

General Electives- Must take 13 credits, 4 credits must be upper division

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHE4050 - Unit Operations Laboratory II

Credits: 3

Laboratory experiments examining heat transfer and process control. Also requires students to design, conduct and analyze 'open-ended' experiments. Introduces LabView and covers factorial experimental design and linear and non-linear data regression approaches. Emphasizes the preparation of a formal report describing all aspects of the experiments.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

Prerequisite: C- or better in CHE 3040. (Normally offered spring semester)

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGEC 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON4430 - Energy Economics

Credits: 3

Economics of energy, particularly oil and gas. Includes a discussion of the history of the oil industry, as well as aspects of contemporary markets. Apply a variety of concepts from microeconomics, particularly related to industrial economics.

Prerequisite: ECON 3020, MATH 2200 or MATH 2350.

EDSE3040 - Energy and Power Technology

Credits: 3

A conceptual analysis and synthesis of energy requirements and sources, with emphasis on alternate energy systems. Analysis of energy conversion and the application of mechanical, fluid, thermal and electrical power systems.

When Offered (Offered through UW/CC)

Former Course Number [EDIE 3040]

Prerequisite: PHYS 1050 or PHYS 1110.

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH
USP 2015 Code U5H

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1

Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGECE 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3

Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

ENR4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ENR4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed AGECE 4550.

Dual Listed ENR 5550.

Former Course Number [4700]

Prerequisite: QA.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR

and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ERS1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed GEOL 1650.

USP 2015 Code U5PN

ERS4960 - Energy Field Studies

Credits: 1-3

Various facets of energy resource management and development are covered by visits to oil and gas wells, coal mines, power plants, wind farms, and other energy production and research sites. A trip is normally planned for 5 to 6 days.

Prerequisite: WB; ERS 1000/ENR 1000 or ECON 1300/ERS 1300. Undergraduate Research.

ERS4970 - Internship

Credits: 1-3

Max Credit (Max. 3)

A formalized internship designed to provide students with relevant practical experience in the energy sector allowing synthesis and application of principles in energy science to energy asset management.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4975 - Global Experience in Energy

Credits: 2-4

Max Credit (Max. 4)

A 1-3 month integrative energy experience in China or Australia. Students will participate, in collaboration with partnering energy professionals, in outcomes focused education and research programs designed to address globally relevant challenges. Students will gain a global perspective within the cultural context of the partner institution.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6

Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

ESE4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ME 4460.

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ESE4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented.

Cross Listed ME 4470.

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

GEOG3050 - Economic Geography

Credits: 3

Economic Geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG3550 - Natural Hazards and Society

Credits: 3

Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS

Former Course Number [G&R 3550]

GEOG4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.

GEOL 4040

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOG4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/1405 or MATH 1450.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

GEOG4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG/GEOL 4470/5470

Former Course Number [G&R 4470]

Prerequisite: Some basic knowledge of Earth processes GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

GEOG4550 - Geography of Wine

Credits: 3

Examine the regional influence of climate, terrain and cultural characteristics on the production of grape varieties and demonstrate the implications of this influence on the location and distribution of wines produced. Discussion will focus on the world-wide production and consumption of wine and impacts of multi-national corporations.

Prerequisite: junior standing and at least 21 years of age.

GEOG4880 - Current Topics

Credits: 1-6

Max Credit (Max. 6)

Special course on a topic of current interest.

Dual Listed GEOG 5880.

Former Course Number [G&R 4880, 4850]

Prerequisite: junior standing.

GEOG4885 - Seminar: (TOPICS)

Credits: 1-3

Max Credit (Max. 6)

Faculty-student discussion, reading, and study focused on a selected topic and interest.

Former Course Number [G&R 4885, 4900]

Prerequisite: GEOG 4750.

GEOL1001 - Earth Science and Society

Credits: 1

Introduces students to the study of Earth Science and its role in society through examination and discussion of current events, and through projects researching geologic topics of societal interest.

USP 2003-2014 Code Y3I, U3L

Prerequisite: GEOL 1100 or concurrent enrollment.

GEOL1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society.

Cross Listed ASTR 1070.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Prerequisite: Math level 3 or equivalent courses, consent of instructor, elementary education major and EDCI 1450 must be taken concurrently.

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed ERS 1650.

USP 2015 Code U5PN

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL3250 - Geosciences and Computers

Credits: 4

An integrated introduction to the basic components of modern scientific computing and to illustrate basic computing concepts through geoscience applications.

USP 2003-2014 Code [I< >(none)]

Prerequisite: One USP designated science course with lab.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4010 - Exploration Geoscience

Credits: 3

Provides students with information and skills necessary to understand the energy exploration modeling process. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, and reservoir characterization.

Cross Listed ERS 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

GEOL4060 - Rocky Mountain Field Trip

Credits: 1

Max Credit (Max. 3)

A six-day geological field trip to various classic localities in the Rocky Mountains.

Prerequisite: senior standing and GEOL 2010 and GEOL 4610 or GEOL 4050.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and

geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

GEOL4191 - Methods in Petroleum Geology

Credits: 3

Lectures and laboratory exercises are designed to give the student experience in working with various kinds of geoscientific data in relation to the exploration for and production of hydrocarbons. Most exercises utilize real data and real situations. Topics include recognition of hydrocarbons, interpretation of sample, mud and geophysical logs, geologic utilization of drill stem tests; subsurface correlation and mapping techniques; prospect generation.

Dual Listed GEOL 5191.

Prerequisite: GEOL 4190.

GIST1001 - GIST Orientation and Portfolio

Credits: 1

Introduces students to the GIST degree, the resources necessary to be successful in the program, and the broader geospatial field and its impact on society. Topics include a survey of domain applications, the ethical, legal and social implications of using geospatial data, and geospatial certifications and credentialing.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2110 - Techniques in Cartography

Credits: 3

Max Credit 3

This course covers cartographic theory, techniques, and hands-on map-making. Students design thematic and reference maps using different platforms including web mapping. Students learn principles of graphic design and data journalism for effective communication, and they evaluate map purpose, design, data quality, and cognitive and political bias in maps.

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used

software.

Former Course Number GIST 2100

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application or remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

GIST4410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 5410.

GIST4420 - UAS Mission Planning

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 5420.

GIST4430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 5430.

GIST4440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 5440.

GIST4450 - UAS Photogrammetry and Image Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery acquired by unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 5450.

Prerequisite: Junior/Senior standing or approval from the instructor.

GIST4790 - Special Topics in Geospatial Information Science and Technology

Credits: 3

Advanced and specialized topics in GIS&T are addressed through guided student discussions of current literature and possible hands-on analyses.

Dual Listed GIST 5790.

GIST4870 - Internship in Geospatial Information Science and Technology

Credits: 1-12

Max Credit (Max. 12)

Provide undergraduates with the opportunity to receive credit for practical experience in geospatial information science and technology. Internship opportunities must be approved by faculty and work supervisors.

GIST4950 - Undergraduate Research in Geospatial Information Science and Technology

Credits: 1-6

Max Credit (Max. 6)

Undergraduate research in Geospatial Information Science and Technology (GIST) under the mentorship of UW faculty. Students are encouraged to present their research at professional meetings and to publish their work. GIST is multidisciplinary, so research problems span a wide range of topics.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

LIFE1002 - Discovering Science

Credits: 3

Integrates Biology, Chemistry, Physics, and Earth Science and is intended for non-science majors. Fundamental

concepts from each discipline are discussed through lectures and in-class activities, and students learn how to understand science and its importance in larger societal issues. There is no laboratory component of this course. Meets the S requirement in USP 2003 and the PN requirement in USP 2015.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3S

USP 2015 Code U5PN

Former Course Number [BIOL 1002]

LIFE1003 - Current Issues in Biology

Credits: 4

Emphasizes central themes of biology - cell biology, genetics, evolution, ecology - and scientific methodology by focusing on current issues in biology. Fundamental concepts are addressed through classroom and laboratory activities and discussions. This course is intended for non-science majors. Students cannot receive duplicate credit for LIFE 1010 or LIFE 1020.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1003]

LIFE1020 - Life Science

Credits: 4

An integrated lab and lecture emphasizing fundamental principles of biology including cell structure and function, genetics, ecology, evolution and organismal biology. Considers applications of these principles to societal issues such as the conservation of biodiversity, overpopulation and global environmental changes, biotechnology, and human wellness and disease. If you take LIFE 1020, you cannot get duplicate credit for LIFE 1000, 1003, or 1010.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1020]

Prerequisite: elementary education majors only; concurrent enrollment in EDEL 1430.

LIFE1101 - Introduction to Ecological Research

Credits: 3

Learn science by doing science! This course-based undergraduate research experience (CURE) will focus on beaver pond ecosystems in Medicine Bow National Forest. Students will engage in outdoor fieldwork in addition to classroom learning. They will carry out hands-on projects and gain experience in ecological sampling, lab work, data analysis, and scientific writing. Students who complete the course are encouraged to continue research and are eligible for summer internships.

USP 2015 Code U5FY

LIFE2100 - Intro Research and Analysis

Credits: 4

Students gather and analyze data in the context of life science research projects. provides a foundation in research design, probability and inference, and basic computational skills to support graphical and formal analyses of research data.

USP 2015 Code U5Q

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2015 - Engineering Surveying Laboratory

Credits: 1

Field surveying activities consisting of traversing, differential leveling, construction staking and gathering topographic data.

Former Course Number [CE 2073]

Prerequisite: LS 2010 or concurrent.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS

needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2410 - GIS in Surveying

Credits: 3

Covers the basic concepts of geographic information systems, the methods and software used to implement them, and their applications to surveying and analysis of other surveying problems.

Former Course Number [CE 2083]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3120 - Boundary Principles

Credits: 2

This course in boundary law addresses the fundamental principles of real property as applied to land surveying and related professions. Discussion and applications center on practical situations and concepts commonly encountered while conducting boundary surveys and the determination of the extent of ownership rights. Students explore the scope of the surveyors' judiciary role in real property ownership. Primarily offered through the Outreach School.

Former Course Number [CE 3740]

Prerequisite: CE 2070 or LS 2010, and LS 3100 and LS 2110.

LS3130 - Public Land Surveys

Credits: 3

Basic fundamentals of the Public Land Survey System (PLSS), dependent and independent resurveys, survey plats, "bona fide rights", riparian boundaries, non-rectangular entities, corner evidence and the role of the modern day surveyor.

Former Course Number [CE 2085]

Prerequisite: CE 2070 or LS 2010, and LS 2110.

LS3200 - Route Surveying

Credits: 3

Laying out of super elevation and circular, parabolic, and spiral curves; the difference between highway and railway horizontal curve geometry; offsets to spiral curves as boundaries; area and volumes of earthwork.

Former Course Number [CE 3710, CE 4710]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MGT4240 - Performance and Compensation

Credits: 3

In Human Resource Management the management of employee performance and compensation are key functions that drive organizational success. This course helps students become familiar with total compensation systems, including intrinsic and extrinsic rewards, base and variable pay, and benefits, and their relationship with employee performance and satisfaction.

Prerequisite: MGT 3410

MGT4260 - Training and Development

Credits: 3

In Human Resource Management training employees in the latest technical and managerial skills and helping them gain developmental experiences helps drive organizational success. Students will learn how to recognize training and developmental needs, how to develop employee training systems, and how to implement these training systems. Additionally, students will learn about career and leader development.

Prerequisite: MGT 3410

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

MGT4370 - Employment Law

Credits: 3

Provides a comprehensive foundation for understanding the law as it relates to the employer-employee relationship. This course will provide students the legal background necessary to make better decisions both as a worker as well as a manager of other.

Prerequisite: MGT 2010 or equivalent, junior class standing.

MGT4430 - Organization Design and Change

Credits: 3

Examines organizations, what they are, how they operate and are structured and how they can be changed. Focus is on macro managerial issues in the design and change of work organizations.

Prerequisite: MGT 2100, MGT 3410, MGT 3420; advanced business standing, junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective.

Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

MGT4900 - Independent Study in Management

Credits: 1-4
Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3
Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT2100 - Introduction to Marketing

Credits: 3
An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

PETE4860 - Energy, Environment, and Materials

Credits: 3
Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 5860.

Prerequisite: Junior standing and PETE 2050 or consent of instructor.

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT1150 - Pesticide Safety and Application

Credits: 1

Introduces various types and safe methods of pesticides application. Subsequent to completion, students may take the certification test administered by the Wyoming Department of Agriculture.

Cross Listed ENTO 1150.

Former Course Number [CROP 1150]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS4385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed INST 4385.

Dual Listed POLS 5385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4555 - Political Ecology

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST/GEOG 4555 & POLS 5555

Dual Listed INST/GEOG 4555 & POLS 5555

Prerequisite: 9 hours of international studies or social science coursework.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3000 - Plant Ecophysiology/Plant Form and Function

Credits: 4

Integration of basic vascular plant anatomy, morphology, physiology within the contexts of modern evolutionary and ecological theory. Students receive in depth exposure to fluid flow, energetics, development, growth, general metabolism, and structure, and functions for plant cells, tissue and organs.

Prerequisite: LIFE 2022 or LIFE 2023.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM3390 - Range Judging

Credits: 2

Judging rangelands based on soil, plant and animal resources and applying science-based information to make management decisions. Participation in a field trip and UW SRM judging teams is required including Plant Team and URME. This course is intended for members of the SRM competitive Teams.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000, REWM 2400 and REWM 3020, as well as the Team Coach permission.

REWM3500 - Rangeland Plant Ecophysiology

Credits: 3

Examines plant physiological processes that have application to ecological and land management issues. Topics include carbon assimilation, water relations, mineral nutrition as applied to plant distributions, plant and system responses to grazing, as well as plant tolerance of extreme conditions including drought, excessive temperatures and changes in climate.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 2022 or LIFE 2023.

REWM4000 - Poisonous Plants and Plant Toxins

Credits: 3

Plants poisonous to livestock in Wyoming and the Mountain West; identification, ecology, toxic principles, physiologic responses of animals, situations leading to poisoning, control and management to prevent losses.

When Offered (Normally offered spring semester)

Prerequisite: 12 hours of biological and chemical sciences.

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4100 - Nutritional Ecological Management of Range Herbivores

Credits: 3

Examines ecological processes and management of nutritional resources by domestic and wild rangeland herbivores. Topics include nutrient availability, nutritional demand, foraging behavior, diet composition, grazing systems, stocking rates, livestock/wildlife competition, predation, parasitism, plant toxicity, and influences on ecological condition. Students evaluate case studies and analyze nutritional data using current technologies.

Dual Listed REWM 5100.

Prerequisite: LIFE 1010 or LIFE 1020.

REWM4103 - Range and Ranch Recreation

Credits: 3

Understanding of public demands for leisure use of public and private rangelands; potential impacts on rangeland resources, ranch practices and families and other rangeland users. Students prepare public range or private ranch recreation operations plan. Graduate students assist in preparation and presentation of lecture.

Dual Listed REWM 5103.

When Offered (Normally offered spring semester)

Former Course Number [3103]

Prerequisite: C or better in REWM 2000 and CS course.

REWM4150 - Behavior Modification for Production of Grazing Herbivores

Credits: 3

Strategies for manipulation of behavior and management of the grazing herbivore will be developed from scientific and practical information. Designed to equip the student to manage for animal and natural resource production.

Dual Listed REWM 5150.

When Offered (Normally offered spring semester)

Former Course Number [3150]

Prerequisite: C or better in REWM 2000 and REWM 3020 or ANSC 3100.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4300 - Grass Taxonomy

Credits: 3

Identification of grasses and their place in range management and world agriculture.

Dual Listed REWM 5300.

When Offered (Normally offered spring semester)
Former Course Number [3320]

Prerequisite: REWM 2500 or LIFE 2023.

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4340 - Reclamation Techniques Field Trip

Credits: 2

Provides increased comprehension of current land reclamation problems and solutions by means of a field trip to sites in region where land reclamation is occurring.

When Offered (Normally offered fall semester)

Prerequisite: REWM 4200.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

REWM4500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 5500.
Prerequisite: REWM 4285.

REWM4530 - Seminar

Credits: 1
Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4540 - Problems

Credits: 1-4
Max Credit (Max. 6)

Experimental work or intensive reading and discussion on range management problems. Includes problems offered in the following areas of range management: natural resources ecology, livestock habitat, business, improvements, watershed, reclamation, extension, and international development.

Prerequisite: basic training in field of problem selected and consent of instructor.

REWM4550 - Internship in:

Credits: 1
Max Credit (Max. 4)

Supervised field experience in range management or disturbed land reclamation. No more than 4 credits.

Prerequisite: basic course work in subject selected and consent of instructor.

REWM4600 - Drone-Based Remote Sensing

Credits: 3

This class teaches the basics of remote sensing applications in environmental sciences with a focus on unmanned aerial vehicles (UAVs, aka "drones"). Students will receive training in drone operation, data collection and analysis, and will be prepared to take the FAA Remote Pilot Certification.

Prerequisite: MATH 1400 or higher

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as

interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration ecology for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 5750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM4810 - Experiments in Restoration

Credits: 2

Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 5810.

Prerequisite: STAT 2050 or equivalent.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

REWM4990 - Undergraduate Teaching Practicum

Credits: 1

Max Credit (Max. 2)

Teaching experience in classroom or laboratory assisting faculty instructor.

When Offered (Offered based on sufficient demand and resources)

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and

transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

SOIL4780 - Seminar:

Credits: 1-9

Consideration of special topics of current interest in social work. May be repeated for a maximum of 15 hours credit when the seminar topic is different.

Prerequisite: advanced major status; or consent of instructor and junior standing for non-social work majors.

Energy Resource Management and Development- Professional Land Management Concentration, B.S.

ERMD PLM Concentration

Professional Land Management majors determine ownership and title of surface and subsurface rights to negotiate leases with land/mineral owners, coordinate field exploration, and ensure compliance with governmental regulations.

University Studies Program Requirements

The University Studies Program 2015 develops a student's foundational knowledge to prepare them for the Bachelor of Science degree program. Some of the categories of USP will be completed by completing the degree requirements as outlined below. Students should review their degree audits carefully to ensure that USP requirements are completed. Students transferring with a qualifying associate degree will have most of the lower division portion of the USP requirement waived. For more information about qualifying earned associate degree, see the "Articulation: Earned Associate Degrees" information in this catalog.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

PLM Curriculum

Students must earn a letter grade of C or better in each course and a cumulative GPA of 2.000 or better.
Students will complete 120 credit hours for the BS in Energy Resources Management and Development.

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

AGEC1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed ECON 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

ERS2010 - Introduction to Land Management

Credits: 3

Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

ERS4010 - Exploration Geoscience

Credits: 3

The purpose of this course is to provide students with information and skills necessary to understand the oil and gas modeling process from exploration to production. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, reservoir characterization, reservoir production, well planning and decision making.

Cross Listed GEOL 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

ERS4100 - Property I

Credits: 3

Property I addresses the nature of property ownership and the rights associated with property as well as the acquisition and transfer of ownership rights in property and the sharing of ownership rights over time, including estates, future interest, and concurrent estates.

ERS4105 - Property II

Credits: 3

Property II covers rights inherent to the ownership of property and public limitations on those rights.

Prerequisite: ERS 4100.

ERS4110 - Law of Contracts

Credits: 3

The Law of Contracts addresses the formation of a contract and the meaning of agreements and the justification of non-performance and breach.

Prerequisite: MGT 1040 and WB/C

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4130 - Oil and Gas Law

Credits: 3

Focuses on the basic legal rules and principles governing the ownership and development of oil and gas, derived from a combination of property, contract, administrative, tort, and constitutional law.

ERS4135 - Advanced Energy Law

Credits: 3

Covers oil, gas and other energy development and financing arrangements including assignments, leases, farmouts, joint operating agreements, purchase and sale agreements, service agreements and marketing agreements. Covers oil, gas and other energy development regulation, including, oil and gas conservation commission and state and federal environmental regulation. Introduces other forms of energy development, including, but not limited to, renewables, nuclear, CCUS, hydrogen, and the various agreement and regulatory nuances of such energy development. Covers ethical issues that may arise in energy development.

USP 2015 Code U5C3

Prerequisite: ERS 4130.

ERS4985 - Seminar

Credits: 1-3

Max Credit (Max. 3)

Energy professionals, including accredited professional landmen, practicing attorneys, and other energy professionals will present a colloquium styled course to bridge conceptual content with realistic workforce focused applications.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300 and WA and QB.

FIN2100 - Principles of Finance

Credits: 3

Studies the management of capital in business. Students learn how to use the time value of money to value cash flows and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines, identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH2355 - Mathematical Applications for Business

Credits: 4

Primarily for students in the College of Business. Includes the mathematics of finance; systems of linear equations and matrices; linear programming; sets, counting, and probability. Students will learn to use Excel spreadsheets to solve business application problems in a computer lab that meets one day per week.

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

MGT2010 - Legal Environment of Business

Credits: 3

Provides a broad overview of business-related legal topics. Students are familiarized with courts and alternative dispute resolution, constitutional law, torts, contracts, intellectual law, criminal law, and cyber law.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

COM2 Elective, Pick ONE

COMM2010 - Public Speaking

Credits: 3

Beginning public speaking course. Students will develop foundational oral, digital and written communication skills. Emphasizes message construction, performance and critique in public communication settings. Includes speech preparation, listening, audience analysis, writing strategies, digital communication, critical thinking, language/nonverbal behavior and various speaking formats. (Offered fall, spring and summer).

USP 2003-2014 Code U3O

USP 2015 Code U5C2

Former Course Number COJO 2010

Corequisite: Prerequisite: Successful completion of a COM1 course.

ECON2400 - Economics of the Environment

Credits: 3

This introductory course examines the links between economics and the natural environment. We consider the efficient use of natural resources like minerals, forests, and fisheries. We also explore how to use economics to sharpen environmental policy for challenges like water and air pollution, climate change, and biodiversity protection.

When Offered (Offered based on sufficient demand and resources)

USP 2003-2014 Code U3G, U3WB

USP 2015 Code U5C2

A&S College Core 2015 ASG

Prerequisite: ECON 1010 recommended, ECON 1020 required.

ENGL2005 - Writing in Technology and the Sciences

Credits: 3

Develops writing styles specifically suited to technological and scientific fields of study. Includes focus on disciplinary conventions and styles as well as audience/readership considerations. Introduces techniques for data interpretation and visualization, and helps students analyze, understand, and adapt common field genres and formats.

USP 2003-2014 Code U3WB

USP 2015 Code U5C2

Prerequisite: successful completion of WA/COM1.

ENR2000 - Environment and Society

Credits: 3

Develops understanding of the nature and dimensions of environmental and natural resource issues. Explores ways in which elements of society approach, evaluate, and develop positions relative to environmental issues. Uses case studies to illustrate the contemporary and historical role of individuals and societies in identifying and addressing environmental issues at scales ranging from local to global.

USP 2003-2014 Code U3G
USP 2015 Code U5C2
A&S College Core 2015 ASG

ENR2450 - Fish and Wildlife Management in the Anthropocene

Credits: 4

Course examines fundamental principles in management of natural resources, especially fish and wildlife populations. Students explore historical to contemporary context of management, population biology, management tools and their application, career opportunities, with specific emphasis on human dimensions, law, and policy. Students will develop oral and written communication skills.

Cross Listed ZOO 2450.

USP 2015 Code U5C2

Prerequisite: LIFE 1010, LIFE 2022, and COM1.

ENR3300 - Environmental Policy, Conservation and Development in India

Credits: 3

This course will focus on India's environmental policies pertaining to conservation and development. Case studies will be used to understand how these policies were developed, put in place, and their intended and actual outcomes. Students are required to select a suitable topic and conduct research and submit a research report.

USP 2015 Code U5C2

Prerequisite: WA/ COM1 course.

ERS2500 - Communication Across Topics in Energy

Credits: 3

Students will develop interdisciplinary communication skills from an Energy Resources perspective. Communication will include oral, digital, and written forms. Audiences for communication projects will often be live, and from a variety of backgrounds.

USP 2015 Code U5C2

Prerequisite: WA/COM1.

GEOL2220 - Communicating Earth Science

Credits: 3

This course will focus on communicating science to non-scientists. Students will deliver earth science information through written, digital and oral presentations to be informative and interesting to the public.

USP 2015 Code U5C2

Prerequisite: grade of C or higher in GEOL 2010, COM1.

HP2020 - Honors Colloquium II

Credits: 3
Max Credit 3

Honors Colloquium II is the second course in a two-semester sequence introducing students to the Honors College and to interdisciplinary modes of inquiry and expression through intensive analytical reading and writing, lectures, Scholars Sessions, and experiential learning.

USP 2003-2014 Code U3O, U3WB
USP 2015 Code U5C2

Prerequisite: WA. COM I

UWYO1600 - Veterans Transition Course

Credits: 1

Provides returning veterans skills for successful transition to college and civilian life. Reviews tools for academic success, resources available to the veteran, information on veteran related challenges, and career planning resources. Students will develop skills in written, oral, and digital communication.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3I,U3L

USP 2015 Code U5C2

Prerequisite: Students must be a U. S. military veteran or an active duty military member.

Ethics Elective- Pick ONE

ENR2330 - Environmental Ethics

Credits: 3

Introduces students to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed PHIL 2330.

USP 2003-2014 Code [CH<>(none)]

ENR2345 - Natural Resource Ethics

Credits: 3

Introduces students to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed PHIL 2345/RNEW 2345.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

LS3300 - Ethics for the Professional Surveyor

Credits: 1

Introduction to the common ethical and moral issues facing professional surveyors in modern practice.

Former Course Number [CE 2074]

Prerequisite: One of LS 3110 or LS 3120 or LS 3130.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

PHIL2300 - Ethics in Practice

Credits: 1-3

Alerts preprofessional students and other interested individuals to various ethical issues they will encounter and relevant professional work on those issues. Emphasis of the course concentrates one time on biomedical ethics, another on technology and engineering ethics, another on ethics in the professions.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

PHIL2330 - Environmental Ethics

Credits: 3

Introduction to ethical theory in environmental problem cases, and to philosophical issues in environmental philosophy. Ethical theories include natural law, utilitarianism, deontological and rights-based theories, relativism. Topics may include: conservation/preservation, resource management, pollution, overpopulation, factory farming, Leopold's land ethic, deep ecology, holism, eco-feminism.

Cross Listed ENR 2330.

USP 2003-2014 Code U3CH

PHIL2345 - Natural Resource Ethics

Credits: 3

Introduction to ethics in context of natural resource extraction, use, conservation, preservation, and distribution. Ethical frameworks include teleological and deontological theories primarily applied to human needs and wants. Concepts and applications of environmental justice are addressed, including private property, sustainability, and obligations to future generations.

Cross Listed ENR 2345/RNEW 2345.

USP 2003-2014 Code U3CH, U3D

USP 2015 Code U5H

PHIL3250 - Global Justice

Credits: 3

An examination of global justice, normative international relations, and international ethics, using the methodology and theories of analytical political philosophy. Possible topics include global economic justice and world poverty, human rights, humanitarian duties, intervention and sovereignty, cosmopolitanism, nationalism, patriotism, world hunger, and immigration.

USP 2003-2014 Code U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

Prerequisite: 3 hours of philosophy or international studies.

PHIL3300 - Ethical Theory

Credits: 3

A philosophical investigation of such concepts as morality, obligation, goodness, freedom and responsibility, and of recurring types of ethical theory.

Prerequisite: 3 hours of philosophy.

PHIL4300 - Topics in Ethics

Credits: 3-6
Max Credit (Max. 6)

An advanced investigation of selected topics in ethics. Examples include derivative and basic principles of obligation; justice; morality and utility; generalization of norms; and the relation of morality and law.

Dual Listed PHIL 5300.
Prerequisite: 6 hours of philosophy.

PHIL4340 - Issues in Environmental Ethics

Credits: 3
Encompasses selected topics in environmental and natural resource ethics.

Dual Listed PHIL 5340.
Prerequisite: PHIL 2330, PHIL 2345, PHIL 3250, PHIL 3300 or PHIL 3350.

Economics Elective- Pick ONE

AGEC3750 - Natural Resource Planning and Economics

Credits: 3
Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.
Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

AGEC4600 - Community Economic Analysis

Credits: 3
Analysis of regions and rural communities; their problems, socioeconomic characteristics, land use and economic development. Provides training in regional economic analysis, fiscal impact analysis and benefit cost analysis.

Dual Listed AGEC 5600.
USP 2015 Code U5H
Prerequisite: ECON 3010, ECON 3020, and MATH 1400.

AGEC4700 - Economics of Range Resources

Credits: 3
Applies economic and decision theory to management and allocation of public and private range resources.

When Offered (Normally offered spring semester)

Prerequisite: AGEC 1020 or equivalent.

AGEC4720 - Water Resource Economics

Credits: 3

Presents principles and procedures appropriate to water resource allocation and development decisions. Studies agricultural, recreational, industrial and other uses of water.

Prerequisite: AGEC 1020 or equivalent; QB course, WB course; senior standing.

ECON4420 - Seminar: Economics for ENR

Credits: 2-4

For students with little or no background in economics interested in economic perspectives on ENR. Emphasis is on integrated ecology-economics approach to investigate the economics environmental services, biological resources, and the ecosystems that contain them. CBEC and ECON majors cannot earn upper-division economics credit for this course.

Prerequisite: successful completion of Q and senior standing.

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

Negotiation Elective-Pick ONE

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical

techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGEC 5550.

Prerequisite: QA/Q.

Data Analysis Elective- Pick ONE

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ES1060 - Introduction to Engineering Problem Solving

Credits: 3

An overview of the methodology and tools used in the engineering profession for analyzing problems. Example problems are solved using spreadsheet tools and structured programming language. Laboratory.

Prerequisite: MATH 2200 or concurrent enrollment.

GEOL2120 - Quantitative GeoMethods

Credits: 3

Focuses on fundamental mathematical concepts used in geosciences. This course provides the tools to solve quantitative problems in geosciences applications. Students should demonstrate mathematical skills needed to

formulate, analyze, and interpret quantitative arguments in geosciences.

USP 2003-2014 Code U5Q

Prerequisite: Level 5 in Math Placement Test OR 23 in Math ACT OR 600 in Math SAT.

GEOL4250 - Mathematical Geosciences

Credits: 3

The purpose of this course is to strengthen the quantitative skills of students in geosciences by reviewing basic concepts of linear algebra, precalculus, derivation and integration through applications to real datasets and problem sets, and introducing basic concepts of inverse theory, spatial science, data analytics, and geostatistics. The examples focus on applications to practical geoscience problems.

Dual Listed GEOL 5250

Prerequisite: MATH 1400 and 1405 or consent of instructor.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and

managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

STAT3050 - Statistical Methods

Credits: 3

Provides undergraduate majors in the Colleges of Arts and Sciences, Agriculture and Education with training in statistical methodology for multiple variable situations. Integrates computer analysis packages such as R MINITAB, SAS and SPSSX into statistical topics. Credit cannot be earned in more than one of the following courses: STAT 2110, 3050 and STAT 5050, 5060, STAT 5070, STAT 5080.

Prerequisite: STAT 2050, STAT 2070 or equivalent.

ZOO4400 - Population Ecology

Credits: 3

Explores quantitative ecology of animal populations, emphasizing theoretical and empirical work. Provides modern coverage of principles of population ecology for wildlife majors and others who expect to deal with ecological problems in their careers.

Dual Listed ZOO 5400.

When Offered (Offered spring semester)

Prerequisite: LIFE 1010, LIFE 3400 and STAT 2050 or consent of instructor.

General Electives- 21 credits in total, 9 credits must be upper division

BOT4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed RNEW 4775.

Dual Listed BOT 5775.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: LIFE 3400.

CHE2005 - Chemical Process Analysis

Credits: 3

Introduces analysis of chemical processes using stoichiometry, material and energy balances, thermodynamics and economics.

When Offered (Normally offered fall semester)

Former Course Number [3000]

Prerequisite: C- or better in either CHEM 1050 or CHEM 1020 and concurrent enrollment in MATH 2205.

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

DSCI2100 - Introduction to Operations and Supply Chain Management

Credits: 3

An introductory course in production and operations management. Typical topics include operations strategy, quality management, facilities location, facilities layout, forecasting, inventory management, production planning, scheduling and project management.

Prerequisite: IMGT 2400 or equivalent, STAT 2050 or equivalent, MATH 2355, sophomore class standing. (EN majors: MATH 2205 and sophomore class standing.)

ECON1010 - Principles of Macroeconomics

Credits: 3

An introductory course on why economics matters. We examine why countries like the US are rich, while others are poor. We explore economic booms & busts, and policies to avoid them. We address GDP growth, unemployment and inflation, government debt, deficits, tax policy, and whether robots will take our jobs.

Cross Listed AGECE 1010.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON4430 - Energy Economics

Credits: 3

Economics of energy, particularly oil and gas. Includes a discussion of the history of the oil industry, as well as aspects of contemporary markets. Apply a variety of concepts from microeconomics, particularly related to industrial economics.

Prerequisite: ECON 3020, MATH 2200 or MATH 2350.

EDSE3040 - Energy and Power Technology

Credits: 3

A conceptual analysis and synthesis of energy requirements and sources, with emphasis on alternate energy systems. Analysis of energy conversion and the application of mechanical, fluid, thermal and electrical power systems.

When Offered (Offered through UW/CC)

Former Course Number [EDIE 3040]

Prerequisite: PHYS 1050 or PHYS 1110.

ENR1200 - Environment

Credits: 4

Introductory environmental science course appropriate for science and nonscience majors. Uses case studies and applied laboratories to explore core biological principles such as nutrient flow and cycling, population and community ecology, and ecosystem structure and function, as well as the non-science dimensions of ENR issues. Early-semester, weekend field trips/labs required.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

ENR2300 - Foundations of Sustainability

Credits: 3

Examine the basic concepts, theories, and practice of sustainability as a foundation for future learning in the field. Explore principles of sustainability in our community and personal lives through various lenses and systems.

USP 2003-2014 Code U3CH

USP 2015 Code U5H

ENR3450 - Weather and Climate

Credits: 3

Systematically examines elements and controls of weather and climate with application to regions.

Cross Listed GEOG 3450 and GEOL 3450

When Offered (Normally offered fall semester)

Former Course Number [G&R 3450]

Prerequisite: GEOG 1000, GEOG 1010 or GEOG 1020.

ENR3700 - Wyoming Conservation Corps Practicum

Credits: 1
Max Credit 2

Required for students entering the WCC. Students will be required to make weekly journal entries and write a paper on a topic germane to their WCC experience. Additionally, necessary training for the Wyoming Conservation Corps program will be included in the course content.

Prerequisite: Acceptance into the Wyoming Conservation Corps program.

ENR3750 - Natural Resource Planning and Economics

Credits: 3
Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGEC 3750.
When Offered (Offered spring semester of odd-numbered years)
Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

ENR3900 - Seminar in Environment and Natural Resources

Credits: 1-3
Max Credit 12

Examines research and policy perspectives by a variety of authorities on selected environment and natural resource problems and issues.

Prerequisite: ENR 3000 or consent of instructor.

ENR3950 - Environmental Sociology

Credits: 3
Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.
Prerequisite: SOC 1000.

ENR4010 - Winter Ecology: Skills of the Winter Naturalist

Credits: 1

Emphasizes field naturalist skills, the effects of winter abiotic conditions on organisms and subsequent adaptations to these conditions, animal tracking, introduction to snow dynamics and winter safety.

Prerequisite: 6 hours of ENR or science courses.

ENR4011 - Winter Ecology: Snowpack Science and Dynamics

Credits: 1

Emphasizes snow science and avalanche safety through lectures and inquiry-based field laboratories.

Prerequisite: 6 hours of ENR or science courses.

ENR4012 - Winter Ecology: Wildlife and Plant Adaptations

Credits: 1

Emphasizes animal and plant adaptations to cope with the stresses of winter, as well as the predicted impacts of climate change, through lectures and inquiry-based field laboratories. Students also conduct field research in a winter environment.

Prerequisite: 6 hours of ENR or science courses.

ENR4040 - Conservation of Natural Resources

Credits: 3

Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed BOT 4040/GEOG 4040.

USP 2003-2014 Code U3CS

Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

ENR4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, POLS 4051, GEOG 4051 and REWM 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

ENR4420 - Conservation Biology

Credits: 3

Addresses the broadest environmental issues facing society (habitat loss, invasion, overexploitation) and the mechanisms driving them, with particular attention to the Intermountain West. Through computer exercises, students also learn how to evaluate conservation efforts and make management recommendations.

Cross Listed BOT 4420/ZOO 4420.

Prerequisite: LIFE 3400 and one of the following: ENR 3500, STAT 2050, or STAT 2070.

ENR4500 - Risk Analysis

Credits: 4

Introduces basic concepts of risk analysis, including risk perception, identification, assessment, communication, management, and policy. Provides quantitative treatment of risk assessment procedures, fundamental mathematical models, and the concepts of variability and uncertainty; and practical experience in risk analyses conducted by teams of students. Emphasizes environment and natural resource examples. Laboratory.

Dual Listed ENR 5500.

USP 2003-2014 Code U3QB

Prerequisite: MATH 1000 or MATH 1400, introductory statistics and familiarity with Excel spreadsheets.

ENR4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real-world problems in data analysis.

Cross Listed GEOL 4525/GEOL 5525.

Dual Listed ENR 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

ENR4560 - Conservation Entrepreneurship

Credits: 3

Max Credit 3

This course introduces students to foundational concepts in social entrepreneurship applies them to environmental conservation issues. Students will learn the legal, financial, and ecological concepts underpinning entrepreneurial approaches to conservation. Students will apply concepts to real world examples to understand the strength and weaknesses of these approaches.

Dual Listed ENR 5560.

Prerequisite: ENR 3000

ENR4600 - Campus Sustainability

Credits: 3

Uses campus as a setting to explore long-term environmental, economic, and social sustainability theory and practice. Students design and implement a semester-long project to improve sustainability of the UW campus. This is an interdisciplinary course and is appropriate for students of all disciplines.

Dual Listed ENR 5600

Prerequisite: USP WB or COM2 course, junior or senior standing.

ENR4890 - Topics in Environment and Natural Resources

Credits: 1-6

Max Credit (Max. 12)

Special topics in environment and natural resources are offered under this number. The specific subject matter varies each year because the course is normally taught by faculty who wish to present a specialized topic of interest to ENR and other students. Check class schedule for specific topics offered each year.

Dual Listed ENR 5890.

Former Course Number [4990]

Prerequisite: ENR 3000 or permission of the instructor.

ENR4900 - Capstone in ENR

Credits: 3

An integrative course in which students work in multidisciplinary teams to synthesize and apply environment and natural resources analytical frameworks, perspectives, methods, and theories. Students develop and refine critical thinking skills to address a real-world environment and natural resources challenge.

Dual Listed ENR 5900.

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: ENR 3000.

ENR4950 - Leadership in Natural Resources Management

Credits: 2

Provides Crew Leaders in the Wyoming Conservation Corps with an understanding of the complex dynamics of natural resources management while also equipping students with the tools to confidently lead groups of students on conservation-oriented service-learning projects on Wyoming's public lands during the summer months.

Cross Listed ERS 4950.

Dual Listed ENR 5950.

Prerequisite: ENR 3700 and consent of instructor.

ENR4960 - Field Studies in:

Credits: 1-6

Field-based courses in Environment and Natural Resources are taught under this number. The specific subject matter varies depending upon the location and content of each courses. Students frequently need to apply in advance.

Prerequisite: 6 credits of ENR coursework.

ENR4970 - ENR Internship

Credits: 1-6

Max Credit (Max. 6)

Provides practical experience in environmental and natural resource policy, management and decision processes, as well as interaction with professionals in the field. Offered S/U only.

Prerequisite: ENR 3000.

ERS1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed GEOL 1650.

USP 2015 Code U5PN

ERS4960 - Energy Field Studies

Credits: 1-3

Various facets of energy resource management and development are covered by visits to oil and gas wells, coal mines, power plants, wind farms, and other energy production and research sites. A trip is normally planned for 5 to 6 days.

Prerequisite: WB; ERS 1000/ENR 1000 or ECON 1300/ERS 1300. Undergraduate Research.

ERS4970 - Internship

Credits: 1-3

Max Credit (Max. 3)

A formalized internship designed to provide students with relevant practical experience in the energy sector allowing synthesis and application of principles in energy science to energy asset management.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4975 - Global Experience in Energy

Credits: 2-4
Max Credit (Max. 4)

A 1-3 month integrative energy experience in China or Australia. Students will participate, in collaboration with partnering energy professionals, in outcomes focused education and research programs designed to address globally relevant challenges. Students will gain a global perspective within the cultural context of the partner institution.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300; QB; SP or SE.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6
Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

ESE4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ME 4460.

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ESE4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented.

Cross Listed ME 4470.

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

FIN3310 - Investment Management

Credits: 3

Fundamental principles of investments and practical implications of financial theory. Students acquire a framework for understanding returns on financial assets, risk and return, fundamentals of portfolio theory, efficient market hypothesis, and asset pricing models. Other topics include financial statement analysis, behavioral finance, and introduction to options and futures.

Former Course Number [4310]

Prerequisite: FIN 2100 and advanced business standing.

FIN3520 - Financial Markets

Credits: 3

Portfolio and capital market theory and the analysis of risk are introduced. Integrates theory into practical aspects of financial markets.

Former Course Number [4520]

Prerequisite: FIN 2100, STAT 2010 or STAT 2050/STAT 2070, and advanced business standing.

GEOG3050 - Economic Geography

Credits: 3

Economic Geography is the study of the location, distribution and spatial organization of economic activities across the globe; specifically how the economic realm is intertwined with other spheres of international social life. It explores the inherent logics and mechanisms of the capitalist system, and the social and spatial inequalities that result.

Former Course Number [G&R 3050]

Prerequisite: 6 hours of Social Sciences or International Studies.

GEOG3450 - Weather and Climate

Credits: 3

Systematically examines the patterns and process of Earth's climate system, focusing on atmospheric and surface energy and water balances; atmospheric motion; past, present, and future climate change.

Cross Listed ENR 3450 and GEOL 3450

Former Course Number [G&R 3450]

Prerequisite: GEOG 1010 OR any USP PN course.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480
USP 2003-2014 Code U3G, U3WB
A&S College Core 2015 ASG
Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

GEOG3550 - Natural Hazards and Society

Credits: 3
Considers societal structures and processes as they interact with hazards in the natural environment.

USP 2003-2014 Code U3CS
Former Course Number [G&R 3550]

GEOG4040 - Conservation of Natural Resources

Credits: 3
Geographically analyzes conservation of natural and human resources, as well as political, social and ethical ramifications of our environmental policy.

Cross Listed ENR 4040.
GEOL 4040
USP 2003-2014 Code U3CS
Former Course Number [G&R 4040]

Prerequisite: 6 hours of geography or ENR.

GEOG4051 - Environmental Politics

Credits: 3
Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, POLS 4051 and REWM 4051.
USP 2003-2014 Code U3WC
Former Course Number [G&R 4051]

Prerequisite: POLS 1000.

GEOG4080 - Management of Major River Basins

Credits: 3

Examines geography of water resources, including distribution, water as a resource and water as a hazard to humans. Focuses on water management case studies on the scale of major river basins in North America and elsewhere in the world.

Former Course Number [G&R 4080]

Prerequisite: Completion of the USP PN requirement or consent of instructor.

GEOG4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOL 4113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/1405 or MATH 1450.

GEOG4440 - Advanced Global Climate Variability

Credits: 3

Climate varies. This fundamental aspect of the climate system can have major environmental and societal impacts to ecosystems, the hydrologic cycle and water resource management in arid environments such as the intermountain west. This course will utilize climate data and mapping tools to understand global and regional climate variability.

Dual Listed GEOG 5440.

Prerequisite: GEOG 3450/ENR 3450 or instructor's consent.

GEOG4470 - Fire Ecology

Credits: 3

Fire is an important phenomenon affecting ecosystems and human communities throughout the world. Explores spatial and temporal patterns of fire with emphasis on ecology and management.

Cross Listed GEOG/GEOL 4470/5470

Former Course Number [G&R 4470]

Prerequisite: Some basic knowledge of Earth processes GEOG 4460, BOT 4700, LIFE 3400 or graduate standing.

GEOG4880 - Current Topics

Credits: 1-6

Max Credit (Max. 6)

Special course on a topic of current interest.

Dual Listed GEOG 5880.

Former Course Number [G&R 4880, 4850]

Prerequisite: junior standing.

GEOG4885 - Seminar: (TOPICS)

Credits: 1-3

Max Credit (Max. 6)

Faculty-student discussion, reading, and study focused on a selected topic and interest.

Former Course Number [G&R 4885, 4900]

Prerequisite: GEOG 4750.

GEOL1001 - Earth Science and Society

Credits: 1

Introduces students to the study of Earth Science and its role in society through examination and discussion of current events, and through projects researching geologic topics of societal interest.

USP 2003-2014 Code Y3I, U3L

Prerequisite: GEOL 1100 or concurrent enrollment.

GEOL1070 - The Earth: Its Physical Environment

Credits: 4

Discusses selected topics from geology, astronomy and meteorology illustrating fundamental concepts, processes, products and the interrelationships among them. Emphasizes nature of science and relationship between selected topics and society.

Cross Listed ASTR 1070.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

Prerequisite: Math level 3 or equivalent courses, consent of instructor, elementary education major and EDCI 1450 must be taken concurrently.

GEOL1500 - Water, Dirt, and Earth's Environment

Credits: 4

Introductory environmental geology course focusing on water and soil both as hazards and as life-sustaining resources. Explores surface processes and climate change over geological and human timescales. Case studies illustrate the environmental tradeoffs of resource use.

Cross Listed ENR 1500.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed ERS 1650.

USP 2015 Code U5PN

GEOL2000 - Geochemical Cycles and the Earth System

Credits: 4

Introduces the Earth system, including the solid Earth, hydrosphere, biosphere and atmosphere. Emphasizes the evolution of the Earth, rock associations and geochemical cycles.

Cross Listed ESS 2000.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3SE

Prerequisite: a 1000-level GEOL course with a lab and concurrent enrollment in CHEM 1020.

GEOL2080 - General Field Geology

Credits: 3

Covers basic concepts of geology and field techniques emphasizing interpretation of geologic features in the field and constructing geologic products (e.g. measured sections and geologic maps). Students are expected to be able to identify the common rock forming minerals and common rocks in hand-sample. Weekly field trip required.

When Offered (Normally offered the first half of the fall semester)

USP 2003-2014 Code U3SE

Prerequisite: GEOL 1100 and at least one other GEOL course.

GEOL3250 - Geosciences and Computers

Credits: 4

An integrated introduction to the basic components of modern scientific computing and to illustrate basic computing concepts through geoscience applications.

USP 2003-2014 Code [I< >(none)]

Prerequisite: One USP designated science course with lab.

GEOL3500 - Global Change: A Geological Perspective

Credits: 4

Considers the geochemical and geophysical systems that control the Earth's climate, the geological and historical record of climate change, and then discusses the possible effect that human activities will have upon these chemical and geophysical systems.

Prerequisite: junior standing and an introductory class in the physical sciences.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resource are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through

exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4010 - Exploration Geoscience

Credits: 3

Provides students with information and skills necessary to understand the energy exploration modeling process. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, and reservoir characterization.

Cross Listed ERS 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

GEOL4060 - Rocky Mountain Field Trip

Credits: 1

Max Credit (Max. 3)

A six-day geological field trip to various classic localities in the Rocky Mountains.

Prerequisite: senior standing and GEOL 2010 and GEOL 4610 or GEOL 4050.

GEOL4113 - Geological Remote Sensing

Credits: 4

Acquaints students with aircraft and spacecraft remote sensing of the environment, emphasizing geologic application to earth and other planetary bodies. Includes visible, infrared, ultraviolet, radio and radar sensing. Laboratory exercises are applications related to tectonics, geomorphology, paleoclimate, structure, stratigraphy, environmental geology and geologic hazards.

Cross Listed GEOG 4113.

Dual Listed GEOL 5113.

Prerequisite: GEOL 1005 or GEOL 1100 or 1200 or GEOG 1010 and MATH 1400/MATH 1405 or MATH 1450.

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

GEOL4191 - Methods in Petroleum Geology

Credits: 3

Lectures and laboratory exercises are designed to give the student experience in working with various kinds of geoscientific data in relation to the exploration for and production of hydrocarbons. Most exercises utilize real data and real situations. Topics include recognition of hydrocarbons, interpretation of sample, mud and geophysical logs, geologic utilization of drill stem tests; subsurface correlation and mapping techniques; prospect generation.

Dual Listed GEOL 5191.

Prerequisite: GEOL 4190.

GIST1001 - GIST Orientation and Portfolio

Credits: 1

Introduces students to the GIST degree, the resources necessary to be successful in the program, and the broader geospatial field and its impact on society. Topics include a survey of domain applications, the ethical, legal and social implications of using geospatial data, and geospatial certifications and credentialing.

GIST2140 - Survey of Remote Sensing Applications

Credits: 3

This course introduces remote sensing by surveying applications across disciplines. It includes a brief overview of fundamentals followed by exploration of types of remote sensing including aerial photography, multispectral and hyperspectral satellite remote sensing, active remote sensing, and thermal remote sensing. The course also introduces remote sensing applications for global change.

USP 2015 Code U5PN

Former Course Number GIST 2160

Prerequisite: USP Q; sophomore or junior class standing.

GIST2150 - Introduction to Programming in Geospatial Information Science and Technology

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

GIST2190 - Intro to Programming

Credits: 3

Introductory geospatial programming course covering the basic concepts and features of the Python scripting language, including data structures and functions, and the development of basic GIS scripting skills. Students implement spatial data collection, processing, and presentation methods for automating geospatial analyses.

Former Course Number GIST 2150

GIST2200 - Spatial Data Visualization

Credits: 3

Covers fundamental principles, concepts, and applications of spatial data visualization. Students will learn to find, understand, and act on spatial patterns, associations and trends, and to use and critique powerful graphical representations of spatial data including 3D maps, web maps, interactive graphics, and animations.

GIST3140 - Introduction to Remote Sensing

Credits: 3

This is a combined lecture and computer lab course designed to present the physical principles of remote sensing, the application of airborne and satellite imagery to the study of the earth's surface with an emphasis on vegetation, and the hands-on application of remote sensing principles using digital image processing.

USP 2003-2014 Code Q

Former Course Number GIST 3111

GIST4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130 and PLNT 4130.

Dual Listed GIST 5130.

Former Course Number [BOT 4130]

Prerequisite: QA/Q course and 9 credit hours in student's major field and junior/ senior standing.

GIST4211 - Advanced Remote Sensing

Credits: 3

On-campus and online course including lecture and digital image processing lab. Explores advanced remote sensing techniques including high spatial and spectral resolution data analysis, active remote sensing (radar and lidar), and advanced image classification. Other advanced topics may be discussed as needed.

Dual Listed GIST 5211.

Former Course Number [BOT 4211; GEOG 4211]

Prerequisite: GIST 3111 or GIST 4130.

GIST4410 - UAS Sensors and Platforms

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of the types of drones used for modern

remote sensing and of the sensors that can be used with these different drone platforms to collect data, including RGB and multi-spectral cameras, thermal sensors, and lidar.

Dual Listed GIST 5410.

GIST4420 - UAS Mission Planning

Credits: 1

This 1-credit online course taught over 8 weeks provides a detailed overview of mission planning for UAS (drone) data collection. Students learn to evaluate mission requirements for a variety of UAS applications, to choose appropriate hardware to accomplish these requirements, and to use mission planning software to translate requirements into flight plans and data collection strategies.

Dual Listed GIST 5420.

GIST4430 - UAS Regulations and Safety

Credits: 1

This 1-credit online course taught over 8 weeks provides students with a detailed overview of federal, state, and local regulations pertaining to UAS flights and data collection. Students also learn about how to operate drones safely in both personal and professional applications. Course content helps prepare students for FAA remote pilot certification.

Dual Listed GIST 5430.

GIST4440 - UAS Ground School and Operations

Credits: 2

This field course provides students with the practical experience to operate UAS (drones) safely, legally, and effectively for collecting data to be used in a variety of applications. Students learn about pertinent safety and regulations, and then spend much of the course time flying drones in the field and collecting data.

Dual Listed GIST 5440.

GIST4450 - UAS Photogrammetry and Image Process

Credits: 3

This 3-credit online course provides overviews of the photogrammetric principles related to imagery acquired by unmanned aerial vehicles or drones, and the image processing techniques used for extracting information from the drone images. Students will gain experience in processing drone imagery collected with RGB cameras and multi-spectral sensors.

Dual Listed GIST 5450.

Prerequisite: Junior/Senior standing or approval from the instructor.

GIST4790 - Special Topics in Geospatial Information Science and Technology

Credits: 3

Advanced and specialized topics in GIS&T are addressed through guided student discussions of current literature and possible hands-on analyses.

Dual Listed GIST 5790.

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

IMGT2400 - Introduction to Information Management

Credits: 3

Concerned with the role of information systems in managing organizations to make them more competitive and efficient. Specific topics include organizational and technical foundations of information systems and building and managing systems. Special emphasis will be made on learning hands on tools that are easily accessible to students, including Microsoft Excel and Microsoft Access.

Former Course Number [2400]

Prerequisite: MATH 1400.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

LIFE3410 - Introduction to Field Ecology

Credits: 2

Field and laboratory course. Introduces methods used in plant and animal ecology.

When Offered (Normally offered fall semester)

Former Course Number [BIOL 3410/BIOL 2410]

Prerequisite: LIFE 3400 (may be concurrently enrolled).

LS2010 - Engineering Surveying Lecture

Credits: 2

Principles of measurements of distances, elevation and angles. Basic error theory in measurement and calculations. Basic principles of surveying and map making.

Former Course Number [CE 2072]

Prerequisite: a working knowledge of algebra and trigonometry.

LS2015 - Engineering Surveying Laboratory

Credits: 1

Field surveying activities consisting of traversing, differential leveling, construction staking and gathering topographic data.

Former Course Number [CE 2073]

Prerequisite: LS 2010 or concurrent.

LS2020 - GPS for Land Surveyors

Credits: 4

From fundamental theory to practical application and advanced technologies, this class covers all aspects of GPS needed to understand and use GPS as a land surveyor including the basics of GPS technology, common hardware, surveying methods, survey design, planning and observing, real-time kinematics and DGPS.

Former Course Number [CE 2090]

Prerequisite: LS 2400.

LS2100 - Records Research for Surveyors

Credits: 3

Introduced to the public, quasi-public, and private depositories of recorded and non-recorded documents that establish land ownership boundaries, easement boundaries, and land use rights and restrictions in both the Public Land Survey System and the Colonial States. Assignments will require work to be conducted during depositories' normal business hours.

Former Course Number [CE 2076]

LS2410 - GIS in Surveying

Credits: 3

Covers the basic concepts of geographic information systems, the methods and software used to implement them, and their applications to surveying and analysis of other surveying problems.

Former Course Number [CE 2083]

Prerequisite: CE 2070 or LS 2010, and ES 1060 or ES 1061.

LS3210 - Advanced Surveying

Credits: 4

Advanced topics in surveying computations and procedures, including traverse error analysis, topographic surveying, mapping, astronomical observations, coordinate geometry applications, and state plane coordinates.

Former Course Number [CE 3720, CE 4720]

Prerequisite: CE 2070 or LS 2010.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

MGT2030 - Principle-Based Ethics

Credits: 3

Max Credit 3

Studies the cognitive, social, behavioral, and corporate processes affecting individual, group, and organizational behavior in morally questionable situations. Through exploration and analysis of real-world cases, students understand what factors give rise to ethical dilemmas and how ethical principles guide ethical behavior. Student ethical decision-making is developed through this process.

Prerequisite: sophomore class standing.

MGT3410 - Human Resources Management

Credits: 3

A study of the formal systems used to manage people at work. Emphasis is on concepts and procedures of EEO, diversity, job analysis, job evaluation, wage and salary administration, performance evaluation, safety, employee services and fringe benefits.

Prerequisite: MGT 2100 and advanced business standing.

MGT3420 - Organizational Behavior and Leadership

Credits: 3

An interdisciplinary study of individual, group, and organizational processes that affect employee behavior at work. Prepares students for various managerial roles by synthesizing successful leadership practices in both domestic and international settings and by examining critical areas such as individual differences, organizational politics and culture.

Former Course Number [4420]

Prerequisite: MGT 2100, junior class standing and advanced business standing.

MGT4240 - Performance and Compensation

Credits: 3

In Human Resource Management the management of employee performance and compensation are key functions that drive organizational success. This course helps students become familiar with total compensation systems, including intrinsic and extrinsic rewards, base and variable pay, and benefits, and their relationship with employee performance and satisfaction.

Prerequisite: MGT 3410

MGT4260 - Training and Development

Credits: 3

In Human Resource Management training employees in the latest technical and managerial skills and helping them gain developmental experiences helps drive organizational success. Students will learn how to recognize training and developmental needs, how to develop employee training systems, and how to implement these training systems. Additionally, students will learn about career and leader development.

Prerequisite: MGT 3410

MGT4340 - Law for Managers

Credits: 3

Provides an overview of laws and legal issues associated with managing a business, incorporating aspects of sustainable business practices. Topics include agency and employment, business organizations, including securities laws and corporate governance standards, government regulation of businesses, including environmental/sustainability regulations, and an introduction to international law and global economy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4350 - Commercial Law

Credits: 3

A study of the basic principles of commercial law, including property, sales, negotiable instruments, secured transactions, creditors' rights and bankruptcy.

Prerequisite: MGT 2010 or equivalent and junior class standing.

MGT4360 - Business Law for Entrepreneurs

Credits: 3

A survey of the various legal issues confronted by entrepreneurs, particularly related to new ventures.

Prerequisite: MGT 2010 and junior class standing.

MGT4370 - Employment Law

Credits: 3

Provides a comprehensive foundation for understanding the law as it relates to the employer-employee relationship. This course will provide students the legal background necessary to make better decisions both as a worker as well as a manager of other.

Prerequisite: MGT 2010 or equivalent, junior class standing.

MGT4430 - Organization Design and Change

Credits: 3

Examines organizations, what they are, how they operate and are structured and how they can be changed. Focus is on macro managerial issues in the design and change of work organizations.

Prerequisite: MGT 2100, MGT 3410, MGT 3420; advanced business standing, junior class standing.

MGT4470 - Negotiations and Conflict Resolution

Credits: 3

Max Credit 3

Focuses on all aspects of formal managerial negotiation including dealings with suppliers, buyers, unions and etc. Also examined are the theory and practice of interpersonal negotiation. Conflict resolution is approached by identifying types and sources of conflict, organizational parameters of conflict, as well as resolution skills and behavior.

USP 2015 Code U5C3

Prerequisite: MGT 2100, advanced business standing.

MGT4800 - Business Strategy and Policy

Credits: 3

A capstone course designed to integrate prior courses into a general manager's overall organization perspective. Coverage will emphasize strategic management models which provide frameworks that assist in this task and integrate those internal organization factors with the firm's environment.

USP 2015 Code U5C3

Prerequisite: ACCT 2010, ACCT 2020, MGT 2010, DSCI 2100, FIN 2100, MGT 2100, MKT 2100, STAT 2050 or equivalent, advanced business standing, and senior class standing. To be taken graduating semester of senior year.

MGT4900 - Independent Study in Management

Credits: 1-4

Max Credit 6

This course provides students the opportunity to study, on an individual basis, any aspect of Management not included in other structured management courses.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MGT4910 - Topics in Management

Credits: 3

Max Credit 6

This course is an in-depth investigation into a specialty area of the instructor.

Restricted Include: Juniors, Seniors/Exclude: Freshman/Sophomores

Prerequisite: Junior class standing, consent of instructor

MKT2100 - Introduction to Marketing

Credits: 3

An investigation of the marketing discipline with emphasis on vocabulary; principles; functional interrelationships; marketing strategies, practices and problems in national and international environments.

Prerequisite: sophomore class standing and completion of COM1.

PETE4860 - Energy, Environment, and Materials

Credits: 3

Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 5860.

Prerequisite: Junior standing and PETE 2050 or consent of instructor.

PHIL2420 - Critical Thinking

Credits: 3

Shows that argument is a skill of fundamental importance to any field of endeavor. Explains methods used in evaluating an argument. Introduces such topics as: patterns of reasoning, counterexamples, fallacies; inductive and deductive logic.

USP 2003-2014 Code U3CH

Former Course Number [1100]

PLNT1000 - Agroecology

Credits: 4

Introduces ecological interactions that affect food producing (agricultural) systems. Lectures and laboratory exercises study the various biological components and the science of sustainable agricultural production. Features differences between developed and developing countries. Explores crises and challenges facing agriculture and global society.

USP 2003-2014 Code U3G, U3SB

USP 2015 Code U5PN

Former Course Number [CROP/BOT 2000]

PLNT1150 - Pesticide Safety and Application

Credits: 1

Introduces various types and safe methods of pesticides application. Subsequent to completion, students may take the certification test administered by the Wyoming Department of Agriculture.

Cross Listed ENTO 1150.

Former Course Number [CROP 1150]

PLNT3030 - Ecological Web: Ecology of Plant Protection

Credits: 3

Introduces students to concurrent evolution of crop cultivation and organisms, both plant and animal, that attack them. Provides basic skills necessary to understand ecology and management of economic crop pests.

When Offered (Normally offered fall semester)

Former Course Number [2030]

Prerequisite: LIFE 1010 and PLNT 1000

PLNT4070 - Weed Science and Technology

Credits: 4

Management and physiological principles involved in control of economically important farm and range weeds.

Dual Listed PLNT 5070

When Offered (Normally offered fall semester)

Former Course Number [CROP 4070]

Prerequisite: PLNT 1000, LIFE 1010

PLNT4130 - Applied Remote Sensing for Agricultural Management

Credits: 3

Covers remote sensing concepts and applications related to croplands, rangelands, forests, and water. Students learn techniques for monitoring plant growth and vigor, monitoring rangelands, distinguishing invasive species, categorizing forest fires, and mapping water bodies. Students integrate remotely sensed data with other geospatial data.

Cross Listed RNEW 4130/GIST 4130

Prerequisite: Q course and 9 credit hours in student's major field and junior/senior standing

POLS3620 - Environmental Justice

Credits: 3

Examines core philosophical understandings of justice and applies them to the environment through a variety of case studies, analytical essays and monographs.

Cross Listed ENR 3620.

Prerequisite: POLS 1000, POLS 2460, or POLS 3600, or permission of instructor.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

POLS4385 - Environment and Resource Conflict

Credits: 3

Drawing on key theory and contemporary real-world case studies this course explores how environmental change and the competition for scarce resources (such as food, water, oil, gems, and timber) have increasingly been linked to violent interstate and intrastate conflict and how such conflicts might be addressed, managed, or resolved through international and national action.

Cross Listed INST 4385.

Dual Listed POLS 5385.

Prerequisite: 9 hours of POLS or INST, including POLS 2310/INST 2310.

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4555 - Political Ecology

Credits: 3

Political ecology is a multidisciplinary field of study that emphasizes the role of politics, power relations, and inequality in the study of human-environment relations. In this course we will consider how political ecology can help us rethink environmental knowledge and problem solving in a variety of contexts locally and globally.

Cross Listed INST/GEOG 4555 & POLS 5555

Dual Listed INST/GEOG 4555 & POLS 5555

Prerequisite: 9 hours of international studies or social science coursework.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and POLS 4051.

USP 2003-2014 Code U3WC

Prerequisite: POLS 1000.

REWM4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/GEOG 4052/AMST 4052.

Prerequisite: POLS 1000.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4285 - Wildland Hydrology

Credits: 3

Teaches essential and unique characteristics of hydrologic cycle as occurred on range and forest lands, concentrating on quantification of these processes and storages.

Cross Listed ENR 4285.

Dual Listed REWM 5285.

When Offered (Normally offered fall semester)

Prerequisite: QA

REWM4330 - Rangeland Ecosystem Assessment and Monitoring

Credits: 4

Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. REWM students will be given enrollment preference.

When Offered (Normally offered fall semester)

Prerequisite: REWM 2400 and STAT 2050 or STAT 2070. Concurrent enrollment in REWM 2400 and STAT 2050 or STAT 2070 is allowed with permission.

REWM4340 - Reclamation Techniques Field Trip

Credits: 2

Provides increased comprehension of current land reclamation problems and solutions by means of a field trip to sites in region where land reclamation is occurring.

When Offered (Normally offered fall semester)

Prerequisite: REWM 4200.

REWM4440 - Applied Fire Ecology

Credits: 3

Course examines drivers and patterns of wildfire in rangeland and forested ecosystems, fire behavior, fuel characteristics, fire effects, suppression tactics and mitigation strategies, prescribed burning precautions and applications, applications/uses of fire to meet resource objectives, policies and regulations, and modeling software. Required field trips out of class time.

Dual Listed REWM 5440.

Restricted Junior standing or greater class standing required.

Prerequisite: General biology and MATH 1400 or above.

REWM4500 - Rainfall-Runoff Modeling

Credits: 3

Introduction to hydrologic modeling that teaches the foundations of model development, calibration, and interpretation. Examines the different components of the water cycle and how they are being integrated into watershed models. Equips the students with the necessary skills to parameterize hydrologic models, understand the underlying principles, and interpret model outputs.

Dual Listed REWM 5500.

Prerequisite: REWM 4285.

REWM4530 - Seminar

Credits: 1

Max Credit (Max. 2)

Discusses pertinent range management problems.

Prerequisite: REWM 2000 (earn at least a C) or ENR 4000.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

REWM4600 - Drone-Based Remote Sensing

Credits: 3

This class teaches the basics of remote sensing applications in environmental sciences with a focus on unmanned aerial vehicles (UAVs, aka "drones"). Students will receive training in drone operation, data collection and analysis, and will be prepared to take the FAA Remote Pilot Certification.

Prerequisite: MATH 1400 or higher

REWM4700 - Wildland Watershed Management

Credits: 3

Studies hydrological cycle with specific emphasis on the role of vegetation in hydrologic processes such as

interception, surface detention storage, infiltration, percolation, run-off, and water quality. Utilization of watersheds and vegetation manipulation practices to modify these hydrologic processes.

When Offered (Normally offered spring semester)

Prerequisite: LIFE 1101 or LIFE 1010.

REWM4710 - Watershed Water Quality Management

Credits: 3

Studies watershed processes controlling water quality. Examines impacts of land use activities such as agriculture production, livestock grazing, and mineral and natural gas extraction on surface water and ground water quality. Emphasis will be placed on water quality modeling and management.

Dual Listed REWM 5710.

When Offered (Normally offered spring semester)

Former Course Number [4180]

Prerequisite: CHEM 1000.

REWM4750 - Wildlife Habitat Restoration Ecology

Credits: 3

Emphasis on fundamental and applied aspects of restoration ecology for terrestrial wildlife habitats following anthropogenic and natural disturbances. Although the course overviews theoretical concepts applicable to many systems, there is a focus on applications for wildlife habitats in western North America.

Dual Listed REWM 5750.

Prerequisite: Minimum of 6 hours of Biology or Life Sciences courses.

REWM4810 - Experiments in Restoration

Credits: 2

Emphasis on the experimental design using examples from restoration science. Focus on experiments to test concepts in ecosystem science, food webs, population genetics, metapopulation biology, biodiversity and invasion, and climate change. Address topics in experimental, ecological restoration.

Dual Listed REWM 5810.

Prerequisite: STAT 2050 or equivalent.

REWM4830 - Ecological Applications for Wildland Management

Credits: 3

Emphasis on applying understanding of interactions among components of rangelands to facilitate sustainable provision of ecosystem services. The influences of stochasticity and disturbances on ecosystem structure and function will be the focus of discussion and technical writing exercises.

When Offered (Normally offered fall semester)

USP 2003-2014 Code U3WB

Prerequisite: WA, REWM 2000 (earn at least a C), LIFE 3400 (latter may be concurrent).

REWM4850 - Rangeland Vegetation Management Techniques

Credits: 3

Uses applied ecological principles in restoration of degraded rangeland ecosystems to introduce methods for manipulating rangeland vegetation that satisfy land management objectives. Provides ecologically-sound practices to maintain optimal and sustained yield of rangeland products.

When Offered (Normally offered spring semester)

Prerequisite: C or better in REWM 2000 and SB.

REWM4900 - Rangeland Management Planning

Credits: 3

Applies planning processes that integrate soil, vegetation, water, livestock, wildlife, and environmental regulatory considerations within the context of satisfying ecologically sustainable rangeland management objectives.

When Offered (Normally offered spring semester)

USP 2003-2014 Code U3WC

USP 2015 Code U5C3

Prerequisite: REWM 4830, ECON 1010 or AGECE 1010 or AGECE 1020, SOIL 4120 or SOIL 4150 (may be concurrent), REWM 3020 (may be concurrent), REWM 4330 (may be concurrent).

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

SOIL3130 - Environmental Quality

Credits: 3

Introduction to environmental quality issues and events. Course emphasizes impacts to soil, water, atmospheric, and vegetative ecosystems due to different nutrients and contaminants, including nitrogen, phosphorus, sulfur, trace elements, and organic chemicals. Current information pertaining to environmental quality is discussed and a field trip to the Union Pacific Tie Plant.

Cross Listed ENR 3130.

When Offered (Offered fall semester)

Prerequisite: complete at least 1 University Studies Science course SB, SP or SE.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

SOIL4105 - Soil Physics Laboratory

Credits: 2

Teaches students the methodology and use of equipment to measure soil physical properties in the laboratory and field. Experiments include particle size analysis, soil surface area, soil-water measurement with neutron probe and TDR, field infiltration rate, soil-water retention curve, soil pore size distribution saturated and unsaturated conductivities, soil water potential and solute breakthrough curve.

Dual Listed SOIL 5105.

Prerequisite: SOIL 2010.

SOIL4120 - Genesis, Morphology and Classification of Soils

Credits: 4

Processes of soil development and methods of description, survey and classification. Includes field trips which examine soils in the Laramie Basin and surrounding mountains.

Dual Listed SOIL 5120.

When Offered (Offered fall semester)

Prerequisite: SOIL 2010.

SOIL4130 - Chemistry of the Soil Environment

Credits: 3

Introduction to the chemical properties and reactions that occur in the soil environment. Fundamental principles of soil mineralogy, organic matter and equilibrium chemistry as they relate to soil chemical reactions, plant nutrient availability and pedogenetic processes will be emphasized.

Dual Listed SOIL 5130.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010, CHEM 1030 or CHEM 1060.

SOIL4140 - Soil Microbiology

Credits: 4

Fundamental principles of soil microbiology and how they relate to microbial ecology, environmental contamination, agriculture and forestry.

Cross Listed MICR 4140.

Dual Listed SOIL 5140.

Prerequisite: SOIL 2010.

SOIL4150 - Forest and Range Soils

Credits: 3

Characteristics and management of forest and range soils primarily in arid environments. Examines pedagogical units representative of forests and ranges and soil properties, such as nutrient availability and water relations that influence plant growth.

Dual Listed SOIL 5150.

When Offered (Normally offered fall semester)

Prerequisite: SOIL 2010.

SOIL4160 - Soil Health and Nutrient Cycling

Credits: 3

Physical, chemical, and biological aspects of soils that impact fertilizer fate, uptake, and plant growth.

Dual Listed SOIL 5160.

When Offered (Normally offered fall semester of odd-numbered years)

Prerequisite: SOIL 2010.

SOIL4540 - Microbial Diversity and Ecology

Credits: 4

Introduces the diversity and ecology of soil microbes through an integrated lecture and laboratory course. Emphasis on molecular approaches to analyzing microbial diversity and evolution, and student-directed experimental design. Provides a continuum of realistic research experiences in molecular microbial ecology, from field work to evolutionary analysis of DNA sequence data.

Cross Listed MOLB 4540/MICR 4540.

Dual Listed MOLB 5540/SOIL 5540/ECOL 5540.

Prerequisite: MOLB 2210.

SOIL4565 - Research: Soil Science

Credits: 1-4

Max Credit (Max. 6)

Library, laboratory, and/or green-house investigations on select research topics. Graduate students will be required to give a presentation to the soil science group on their final product/ report.

Dual Listed SOIL 5565.

Prerequisite: basic training in soil science research.

SOIL4780 - Seminar:

Credits: 1-9

Consideration of special topics of current interest in social work. May be repeated for a maximum of 15 hours credit when the seminar topic is different.

Prerequisite: advanced major status; or consent of instructor and junior standing for non-social work majors.

Minor

Energy Resource Management Minor

ERM Minor

The purpose of the ERM minor is to provide students at UW the opportunity to learn about energy and expand their career opportunities with this credential.

Core Courses- 6 credit hours needed

ERS1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ENR 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

OR

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ERS3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ECON 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300.

OR

ECON3400 - Energy Markets & Policy

Credits: 3

This course provides an economic analysis of recent developments in energy markets and policies.

Cross Listed ERS 3400.

Prerequisite: ECON 1000, ECON 1010, ECON 1020, ECON 1200, ECON 1300, ECON 1400, or ERS 1300, and sophomore class standing.

Elective Courses- 6 credit hours needed

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

OR

ERS1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ECON 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

AGEC3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning

and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed ENR 3750.

Former Course Number [4750]

Prerequisite: QA/Q, WA/COM1 and junior standing.

OR

ENR3750 - Natural Resource Planning and Economics

Credits: 3

Economic concepts and rudimentary analytical tools are applied to federal, state and local natural resource planning and management programs. The value of economic input into natural resource policy is examined. Evaluating tradeoffs and resolving conflicts play a particularly important role in the course content.

Cross Listed AGECE 3750.

When Offered (Offered spring semester of odd-numbered years)

Former Course Number [4750]

Prerequisite: QA, WA and junior standing.

INST4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed POLS 4455.

Dual Listed INST 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

OR

POLS4455 - Energy Security

Credits: 3

Evaluates the geopolitical and socioeconomic issues surrounding the roots of energy insecurity and the global challenge to provide adequate, affordable, and accessible energy. Topics of study include the questions of energy nationalism, climate security, import dependence and transportation insecurities, the future of fossil fuels and alternative energies.

Cross Listed INST 4455.

Dual Listed POLS 5455.

Prerequisite: 9 hours of INST or POLS, including INST 2310/POLS 2310.

POLS4350 - Sustainable Development and Global Policy

Credits: 3

Considers in-depth meaning of "sustainable development" and trade-offs necessary to achieve it. Considers this issue from global perspective through application of theories in economics, political science, international relations, technology studies and ethics.

Dual Listed POLS 5350.

Prerequisite: Consent of instructor. POLS 2310 strongly recommended.

POLS4051 - Environmental Politics

Credits: 3

Analyzes environmentalism as a political phenomenon. Provides students with a basic understanding of how to analyze political issues by: (1) examining the historical and contemporary issues that produce controversy over environmental matters; and (2) surveying the impacts of these issues on the formulation and implementation of laws, policies, and regulations.

Cross Listed AMST 4051, ENR 4051, GEOG 4051 and REWM 4051.

Dual Listed POLS 5051.

USP 2003-2014 Code U3WC

Former Course Number [4050]

Prerequisite: POLS 1000.

SOC3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed ENR 3950.

Prerequisite: SOC 1000.

OR

ENR3950 - Environmental Sociology

Credits: 3

Explores how ecology, technology, politics, economics, and culture intersect. By analyzing key contemporary environmental debates, students will develop an understanding of sociological analyses, and the impact of social life on our environment, as well as the effect of the environment on social life. Topics covered include: the environmental movement; sustainable development; developing nations and their environment; capitalism and technology; and environmental justice.

Cross Listed SOC 3950.

Prerequisite: SOC 1000.

ERS2010 - Introduction to Land Management

Credits: 3
Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

ERS4100 - Property I

Credits: 3
Property I addresses the nature of property ownership and the rights associated with property as well as the acquisition and transfer of ownership rights in property and the sharing of ownership rights over time, including estates, future interest, and concurrent estates.

ERS4110 - Law of Contracts

Credits: 3
The Law of Contracts addresses the formation of a contract and the meaning of agreements and the justification of non-performance and breach.

Prerequisite: MGT 1040 and WB/C

ERS4120 - Federal Public Land Law

Credits: 3
Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4130 - Oil and Gas Law

Credits: 3
Focuses on the basic legal rules and principles governing the ownership and development of oil and gas, derived from a combination of property, contract, administrative, tort, and constitutional law.

ERS3010 - Air Quality Management

Credits: 3
Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed CHEM 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

OR

CHEM4050 - Solar Energy Conversion

Credits: 3

Provides an overview of the science behind current and future solar thermal and photovoltaic technologies. Environmental aspects, legal issues and cost associated with solar energy will also be included.

Cross Listed ERS 4050.

When Offered (Offered spring semester)

Prerequisite: CHEM 1030 or CHEM 1060 and PHYS 1210 or PHYS 1310 and MATH 2200.

ATSC2100 - Global Warming: The Science of Humankind's Energy Consumption Impacting Climate

Credits: 3

Introduces non-specialists to the fundamental scientific principles governing climate change. The underlying physics of both human and natural contributions to global warming is presented along with uncertainties in predicting climate. Potential strategies to mitigate global warming (alternative energy, carbon capture, and geoengineering) are also discussed.

USP 2003-2014 Code U5PN

GEOL4010 - Exploration Geoscience

Credits: 3

Provides students with information and skills necessary to understand the energy exploration modeling process. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, and reservoir characterization.

Cross Listed ERS 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

OR

ERS4010 - Exploration Geoscience

Credits: 3

The purpose of this course is to provide students with information and skills necessary to understand the oil and gas modeling process from exploration to production. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, reservoir characterization, reservoir production, well planning and decision making.

Cross Listed GEOL 4010.

Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

GEOG3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed ESS 3480

USP 2003-2014 Code U3G, U3WB

A&S College Core 2015 ASG

Former Course Number [G&R 3480]

Prerequisite: GEOG 1010 or any USP PN course; and USP COM1.

OR

ESS3480 - Environmental Change

Credits: 3

Examines changes in the bio-physical environments and landscapes of Earth during its habitation by humans. Emphasizes integrated approaches to understanding environmental changes based on climatological, ecological, geological, archeological, and historical evidence. Explores how humans have modified Earth's environments and how societies have responded to natural and anthropogenic environmental change.

Cross Listed GEOG 3480.

USP 2003-2014 Code U3G, U3WB

Prerequisite: GEOG 1010 or any USP PN course and USP COM1.

GEOL1600 - Global Sustainability: Managing Earth's Resources

Credits: 4

Uses biology, chemistry, physics and Earth science to examine Global Sustainability and how this worldview might guide our future management of Earth resources. Case studies in different international settings place questions of resource exploitation (discovery, extraction, processing, use and disposal) and sustainability in a larger global context.

USP 2003-2014 Code U3G, U3S

GEOL1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed ERS 1650.

USP 2015 Code U5PN

OR

ERS1650 - The Water-Energy-Climate Nexus

Credits: 3

Among the grand challenges facing humanity, arguably the most significant are water, energy, and climate. These issues are, however not isolated but intimately connected, i. e. water-energy-climate (WEC) nexus. Using critical thinking and problem-solving skills, the significance of the WEC nexus to humanity will be explored from STEM and non-STEM perspectives.

Cross Listed GEOL 1650.

USP 2015 Code U5PN

GEOL3650 - Energy for Society: Addressing the Energy Grand Challenge

Credits: 4

Examines the energy needs of a modern industrialized society. Looks at the types of energy, the natural laws that govern its use, transformation, and conservation. The different sources of energy available to modern societies are examined. Examination includes fossil fuels, nuclear power as well as alternative energy sources. The formation of the resource is discussed, how it is extracted, and any environmental consequences associated with its extraction and use.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL3600 - Earth and Mineral Resources

Credits: 4

Explores the geologic formation, production, and use of Earth and mineral resources, including building materials, chemical minerals, industrial minerals and metals. For each resource, the geologic environment and processes of formation are discussed. Exploration and mining techniques for each resources are also reviewed and associated environmental problems and regulations examined. Beneficial and detrimental aspects of the use of each resource are also discussed.

USP 2003-2014 Code U3G, U3SE

USP 2015 Code U5PN

Prerequisite: completion of USP QA and L.

GEOL4190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 5190.

Prerequisite: GEOL 2005 or PETE 2050.

OR

GEOL5190 - Petroleum Geology

Credits: 3

Principles governing the exploration for hydrocarbons; characteristics of reservoirs and traps; origin, migration and accumulation of hydrocarbons; subsurface evaluation techniques.

Dual Listed GEOL 4190.

Prerequisite: GEOL 2100, GEOL 4610.

GEOL4720 - Ore Deposits

Credits: 4

Teaches principles of economic geology of ore minerals. Lectures cover geochemistry of ore minerals and environments in which various ore minerals are found. Labs include identification of ore minerals in hand sample and under microscope and methodology of economic geology.

Dual Listed GEOL 5720

When Offered (Normally offered fall semester)

Former Course Number [GEOL 4700]

Prerequisite: a grade of C or better in GEOL 2020.

OR

GEOL5720 - Ore Deposits

Credits: 4

Teaches principles of economic geology of ore minerals. Lectures cover geochemistry of ore minerals and environments in which various ore minerals are found. Labs include identification of ore minerals in hand sample and under microscope and methodology of economic geology.

Dual Listed GEOL 4720.

Prerequisite: GEOL 2010.

ME4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solarpowered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ESE 4460

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

OR

ESE4460 - Solar and Geothermal Engineering

Credits: 3

An introduction to the engineering of solar-powered energy systems, including evaluation of the energy resource, passive design considerations, economics of active solar systems, design of flat plate collectors and water heating systems, and design of concentrating collectors for larger building or electrical generation applications. Design considerations for geothermal energy systems for both small-scale and commercial-scale applications.

Cross Listed ME 4460.

Prerequisite: Completion of the ME Success Curriculum, ESE 3360 or ME 3360 or ARE 3360.

ME4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented..

Cross Listed ESE 4470

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

OR

ESE4470 - Wind and Ocean Energy Engineering

Credits: 3

Introduction to the harvesting of wind and ocean energy, including discussions of the wind resource, wind turbine aerodynamics, blade materials, turbine dynamics, electrical systems, control systems, and energy storage. An overview of ocean energy capture systems is also presented.

Cross Listed ME 4470.

Prerequisite: Completion of the ME Success Curriculum, ES 2210, ES 2310, ES 2330, and ES 2410.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6

Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

NAIS4340 - Natural Resource Management on Western Reservations

Credits: 3

Examines natural resource management techniques on western reservations. Focus is on the management and planning of water, grazing, extractive industries, and forestry. Fieldwork on the Wind River Indian Reservation is included.

Cross Listed GEOG 4340.

Prerequisite: 6 hours of 2000-level NAIS courses.

ENR4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/AMST 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

OR

GEOG4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052/ENR 4052/AMST 4052/REWM 4052.

Former Course Number [G&R 4052]

Prerequisite: POLS 1000.

OR

AMST4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed POLS 4052 / ENR 4052 / GEOG 4052 / REWM 4052.

Prerequisite: POLS 1000.

OR

POLS4052 - Federal Land Politics

Credits: 3

Examines the political forces that have shaped and continue to shape federal land policy and management. Explores the interactions between democratic decision making and science in the management of federal lands. Surveys the sources of controversy over federal land management and methods for harmonizing public demands with technical expertise.

Cross Listed AMST 4052/ ENR 4052/GEOG 4052/REWM 4052.

Prerequisite: POLS 1000.

GEOL4210 - Topics in Geophysics

Credits: 1-3

Max Credit (Max. 9)

Studies particular geophysics topics in-depth at undergraduate level.

Former Course Number [GEOL 4020]

Prerequisite: senior standing and 20 hours in geology.

RNEW4775 - Forest Ecology

Credits: 4

Integrative study of the structure, function, and ecological diversity of forested ecosystems, and the physical factors that influence this diversity, including emergent properties of energy flow and nutrient cycling. Special emphasis is given to understanding forest disturbances and succession, and implications for impacts of management and sustainability are discussed throughout.

Cross Listed BOT 4775.

Prerequisite: LIFE 3400.

SOIL4100 - Soil Physics

Credits: 3

Examines forms and interrelations of matter and energy in the soil environment. Primarily addresses fluxes and transformations of soil water and solutes, as well as physical properties that influence soil productivity.

Dual Listed SOIL 5100.

When Offered (Offered spring semester)

Prerequisite: SOIL 2010 or equivalent introductory soils course.

PETE4860 - Energy, Environment, and Materials

Credits: 3

Understanding the connection between materials, energy and environment, including the history of climate and different types of energy in use for a greener planet. Provides broad knowledge in the areas of energy, material science, chemical, petroleum, and environmental engineering.

Dual Listed PETE 5860.

Prerequisite: Junior standing and PETE 2050 or consent of instructor.

PHYS2250 - Thermodynamic Systems in Energy Science

Credits: 4

Introduces the principles of thermodynamics and their application to energy science. Intended for students majoring in Energy Resource Science.

USP 2003-2014 Code U3SP

Prerequisite: PHYS 1210, grade of C or higher in MATH 2205.

ESE4474 - Topics in Energy Systems Engineering

Credits: 1-3

Max Credit (Max. 4)

Directed research in mechanical engineering.

Prerequisite: Completion of the ME Success Curriculum, ME 3005/ESE 3005.

GEOL4001 - Modeling the Earth System

Credits: 4

Takes a modeling approach to demonstrate how the Earth is integrated into an interconnected system through exchanges of energy and matter, and how Earth system functioning is susceptible to human alteration. Unifying concepts focus on quantitative interactions between the Earth and the Sun, and between the Earth's lithosphere, hydrosphere, biosphere and atmosphere.

Cross Listed BOT 4001/ATSC/ESS 4001.

Prerequisite: MATH 2205 or equivalent and ESS 2000 or GEOL 2000.

GEOL4020 - Global Biogeochemistry

Credits: 3

Biogeochemistry is the exploration of the physical, chemical, and biological processes that govern the exchange of energy and elements between the biosphere and the geosphere. This course will examine pri

Prerequisite: GEOL/ESS 2000

HIST4535 - History of Oil

Credits: 3

Intensive study of the history of oil development throughout the world. Emphasizes comparative studies of the industry as it developed in various parts of the world and during various time periods, from pre-historic times to the present. The Wyoming oil/energy mineral history is an important component.

Dual Listed HIST 5535.

Prerequisite: 9 hours in history.

ESE4060 - Energy Systems Design I

Credits: 3

First of a two-course design sequence constituting a capstone design experience on an energy-related project. Multidisciplinary teams prepare a project proposal or Statement of Qualifications, generate a morphological study of their project, develop mathematical models of their design, and prepare project plans and specifications. Project management and methods are also presented.

USP 2015 Code U5C3

Prerequisite: Completion of the ME Success Curriculum, ESE 3040 and ESE 3360.

ERS4960 - Energy Field Studies

Credits: 1-3

Various facets of energy resource management and development are covered by visits to oil and gas wells, coal mines, power plants, wind farms, and other energy production and research sites. A trip is normally planned for 5 to 6 days.

Prerequisite: WB; ERS 1000/ENR 1000 or ECON 1300/ERS 1300. Undergraduate Research.

EDSE3040 - Energy and Power Technology

Credits: 3

A conceptual analysis and synthesis of energy requirements and sources, with emphasis on alternate energy systems. Analysis of energy conversion and the application of mechanical, fluid, thermal and electrical power systems.

When Offered (Offered through UW/CC)

Former Course Number [EDIE 3040]

Prerequisite: PHYS 1050 or PHYS 1110.

ENR4750 - ENR Law and Policy

Credits: 3

Explores the policy underpinnings of environmental and natural resource issues and the legal responses to these problems. Students will gain a basic understanding of: (1) the causes of environmental problems, including energy, water, wildlife, and other western land use issues; (2) the range of policy and instrument choices; and (3) the approaches actually taken in current laws. Students also will apply the law in an interdisciplinary, problem-based learning context.

Dual Listed ENR 5750.

Prerequisite: ENR 2000 and upper division standing or permission of instructor.

BKCH3021 - Fundamentals of Blockchain

Credits: 3

The purpose of this course is to provide a fundamental understanding of blockchain technologies and their implications. Topics will focus on understanding how blockchain may change the way we think about money, disrupt traditional financial institutions and eliminate costly intermediaries.

Prerequisite: Requires Junior Class Standing.

GEOL4525 - Environmental Data Analysis

Credits: 4

Explores fundamentals of environmental data analysis including the display and description of data, uncertainty propagation, statistical significance and power, t-tests, ANOVA, time series, serial correlation, multiple regression, and sample collection strategies. Students must enroll in a computer-based lab session and complete a term project involving real world problems in data analysis.

Cross Listed ENR 4525/ENR 5525.

Dual Listed GEOL 5525.

Prerequisite: A grade of C or better in STAT 2050 or STAT 2070 or MATH 2200, junior standing or higher, and completion of at least one upper-division course in the natural sciences or a related field.

EE4510 - Power Systems

Credits: 3

Electric power distribution and transmission. Distribution systems, transmission line calculations, installation and protection; substations, corona, protective relaying and carrier current communication and telemetering. Introduction to system stability studies.

Prerequisite: ES 2210 and EE 3510.

ENR4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed AGECE 4450.

Dual Listed ENR 5450.

Prerequisite: completion of USP O requirement; junior standing.

EE2220 - Circuits and Signals

Credits: 4

Review of sinusoidal steady state analysis and ac power. Mutual inductance and linear transformers. Laplace transform. Laplace transform in circuit analysis. Frequency dependent circuits, including RLC circuit resonance. Magnitude and phase response, complex poles and zeros. Bode plots. Filter circuit fundamentals. Fourier series. Laboratory.

When Offered (Offered spring semester only)

Former Course Number [3320]

Prerequisite: ES 2210, or ES 2215 and ES 2216.

EE3510 - Electric Machines and Power Systems

Credits: 4

Polyphase AC circuits; single phase and polyphase transformers; AC synchronous and induction machines; introduction to power systems and per unit system; transmission line parameters; steady-state operations of transmission lines; power flows; transient stability; synchrophasor system and its applications.

Prerequisite: ES 2210, or ES 2215 and ES 2216.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

PETE2050 - Fundamentals of Petroleum Engineering

Credits: 3

General introduction to petroleum engineering, including petroleum geology, exploration, reservoir rocks, and fluid flow through porous media, drilling fundamentals, completion technology, well logging and testing, methods of production, stimulation methods, enhanced oil recovery, reserves and economics.

Prerequisite: grade of C or better in both MATH 2205 and PETE 1060.

CE3400 - Introduction to Environmental Engineering

Credits: 3

An introduction to the major topics in environmental engineering. Focus areas include water supply, wastewater treatment, air pollution control and solid and hazardous waste management. Quantitative aspects and engineering solutions to problems are emphasized.

Prerequisite: MATH 2205 and CHEM 1020 or equivalent.

CE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CHE 4430 /ENR 4430.

Former Course Number [3420, 2420]

Prerequisite: CHEM 1020.

CHE4430 - Green Chemistry and Global Environmental Problems

Credits: 3

Focus includes study of the chemistry of air, water, and soil as well as the effects of anthropogenic activities on natural processes. Emphasis is also placed on sustainability and green chemistry practices and technologies.

Cross Listed CE 4430 /ENR 4430.

Prerequisite: CHEM 1020.

ME3400 - Heating, Ventilating and Air Conditioning of Buildings

Credits: 3

Qualitative and quantitative study in concepts of basic air-conditioning with focus on buildings including building envelope, moist air thermodynamics, human comfort, thermal load calculations, thermal behavior of buildings, HVAC systems/ equipment, and design of space air-conditioning and its relationship to architectural design.

Cross Listed ARE 3400

Prerequisite: ES 2310, ARE 2410 or ME 3360, ES 2330 or concurrent enrollment.

ME3450 - Properties of Materials

Credits: 3

Mechanical, electrical, thermal and chemical properties of materials. Theoretical treatment of structure of solids and design for specified properties.

When Offered (Normally offered spring semester)

Former Course Number [ES 3450]

Prerequisite: Completion of the ME Success Curriculum, CHEM 1020 and ES 2310.

ME3975 - Internship

Credits: 3

Students may apply for credit for extended work experience (>10 weeks; full-time) engaging in mechanical engineering work and supervised by an engineer in mechanical engineering (or closely related field). Students should apply through their adviser prior to the work experience.

Restricted Enrollment is by departmental approval only.

Prerequisite: consent of the department head.

ME4340 - Gas Turbine Engines

Credits: 3

Thermodynamic analysis and design of ground-based and aero-propulsion gas turbine engines.

Prerequisite: Completion of the ME Success Curriculum, ES 2310 and ES 2330.

ESE4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems. Cross-listed with ME 4455 and dual-listed with ME 5455.

Prerequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

ME4430 - HVAC Systems Analysis and Design

Credits: 3

Engineering design and performance analysis procedures for commercial building mechanical systems including energy conservation techniques. Relationship to aesthetic, architectural and structural elements are considered.

Cross Listed ARE 4430

Prerequisite: ARE 3400/ME 3400 and ARE 3360/ME 3360 or concurrent.

ME4455 - Combustion Engineering

Credits: 3

The basic physics and chemistry of combustion engineering and its applications are covered, including thermodynamics, chemical kinetics, multicomponent conservation equations, laminar premixed and nonpremixed flames, detonations, droplet combustion, modern engines and energy systems.

Dual Listed ESE 4455

Prerequisite/Corequisite: Completion of the ME Success Curriculum, ME 3040/ESE 3040 and ME 3360/ARE 3360/ESE 3360.

QuickStart Program

Quickstart 3+3, School of Energy Resources + College of Law

UW offers qualified undergraduate students a fast-track to a Juris Doctorate. The 3+3 Program at UW is an opportunity for qualified undergraduate students to earn their **bachelor's degree and law degree in six years** instead of seven years.

University Studies Program Requirements (Required for both EES and PLM)

The University Studies Program 2015

The University Studies Program 2015 develops a student's foundational knowledge to prepare them for the Bachelor of Science degree program. Some of the categories of USP will be completed by completing the degree requirements as outlined below. Students should review their degree audits carefully to ensure that USP requirements are completed. Students transferring with a qualifying associate degree will have most of the lower division portion of the USP requirement waived. For more information about qualifying earned associate degree, see the "Articulation: Earned Associate Degrees" information in this catalog.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

COM1 - Communication 1

Credits: 3

College Composition and Rhetoric must be completed with a C or better.

COM2 - Communication 2

Credits: 3

Max Credit 3

Successful completion of C1 is required prior to enrolling in a C2 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

COM3 - Communication 3

Credits: 3

Max Credit 3

Successful completion of C2 is required prior to enrolling in a C3 course. This category can be fulfilled by courses taken from the student's major department. Must be completed with a C or better.

Q- - Quantitative Reasoning

Credits: 3

Max Credit 3

All students must fulfill the Q requirement, either by placing out of the course or through successfully completing the Q course.

PN- - Physical and Natural World (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

PN- - Physical and Natural World (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

H- - Human Culture (1)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken within the student's major department.

H- - Human Culture (2)

Credits: 3
Max Credit 3

Approved coursework does not include courses taken from the students' major department.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Energy and Environmental Systems (Years 1-3)

Students accepted by UW College of Law (COL) into the 3+3 program begin taking classes at COL in what would otherwise be their senior year. Year one of law school (31 credits) counts toward both the BS and the JD degrees. Students must select one path for Years 1-3, either Energy and Environmental Systems or Professional Land Management.

EES majors can become environmental scientists who collect samples of air, soil, & water to identify environmental impacts, resolve environmental threats, & provide guidance on quality regulation and manage natural resources.

Students will complete a minimum of 85-95 credits in their baccalaureate (undergraduate) program by the end of their junior year (including required general education and major courses). Students will complete 90 credits with the College of Law. Students will be granted a BS upon completion of the 120 credit hours required for the undergraduate degree in BS-ERMD (using year one of College of Law coursework), with a cumulative minimum UW GPA of 2.0 or higher. Students must complete 42 hours of upper-division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. During the Energy Resource Management and Development program (years 1-3),

students will be advised by the School of Energy Resources advisor. During the College of Law program (years 4-6), students will receive advising from the College of Law.

EES Core Required Curriculum

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H
A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA
USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.
USP 2003-2014 Code U3O
USP 2015 Code U5PN

ERS3010 - Air Quality Management

Credits: 3

Provides an overview of air quality management approaches. In this course an interdisciplinary approach is adopted that includes diverse information from physical, natural and socioeconomic systems. With consideration of global and local issues this class focuses upon the energy sector.

Prerequisite: CHEM 1000 or CHEM 1020 and WA or COM1.

ERS4120 - Federal Public Land Law

Credits: 3

Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

LIFE1010 - General Biology

Credits: 4

Fundamental concepts of biology, including basic chemistry of living systems, cell structures and functions, energy relations, genetics, molecular biology, ecology, population dynamics and evolutionary theory. Living invertebrate and vertebrate organisms studied during some lab meetings. Laboratory is required. If you take LIFE 1010, you cannot get duplicate credit for LIFE 1000, LIFE 1003, or LIFE 1020.

USP 2003-2014 Code U3SB

USP 2015 Code U5PN

Former Course Number [BIOL 1010]

Prerequisite: Math ACT score of 23 or above, or concurrent enrollment or eligibility for concurrent enrollment in MATH 1400 or higher.

LIFE2023 - Biology of Plants and Fungi

Credits: 4

An integrated course dealing with the central themes of biology including cell and molecular biology, genetics, evolution and ecology of plants and fungi. Intended for students majoring in the life sciences. Laboratory is required.

When Offered (Normally offered fall semester).

Former Course Number [BIOL 2023]

Prerequisite: LIFE 1010 with a grade of C or better.

LIFE3400 - General Ecology

Credits: 3

Presents fundamental concepts in population and ecosystem ecology. Emphasizes basic principles and their use in manipulated ecosystems.

Former Course Number [BIOL 3400/ BIOL 2400]

Prerequisite: completion of LIFE 1010 and one of LIFE 2022, LIFE 2023, MICR 2021/MOLB 2021, or MICR 2240/MOLB 2240 with a grade of C or higher in each.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

REWM2000 - Principles of Rangeland Management

Credits: 3

Basic principles of range management as they apply to various regions and vegetative types. Relationship of range management practices to livestock production, wildlife management, forestry, hydrology and other land uses. Introductory course for majors and non-majors.

Prerequisite: LIFE 1101 or LIFE 1010.

REWM2400 - Range Ecosystems and Plants

Credits: 4

Ecology of range ecosystems of western North America and identification of 200 most common plants species, including taxonomic keying.

Former Course Number [2500]

Prerequisite: REWM 2000 with a grade of C or better.

REWM3100 - Principles of Wildland Water Quality

Credits: 3

Basic principles of aquatic chemistry and water quality as they relate to watershed management practices including livestock production, agronomic production, mineral and natural gas extraction and other land uses.

Cross Listed ENR 3100.

When Offered (Normally offered fall semester)

Prerequisite: CHEM 1000.

REWM4200 - Reclamation of Drastically Disturbed Lands

Credits: 3

Overviews reclamation of drastically disturbed lands in the west, emphasizing surface mined lands. Includes principles of ecology, agronomy, soils and other relevant disciplines as applied to mitigate adverse environmental impacts of land disturbance.

When Offered (Normally offered fall semester)

Prerequisite: LIFE 3400, AECL 2100.

REWM4580 - Rangeland Restoration Ecology

Credits: 3

Detailed analysis of various disturbed ecosystems unique to western rangelands. Primary emphasis on plant community restoration following degradation from edaphic, biotic, hydrologic, and topographic influences on degradation and strategies for vegetative rehabilitation. Strong focus on current research to formulate restoration strategies.

Dual Listed REWM 5580.

Prerequisite: REWM 4200 or LIFE 3400.

SOIL2010 - Introduction to Soil Science

Credits: 4

Introduces soil ecological processes and management in terrestrial environments. Discusses interaction of soil, biological, chemical, morphological, and physical properties with land management in wild land and agricultural ecosystems. Emphasis is on plant response to soil conditions.

USP 2003-2014 Code U3SE

Prerequisite: CHEM 1000 or CHEM 1020.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3
Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Technical Elective, EES, Pick ONE

Please see this list for your elective choices.

Chemistry Elective, EES, Pick ONE

Please see this list to choose your elective.

COM 2, EES Elective, Pick ONE

Please see this list to choose your elective.

COM 3, EES, Pick ONE

Please see this list to choose your elective.

Professional Land Management (Years 1-3)

Students accepted by UW College of Law (COL) into the 3+3 program begin taking classes at COL in what would otherwise be their senior year. Year one of law school (31 credits) counts toward both the BS and the JD degrees. Students must select one path for Years 1-3, either Energy and Environmental Systems or Professional Land Management.

Professional Land Management majors determine ownership and title of surface and subsurface rights to negotiate leases with land/mineral owners, coordinate field exploration, and ensure compliance with governmental regulations.

Students will complete a minimum of 85-95 credits in their baccalaureate (undergraduate) program by the end of their junior year (including required general education and major courses). Students will complete 90 credits with the College of Law. Students will be granted a BS upon completion of the 120 credit hours required for the undergraduate degree in BS-ERMD (using year one of College of Law coursework), with a cumulative minimum UW GPA of 2.0 or higher. Students must complete 42 hours of upper-division (3000-level or above) coursework, 30 of which must be from the University of Wyoming. During the Energy Resource Management and Development program (years 1-3), students will be advised by the School of Energy Resources advisor. During the College of Law program (years 4-6), students will receive advising from the College of Law.

PLM Core Required Curriculum

ACCT2010 - Principles of Accounting I

Credits: 3

Provides a basic understanding of the financial accounting information role in business and society. Focuses on the recording and reporting of business operating, financing, and investing events. Provides insights on business and enables students to become familiar with shareholder/external party reporting conventions.

Former Course Number [1010]

Prerequisite: Sophomore class standing and MATH 1400

ACCT2020 - Principles of Accounting II

Credits: 3

Provides a basic understanding of the managerial accounting information role in business decision-making. Provides insights on how businesses operate and enables students to become familiar with the conventions used by business to make decisions and how accounting information is reported to managers.

Former Course Number [1020]

Prerequisite: ACCT 2010, Sophomore class standing.

AGEC4450 - Negotiation

Credits: 3

Examines how to use negotiation to resolve conflict and get agreement. Describes conflict; outlines ways to address conflict; examines different negotiation strategies and the impact of cognitive bias, power, ethics, and individual and cultural differences; and explores mediation practices. Students complete negotiations, role-plays, and questionnaires.

Cross Listed ENR 4450.

Dual Listed AGECEC 5450.

Prerequisite: completion of USP O/COM2 requirement; junior standing.

OR

AGEC4550 - Negotiation Analysis

Credits: 3

Focuses on using an analytical perspective for maximizing joint gains between negotiators. Students learn analytical techniques to prepare for negotiation, evaluate options and proposals during a negotiation, and evaluate negotiated outcomes with respect to maximization of joint gains and fairness criteria.

Cross Listed ENR 4550.

Dual Listed AGECEC 5550.

Prerequisite: QA/Q.

DSCI4260 - Project Management

Credits: 3

Examines the coordination project management activities. This includes the initiation, planning, implementation, control and evaluation of projects.

Prerequisite: ACCT 2010, MATH 2350 and STAT 2050 or equivalents in each, grade of C or better in each, junior class standing (EN majors: MATH 2200, ES 1060 or equivalent, junior class standing).

ECON1020 - Principles of Microeconomics

Credits: 3

You make tradeoffs - your time and money are limited. Microeconomics evaluates how people think about tradeoffs and how we create value through markets, institutions, and policy. Economic incentives influence choices to consume and produce goods and services. Market failure creates a role for government to protect health, culture, and nature.

Cross Listed AGEC 1020.

USP 2003-2014 Code U3CS

USP 2015 Code U5H

ECON1300 - Oil: Business, Culture, and Power

Credits: 3

A multi-disciplinary approach to understanding how oil affects the international relations and commerce. The relationships between oil technology, social and political institutions, the unique cultures in oil-producing regions will be investigated in case studies.

Cross Listed ERS 1300.

USP 2003-2014 Code U3CS, U3G

USP 2015 Code U5H

A&S College Core 2015 ASG

ENGL1010 - College Composition and Rhetoric

Credits: 3

A composition course emphasizing expository writing, analytical reading, and academic and civic argumentation in a range of print, oral, and digital genres. A grade of C or better is required to meet the COM1 requirement. Students may not have credit in both ENGL 1010 and UWYO 1000, 1110 or 1210.

USP 2003-2014 Code U3WA

USP 2015 Code U5C1

ENR1000 - Energy and Society

Credits: 3

Introduces humans' past, present, and future sources of energy and their advantages and limitations. Discusses society's current, non-sustainable pattern of energy use from a supply and environmental perspective. Investigates the technical, environmental, political, and societal problems associated with the eventual conversion to renewable energy resources.

Cross Listed ERS 1000.

USP 2003-2014 Code U3O

USP 2015 Code U5PN

ERS2010 - Introduction to Land Management

Credits: 3
Max Credit 3

Provides an introduction to land management in the various energy industries. Covers the knowledge and skills needed by land professionals including survey systems, land descriptions, mineral ownership, title examination, leases, surface use agreements, and contracts frequently used in the industry. In addition, provides an overview of ethical issues that arise and professional conduct expected in the industry.

ERS4010 - Exploration Geoscience

Credits: 3
The purpose of this course is to provide students with information and skills necessary to understand the oil and gas modeling process from exploration to production. Topics will include geophysical exploration, seismic acquisition, geophysical modeling, reservoir characterization, reservoir production, well planning and decision making.

Cross Listed GEOL 4010.
Prerequisite: GEOL 1100; MATH 2200 or MATH 2350.

ERS4120 - Federal Public Land Law

Credits: 3
Federal Public Land Law addresses public interest as the central principal of public land natural resource management. The course examines the acquisition and disposition of the public domain, federal and state regulatory authority, and the management of hard rock, energy, and range resources.

ERS4985 - Seminar

Credits: 1-3
Max Credit (Max. 3)

Energy professionals, including accredited professional landmen, practicing attorneys, and other energy professionals will present a colloquium styled course to bridge conceptual content with realistic workforce focused applications.

Prerequisite: ERS 1000/ENR 1000 or ECON 1300/ERS 1300 and WA and QB.

ERS4990 - Topics in Energy Resource Development and Management

Credits: 1-6
Max Credit (Max. 6)

Special topics in contemporary energy development and management will be offered in response to changing industry and academic demands. The specific subject matter is based on faculty requirements and workforce innovation.

FIN2100 - Principles of Finance

Credits: 3
Studies the management of capital in business. Students learn how to use the time value of money to value cash flows

and how to perform a financial valuation of a firm's assets and liabilities.

Prerequisite: ACCT 2010, MATH 2350 or MATH 2355 or MATH 2200 , and STAT 2010, STAT 2050, or STAT 2070, all with C or better, and sophomore class standing.

FYS-First Year - Seminar

Credits: 3

Provides the skills and philosophy necessary for success as a student and life-long learner. Students will have an opportunity to select from a wide range of academic courses covering unique and interesting subject matter focused on developing critical thinking, communication, and information literacy skills. Colleges, departments, and programs cannot require a particular first-year seminar class for a major. Must be completed with a C or better.

GEOL1100 - Physical Geology

Credits: 4

Studies modern concepts of the Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth.

USP 2003-2014 Code U3SE

USP 2015 Code U5PN

GIST1200 - Geospatial Foundations

Credits: 3

Provides fundamental knowledge of geospatial information and place-based science across disciplines, including spatial representation, scale, resolution, map projections, and coordinate systems. Students learn how to discover and access spatial data and read and analyze maps. Supports understanding of geospatial reasoning and cognition.

Former Course Number GIST 1100

GIST2310 - Intro to Geographic Information Systems

Credits: 4

Introductory course covering fundamental principles of geographic information systems (GIS). Students will be introduced to both the theory and application of GIS, including GIS components, the nature of geospatial data, methods for data acquisition, database models, and GIS operations. Includes hands-on laboratory exercises using widely-used software.

Former Course Number GIST 2100

MATH1405 - Trigonometry

Credits: 3

Emphasizes aspects of trigonometry important in the study of calculus. Interplay between trigonometric expressions and their graphs. Students are expected to use a graphing calculator in the course and on exams. See instructor for specifications. Topics include: angle measurement, trigonometric functions, graphing, laws of sines and cosines,

identities, equations, polar equations and graphs, vectors, complex numbers, DeMoivre's theorem. This course is designed for students with little or no prior knowledge of trigonometry who plan to enroll in MATH 2200.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 25 or Math SAT of 600.

OR

MATH1450 - Algebra and Trigonometry

Credits: 5

Emphasizes aspects of algebra, trigonometry and problem solving important in the study of calculus. Functions and their applications to real world problems. Classes of functions including polynomial, exponential, logarithmic and trigonometric functions. Intuitive introduction to the idea of limit and sequence which are developed further in the calculus sequence. For the student with considerable prior exposure to trigonometry and algebra. Graphing calculators are used frequently in class and on assignments. See instructor for specifications.

USP 2003-2014 Code U3QA

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 0925 or Level 3 on the Math Placement Exam or Math ACT of 23 or Math SAT of 600.

MATH2200 - Calculus I

Credits: 4

Emphasizes physical science applications. Includes plane analytic geometry, differentiation, applications of the derivative, differential equations, integration and applications.

USP 2003-2014 Code U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1405 or MATH 1450 or Level 5 on the Math Placement Exam or Math ACT of 27 or Math SAT of 600.

OR

MATH2355 - Mathematical Applications for Business

Credits: 4

Primarily for students in the College of Business. Includes the mathematics of finance; systems of linear equations and matrices; linear programming; sets, counting, and probability. Students will learn to use Excel spreadsheets to solve business application problems in a computer lab that meets one day per week.

Prerequisite: grade of C or better in MATH 1400 or Level 4 on the Math Placement Exam or Math ACT of 26 or Math SAT of 600.

MGT2100 - Management and Organization

Credits: 3

An introduction to the theory and practice of management with emphasis on individual and small group behavior, design and structure of organizations, relationship between the organization and its environment and statistical and quantitative skills used in examination of management processes. Also covers interpersonal communications, ethics and international management.

Prerequisite: COM1, sophomore class standing.

STAT2050 - Fundamentals of Statistics

Credits: 4

Presents central ideas and fundamental techniques of statistical inference on applications in the biological sciences. Includes probability models and inferences for means, variances and parameters of discrete distributions. Introduces statistical computer packages in biweekly labs. Credit cannot be earned in more than one of the following courses: STAT 2010, 2050, STAT 2070, STAT 4220 and 5000.

USP 2003-2014 Code U3Q,U3QB

USP 2015 Code U5Q

Prerequisite: grade of C or better in MATH 1000, MATH 1400, or equivalent.

V- - U.S. & WY Constitution

Credits: 3

Max Credit 3

Approved V courses fulfill both US and Wyoming Constitutions requirements.

Data Analysis Elective, PLM, Pick ONE

Please see this list to choose your elective course.

Economics Elective, PLM, Pick ONE

Please see this list to choose your elective course.

COM 2, PLM Elective, Pick ONE

Please see this list to choose your course.

COM 3, PLM, Pick ONE

Please use this list to select your elective course.

College of Law Required Courses (Years 4-6)

Please visit the College of Law Juris Doctor Program.

Science and Mathematics Teaching Center

- Admission Requirements
- Degree Requirements
- Graduate Assistantships and Scholarships

Office of Graduate Education
Old Main 310
Phone: (307) 766-4128
Website: <http://www.uwyo.edu/smtc/>
Email: smtc@uwyo.edu

The Science and Mathematics Teaching Center (SMTC) was established in 1970 and is committed to excellence in science, mathematics and technology education. As part of the Office of Graduate Education in Academic Affairs, the SMTC, in cooperation with the Wyoming Department of Education (WDE) and the Professional Teaching Standards Board (PTSB), serves as a resource and professional development center for the state. The SMTC offers transdisciplinary graduate degree programs with multiple degree concentrations, certification options, and endorsement options. All of the programs emphasize both strong content knowledge and instructional practices. The affiliate faculty for the SMTC is comprised of include faculty from the Colleges of Agriculture and Natural Resources, Arts and Science, Education, and Engineering and Applied Science, and the Haub School of Environment and Natural Sciences.

The SMTC provides extensive off-campus professional development that serves throughout Wyoming that serves teachers, students, administrators, school districts and communities. SMTC in-service and extension courses, workshops, institutes, and conferences are designed collaboratively to improve science and mathematics teaching in Wyoming.

The SMTC administers and supports five master's degree programs:

1. the Master of Science degrees in Natural Science with concentrations in Middle Level Math (MMA) and Middle Level Science (MSC); these programs are designed for Wyoming's in-service elementary, middle, and high school teachers. They focus on general science and mathematics content with an emphasis on teaching middle school level learners. The course work leads to middle level certification provided by the Wyoming PTSB. Teachers must have two years of teaching experience to participate in these programs.
3. Master of Science in Teaching - Natural Science (MST - Natural Science). This is a self-directed master's degree program working with the SMTC, SER, and the Haub School as well as other colleges. The program is developed individually with the guidance of a graduate committee based on the interests of the graduate student and may emphasize formal or informal learning settings.
4. Master of Science - Natural Science (MS - Natural Science). This is a self-directed master's degree program working with the SMTC, SER, and the Haub School and other colleges. The program is developed individually based on the interests of the graduate student.
5. Master of Science in Natural Science with a concentration in Natural Science Education (NED). This Master's degree program is designed for students pursuing careers as environmental and natural science educators in non-public school or non-formal education settings. These students spend one year at the Teton Science Schools (TSS) in Jackson. A long-standing MOU between the SMTC and TSS allows students to use 15 graduate credit hours earned at TSS towards a master's degree if they are accepted into the second year at UW within the SMTC.

Admission Requirements

For the MSC, MMA, MST and MS-Natural Science Master's Degrees:

Two years of teaching experience and a valid teaching license

Application Fee, unless a UW Graduate

Official Transcripts from all Institutions attended and Bachelor Degree conferring institution

3.0 undergraduate grade point average; provisional admission with a lesser GPA only with consent from Academic Affairs

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from the teacher's principal and two other colleagues.

Note: if a prior Master's degree has been awarded, GRE Scores or an Alternative Portfolio are not required

The NED Degree - First Year Application:

Official Transcripts from all institutions attended and Bachelor Degree conferring institution

Application Fee, unless a UW Graduate

The NED Degree - Second Year Application:

GRE (minimum 292 score) or an Alternative Portfolio including evidence that supports the potential success of the candidate as a graduate student and a document that interprets the evidence

Writing Sample in response to three provided questions

Resume

Three Letters of Recommendation including a letter from a TSS Graduate Program Faculty Member, one from another TSS employee such as a Classroom Instructor or Field Instructor, and one from the first year application.

All the above information needs to be uploaded onto a UW graduate application, which will be reviewed by the SMTC and then if accepted, by the University of Wyoming Admissions and the SMTC. Any of the above requirements plus the university's minimum 3.000 grade point average can be waived if the proper documentation and reasoning is given and approved by the Associate Vice President of the Graduate Program.

Degree Requirements

For the MSC, MMA, MST and MS- Natural Science Master Degrees

Plan B (non-thesis)

30 Credit Hours of coursework is required. This includes 24 credit hours in required coursework that includes mathematical content courses, mathematical history, pedagogy and assessment; earth science, life science, physical science, depending on the program. 6 credit hours of additional coursework that can include a research class and an elective.

The MSC is a 3-year program, for the required coursework, in the summers only on UW's main campus.

The MMA is a 2-year program with classes offered virtually in the fall and spring and in-person on the main campus in the summer, for the required courses.

The MST and the MS- Natural Science Master Degrees are Main campus degrees.

A Plan A (thesis) may be completed with an extra year of research.

For the NED Master Degree - 2nd year.

Plan B (non-thesis)

This is a one-year program on the main campus.

30 credit hours of coursework is required, of which 15 credit hours of agreed upon courses, are transferable from TSS. The other 15 credit hours include a research class, environmental science and science pedagogy classes as chosen by the graduate student and their advisor.

A concurrent major in Environmental and Natural Resources is an option with this Master's

A Plan A (thesis) may be completed with an extra year of research.

Graduate Assistantships and Scholarships

The SMTC has scholarships and graduate assistantships available for all graduates accepted for the above Master's degree programs. More information upon admission and acceptance.

Student Regulations and Policies

- FERPA Family Educational Rights and Privacy Act (PL-380)
- Honor Societies and Programs
- Tuition and Fees
- Credit Available to Undergraduate Students
- The Grading System
- Registration and Enrollment in Courses

FERPA Family Educational Rights and Privacy Act (PL-380)

General Statement

The University of Wyoming has the responsibility for effectively supervising any access to and/or release of official data/information related to the education records of its students. Certain items of information about individual students are fundamental to the educational process and must be recorded. This recorded information concerning students must be used only for clearly-defined purposes, must be safeguarded and controlled to avoid violations of personal privacy, and must be appropriately disposed of when the justification for its collection and retention no longer exists.

In this regard, the university is committed to protecting, to the maximum extent possible, the right of privacy of all individuals about whom it holds information, records, and files. Access to, and release of, such records is restricted to

the student concerned, to parents of dependent students, to others with the student's written consent, to officials within the university, to a court of competent jurisdiction, and otherwise pursuant to law.

Access

All official information collected and maintained in the university identifiable with an individual student will be made available for inspection and review at the written request of that student subject to certain exceptions.

For purposes of access to records at the University of Wyoming, students enrolled (or formerly enrolled) for academic credit or audit at the university shall have access to official records concerning themselves.

A request for general access to all official records, files, and data maintained by the university must be made in writing to the registrar or to other person(s) as designated by the university officer in charge of the unit maintaining records. A request for access to official data maintained in a particular office may be made to the administrative head of the office.

When students (or former students) appear at a given office and request access to the university record about themselves:

1. The student must provide proper identification verifying that he or she is the person whose record is being accessed.
2. The designated staff person(s) must supervise the review of the contents of the record with the student.
3. Inspection and review shall be permitted within a period not to exceed 45 days from the date of the student's request.
4. Students will be free to make notes concerning the contents, but no material will be removed from the record at the time.

Recordkeeping personnel and members of the faculty and staff with administrative assignment may have access to records and files for internal educational purposes as well as for routine necessary clerical, administrative, and statistical purposes as required by the duties of their jobs. The name and position of the official responsible for the maintenance of each type of education record may be obtained from the registrar of the university.

Any other access allowed by law must be recorded showing the legitimate educational or other purpose and the signature of the person gaining access. The student concerned shall be entitled to review this information.

Release of Information

No personally identifiable information shall be disclosed to any individual (including parents, spouse, or other students) or organization except as follows:

1. Disclosure is authorized in writing by the student.
2. Disclosure is to university officers or employees who need to know so as to accomplish legitimate university purposes related to their functions.
3. Disclosure is to a governmental agency, educational organization, parent of a dependent student, or other entity as described by federal regulations or otherwise required by state or federal law. Custodians of records should obtain interpretations whenever third parties request personally identifiable information.
4. To authorized educational authorities at the local, state, and federal level.
5. When disclosure of any personally identifiable data/information from university records about a student is demanded pursuant to court order or lawfully issued subpoena, the staff member receiving such order shall, if possible, immediately notify the student concerned in writing prior to compliance with such order or subpoena. (NOTE: In fulfillment of its responsibilities to monitor certain state benefit and entitlement programs, the Wyoming state auditor may issue to the university from time to time an administrative subpoena for a listing of currently enrolled full-time students, the students' social security numbers, and information relating to the nature and amount of any educational financial aid being received by such

students. Upon being served with such a subpoena, the university will provide the information requested without further notice.)

6. Data/information from university records about students will be released for approved research purposes only if the identity of the student involved is fully protected, or if the research is related to official university business and not publicly disseminated.
7. Information from university records may be released to appropriate persons in connection with an emergency if the knowledge of such information is necessary to protect the health or safety of a student or other persons.

The university officer responsible for the records from which information is released shall maintain with the student's record a listing of disclosures of personally identifiable information, except disclosures in accordance with items 1 and 2 above for which no record need be kept. The listing shall identify the parties who requested or obtained information and the legitimate interests these parties had in making the request.

Public or Directory Information

The following items are considered public data/information and may be disclosed by the university in response to inquiries concerning individual students, whether the inquiries are in person, in writing, or over the telephone:

1. Name;
2. Affirmation of whether currently enrolled;
3. Campus location.

Unless students have officially filed a written request with the university registrar within ten working days after the first day of classes for a semester that disclosure not be made without their written permission, the following items, in addition to those above, are considered public/ directory information; may be included in appropriate university/campus directories and publications; and may be disclosed by designated staff members in response to inquiries concerning individual students, whether the inquiries are in person, in writing, or over the telephone:

1. School, college, department, major, or division;
2. Dates of enrollment;
3. Degrees received;
4. Honors received;
5. Local address and phone number;
6. Home address (permanent);
7. Email address;
8. Participation in officially recognized activities and sports;
9. Weight and height of members of athletic teams;
10. Full-time or part-time enrollment.

Letters of Appraisal/Recommendation

Candid appraisals and evaluations of performance and potential are an essential part of the educational process. Clearly, the providing of such information to prospective employers, to other educational institutions, or to other legitimately concerned outside individuals and agencies is necessary and in the interest of the particular student.

Data/information which was part of university records prior to January 1, 1975 and which was collected and maintained as confidential information will not be disclosed to students. Should a student desire access to a confidential letter of appraisal received prior to January 1, 1975, the student shall be advised to have the writer of that appraisal notify, in writing, the concerned records custodian of the decision as to whether or not the writer is willing to have the appraisal made available for the student's review. Unless a written response is received approving a change of status in the letter, the treatment of the letter as a confidential document shall continue.

Documents of appraisal relating to students and collected by the university or any department or office of the university on or after January 1, 1975, will be maintained confidentially only if a waiver of the right of access has been executed

by the student. In the absence of such a waiver, all such documents will be available for the student's inspection and review.

If a student files a written waiver with the department or office concerned, letters of appraisal received pursuant to that waiver will be maintained confidentially. Forms will be available for this purpose.

Challenges to the Record

All students shall have the opportunity to challenge any item in their file which they consider to be inaccurate, misleading, or otherwise inappropriate. A student shall initiate a challenge by submitting a request in writing for the deletion or correction of the particular item. The request shall be made to the custodian of the particular record in question.

If the custodian and the student involved are unable to resolve the matter to the satisfaction of both parties, the written request for deletion or correction shall be submitted by the student to such person as designated by the president of the university who shall serve as the hearing officer. The student shall be given the opportunity for a hearing at which the student may present oral or written justification for the request for deletion or correction. The hearing officer may obtain such other information as he or she deems appropriate for use in the hearing and shall give the student a written decision on the matter within 30 days from the conclusion of the hearing. If the decision of the hearing officer is to deny the deletion or correction of an item in the student's file, the student shall be entitled to submit a written statement presenting the student's position with regard to the item to the hearing officer. Both the written decision of the hearing officer and the statement submitted by the student shall be inserted in the student's file. The decision of the hearing officer shall be final.

Grades may be challenged under this procedure only on the basis of the accuracy of their transcription or posting.

Exception to the Policy

It is the position of the university that certain data/information maintained in various offices of the university is not subject to the provisions of this policy with regard to inspection, review, challenge, correction, or deletion. Exceptions to "education records" include: alumni records, employment records, law enforcement records, medical records, sole possession records, and university disciplinary records.

1. Statements submitted by parent(s)/guardian or spouse in support of financial aid or residency determinations are considered to be confidential between those persons and the university and are not subject to the provisions of this policy except with the written consent of the persons involved. Such documents are not regarded as part of the student's official record.
2. University employment records of students are not included in this policy, except as provided under the Wyoming Public Records Act.
3. With regard to general health data, only that data/information which is used by the university in making a decision regarding the student's status is subject to review by the student under this policy. Written psychiatric or psychological case notes which form the basis for diagnoses, recommendations, or treatment plans remain privileged information not accessible to the student. Such case notes are not considered to be part of official university records. To ensure the availability of correct and helpful interpretations of any psychological test scores, notes, or other evaluative or medical materials, the contents of these files for an individual student may be reviewed by that student only in consultation with a professional staff member of the specific department involved. Records that are subject to FERPA are not subject to the HIPAA Privacy Rule.
4. Records relating to a continuing or active criminal investigation by the University of Wyoming Police Department, or records of said office not relating to the student's status with the university, are not subject to this policy.

5. No student is entitled to see information or records that pertain to another student, to parents, or to other third parties. A student is entitled to review only that portion of an official record or file that pertains to him or her.
6. The personal files, or sole possession records, of members of the faculty and staff which concern students, including private correspondence, and notes which refer to students, are not regarded as official records of the university. This includes notes intended for the personal use of the faculty and never intended to be official records of the university. In order to be sole possession records, they cannot be shared with anyone else.

Release of Personally Identifiable Information in a Deceased Student's Education Record

The Family Educational Rights and Privacy Act (FERPA)'s protection of personally identifiable information in a student's education record ends at the time of a student's death. The University of Wyoming's policy on the release of a deceased student's records is as follows:

Within the first year following the death of a student, the University will release the educational records of the decedent to the following individuals:

- If the student submitted a signed Authorization to Release Educational Records form which designated the person(s) eligible to request and/or receive educational records, the information will be released to the individual on that form.
- The decedent's next of kin. The request must be accompanied by official documentation.
- The individual designated as the personal representative of the decedent's estate. The request must be accompanied by official documentation.
- Members of the family or other persons with the written approval from the decedent's next of kin or the personal representative of the decedent's estate. Absent written approval from the family or representative of the estate, only directory information will be disclosed.
- In response to a subpoena or court order.
- To any other individual, if determined by the University to be in the best interest of the decedent or the University.

After one year has elapsed following the death of an individual student, the University may release the educational records of the decedent at the University's discretion.

Rights of Students

Students are hereby notified that controlling provisions of federal law are contained in Sec. 438, Pub. L.90-247, Title IV, as amended, 88 Stat. 571-574 (U.S.C. 1232g) and regulations set forth in the code of Federal Regulations, 34 C.F.R. sections 99.1 to 99.67 (1981). Complaints of institutional noncompliance may be made to the Department of Education as provided in the regulations.

Honor Societies and Programs

All Academic Disciplines

Phi Beta Kappa has been one of the most respected societies in the world for more than 200 years. Phi Beta Kappa was founded in 1776 at the College of William and Mary, Virginia. Within a decade, chapters arose at Yale, Harvard, and Dartmouth. The Wyoming chapter received its charter in 1940, and today fewer than 270 colleges and universities in the United States meet the strict qualifications for housing a chapter. UW faculty and administrators annually elect to

membership fewer than one-tenth of the leading scholars of the senior class, candidates for the degrees of Bachelor of Arts and Bachelor of Science. In exceptional cases a junior may be elected. In addition to having a distinguished academic record, a student eligible for Phi Beta Kappa must pursue a balanced and broad course of study, which includes a foreign language as well as courses in math, the sciences, and the humanities. At least 90 hours of the student's course work must be in the liberal arts and sciences. Students are reviewed for eligibility and are notified by mail the spring of their election. Phi Beta Kappa promotes the ideal of a community of scholarship, and every year the Chapter sponsors an eminent visiting lecturer for the entire university.

The national honor society of Phi Kappa Phi, founded in 1897, recognizes and encourages superior scholarship in all curricula of the colleges and divisions of the university. No other honor society has higher academic standards for admission. Good character is also an essential supporting attribute for those scholars elected to membership. The University of Wyoming chapter of Phi Kappa Phi sets minimum cumulative grade point requirements at 3.500 for seniors, 3.800 for juniors and 3.900 for graduate students. In addition, there are minimum requirements in terms of hours completed at UW. Since the chapter may initiate no more than ten percent of the number of seniors in each college, the actual grade point cutoff is often higher than these minimums. In the spring of each year, students' records are reviewed and letters of invitation are sent to those eligible for election to the society. Supplementing the work of its chapter, the national society awards fellowships for graduate study.

College of Agriculture and Natural Resources

Agriculture majors - *Alpha Zeta* is a national honorary for students in agriculture who demonstrate academic excellence, character and leadership. Applications for membership are sent to eligible students. *Gamma Sigma Delta* is a national honor society open to students in agriculture. Potential members are invited to membership based upon academic excellence. *Phi Upsilon Omicron* is a national honor society in family and consumer sciences. Potential members are invited to membership based on academic excellence and leadership. *Pi Alpha Xi* is a national honorary horticulture society, open to UW students with a minor in horticulture. Students are invited to join based upon academic excellence and leadership.

College of Arts and Sciences

Art - A *Bachelor of Fine Arts* in art is considered honorary.

Biology and Botany - This Honors Program is for students majoring in biology or botany with strong interests in independent research with a focus in ecology, evolution, systematics, bioinformatics, biostatistics or data science. Application to the biology or botany honors program may be made after completion of the sophomore year with a cumulative grade point average of 3.300.

Chemistry - *American Chemical Society* - The Department of Chemistry is closely associated with the Local Wyoming Chapter of the American Chemical Society. The American Chemical Society (ACS) is one of the largest scientific societies in the world - its purpose is to promote chemistry and educate the public on the impacts of the chemical profession on the economy, technology, and education. The ACS organizes both national and regional scientific meetings; our local section supports student travel to these meetings. The chemistry department also sponsors a Student Affiliates section of the ACS, which is mentored by a UW chemistry faculty member and serves the needs of our chemistry majors.

Communication - *Lambda Pi Eta* recognizes, fosters, and rewards outstanding scholastic achievement while stimulating interest in the communication discipline.

Criminal Justice - *Alpha Phi Sigma - Epsilon Omega Chapter*, criminal justice honorary. A national honorary society for Criminal Justice that recognizes the academic excellence of Criminal Justice students. Alpha Phi Sigma is a collaboration with the Academy of Criminal Justice Sciences.

English - *English Honors Program* enables junior and senior English majors who carry a grade point average of 3.500 or better in their English courses to intensify and enhance their studies by working closely with a supervising faculty member to develop a senior honors project, a piece of writing on a topic in English studies. *Sigma Tau Delta - Alpha Mu Omicron Chapter*, international English honor society.

Gender and Women's Studies - *National Women's Studies Association*; one of its primary objectives promoting and supporting the production and dissemination of knowledge about women and gender through teaching, learning, research and service in academic and other settings.

Geography - *Gamma Theta Upsilon - Eta Eta Chapter* candidates must have completed three semesters of college coursework and three courses in Geography, with a grade point average of 3.000 or higher for these courses. Contact department Department of Geology and Geophysics/ Geography Program for more information.

Geology - Eligible students are Bachelor of Science degree holders with honors, majoring in geology or geophysics. They must meet an overall grade point average of 3.200, a grade point average of 3.200 in the major, and successful completion of an independent research project. Contact department Department of Geology and Geophysics/ Geography Program for more information.

History - *Phi Alpha Theta* is a professional society whose mission is to promote the study of history through the encouragement of research, good teaching, publication, and the exchange of learning and ideas among historians. It seeks to bring students and teachers together for intellectual and social exchanges, which promote and assist historical research and publication by our members in a variety of ways. The society currently has over 400,000 members, with some 9,000 new members joining each year through 970 chapters nationwide.

International Studies - *Sigma Iota Rho*: The purpose of Sigma Iota Rho is to promote and reward scholarship and service among students and practitioners of international studies, international affairs, and global studies and to foster integrity and creative performances in the conduct of world affairs. Membership provides public recognition of the best and the brightest students in the International Studies major and highlights the importance of contributing to the global community.

Journalism - *Society of Professional Journalists, Sigma Delta Chi*

Languages - The Department of Modern and Classical Languages sponsors chapters of two nationally recognized Honor Societies in Spanish.

Alpha of Wyoming Chapter of Sigma Delta Pi - To honor those who attain excellence in the study of the Spanish language and in the study of the literature and culture of the Spanish-speaking peoples; to honor those who have made the Hispanic contributions to modern culture better known in the English-speaking world; to encourage college and university students to acquire a greater interest in and a deeper understanding of Hispanic culture; to foster friendly relations and mutual respect between the nations of Hispanic speech and those of English speech; to serve its membership in ways which will contribute to the attainment of the goals and ideals of the society.

Sigma Delta Pi National Spanish Honorary Society celebrates its 100th anniversary in 2019. Our very active UW chapter was recognized in 2011 as a national honor chapter. Each semester we initiate new members who meet high academic standards and are dedicated to the study and teaching of Spanish. Chapter awards and student scholarships include study abroad opportunities and recognition of outstanding scholarly research and writing.

Music - *Presser Award* is conferred by vote of the department faculty for outstanding senior in music. *Pi Kappa Lambda*, selected by faculty on the basis of outstanding scholarship and musical accomplishments.

Physics and Astronomy - *Sigma Pi Sigma*: Sigma Pi Sigma (sigmapisigma.org) exists to honor outstanding scholarship in physics, to encourage interest in physics among students at all levels, to promote an attitude of service, and to provide a fellowship of persons who have excelled in physics.

American Physical Society (APS): The American Physical Society (www.aps.org) is a non-profit membership organization working to advance and diffuse the knowledge of physics through its outstanding research journals,

scientific meetings, and education, outreach, advocacy and international activities. APS represents over 50,000 members, including physicists in academia, national laboratories and industry in the United States and throughout the world. Society offices are located in College Park, MD (Headquarters), Ridge, NY, and Washington, DC.

American Astronomical Society (AAS): The American Astronomical Society (aas.org) is the major organization of professional astronomers in North America. The mission of the American Astronomical Society is to enhance and share humanity's scientific understanding of the universe.

Political Science - Pi Sigma Alpha, Epsilon Beta Chapter seeks "to stimulate scholarship and intelligent interest in political science." The society sponsors programs and events of value to the profession and teaching of political science. Membership provides public recognition of the best and brightest students in the Political Science major. Each chapter is encouraged to provide a framework for enriching the exposure of its members and the wider university community to the study of government and issues of public concern.

Pi Alpha Alpha, national public administration honorary. The purpose of Pi Alpha Alpha is to encourage and recognize outstanding scholarship and accomplishment in public affairs and administration. Its objectives, such as fostering integrity, professionalism, and effective performance, promote the advancement of quality in the education and practice of the art and science of public affairs and administration. PAA membership identifies those with the highest performance levels in educational programs preparing them for public service careers.

Psychology - Psi Chi - The Psychology Department supports a chapter of Psi Chi, the International Honor Society in Psychology. This local Psi Chi group functions within a larger Psychology Club that serves undergraduates interested in Psychology. The chapter and club are jointly involved in many activities, including community service projects, peer advising and graduation festivities.

Sociology - Alpha Kappa Delta, the international honorary society for sociology. In addition, sociology majors with a 3.2 overall GPA, a 3.500 GPA in sociology courses and two 5000-level sociology classes graduate with honors in sociology.

College of Business

Accounting - Beta Alpha Psi, Delta Alpha Chapter, is the UW chapter of the national accounting honorary. Membership in this very active student honorary is awarded only to the very best accounting students.

Business Administration - Beta Gamma Sigma is the national scholastic honor society. It is the arm of the accrediting group, AACSB International. Membership is very selective and based on class rank and grade point average.

College of Education

Kappa Delta Pi - Alpha Mu Chapter is the university chapter of the international honor society in education. The purpose of the society is to promote excellence in and recognize outstanding contributions to education. Invitation for membership is extended to those persons who exhibit commendable professional qualities, worthy educational ideals and sound scholarship.

Mu Nu Tau Chapter of Chi Sigma Iota is a Counseling Academic and Professional Honor Society International for counselors-in-training, counselor educators, and professional counselors. The mission of Chi Sigma Iota is to promote scholarship, research, professionalism, leadership, and excellence in counseling, and to recognize high attainment in the pursuit of academic and clinical excellence in the field of counseling. The CSI International homepage can be found at www.csi-net.org/index.cfm. The local chapter, Mu Nu Tau, encourages the furtherance of high standards of scholarship and professional practice through study groups, speaker programs, workshops, colloquia awards, social activities, and networking opportunities.

College of Engineering and Applied Science

Engineering majors - *Tau Beta Pi* is a national honor society for all engineering majors. The purposes of the society are to honor outstanding student scholarship and to provide a spirit of liberal culture in the College of Engineering and Applied Science. Membership is offered to outstanding junior, senior and graduate engineering students of high scholastic ability and exemplary character.

College of Health Sciences

Kinesiology - *Phi Epsilon Kappa* is a national professional fraternity dedicated to enhancing education, promotion of student research, community outreach, and professional development for persons pursuing careers in health, physical education, recreation, and other related fields.

Nursing - *Sigma Theta Tau* - academic leadership honorary. The mission of the Honor Society of Nursing, Sigma Theta Tau International is advancing world health and celebrating nursing excellence in scholarship, leadership, and service.

Pharmacy - *Rho Chi Society*, Academic Honorary. The Rho Chi Society encourages and recognizes excellence in intellectual achievement and advocates critical inquiry in all aspects of pharmacy. The Society further encourages high standards of conduct and character and fosters fellowship among its members; Phi Lambda Sigma, Pharmacy Leadership Society - to support pharmacy leadership commitment by recognizing leaders and fostering leadership development.

Social Work - The purpose of the Epsilon Delta Chapter of the Phi Alpha Social Work National Honor Society at the University of Wyoming Division of Social Work is to provide a closer bond among students of social work and promote humanitarian goals and ideals. Phi Alpha fosters high standards of education for social workers and invites into membership those who have attained excellence in scholarship and achievement in social work. The goals of Phi Alpha include the provision of service to the campus, local, and state communities in Wyoming; the promotion of social, economic and environmental justice on campus and in the community; and the development of student leadership skills.

University Honors College

The National Collegiate Honors Council and *The Western Regional Honors Council* provide recognition for students, faculty, and administrators in the area of academic achievement, civic responsibility, and personal development.

College of Law

Law majors - *Order of the Coif* is an honorary society which recognizes legal scholastic excellence. Each year, the chapter may initiate into membership those students who graduate in the highest ten percent of their class.

Tuition and Fees

Semester Tuition and Fee Schedule 2020-21 (subject to change)

The University of Wyoming semester tuition and fee schedules for the 2020-21 academic year, which begins with fall semester 2020, will be available in the Fee Book at <http://www.uwyo.edu/administration/financial-affairs/feebook/> or from Student Financial Services, Room 172, Knight Hall. Fall charges will post to accounts in WyoRecords by the end of July.

Summer school tuition and fees will be published in the *Summer Bulletin*.

Full-time undergraduate refers to undergraduate students enrolled for 12 or more hours, and part-time undergraduate refers to undergraduate students enrolled for less than 12 hours. At the graduate level, 9 or more hours is considered full time and less than 9 hours is classified as part time. Fees do not include special fees.

Student Benefit Package and Insurance

At the beginning of each semester, the part-time student benefit package will be added to student accounts of all part-time students (6 through 11.5 credit hours for undergraduates and 4.5 through 8.5 credit hours for graduate students) who have elected to purchase UW health insurance. The benefit package allows part-time students the same benefits as full-time students including, but not limited to, the use of Student Health Service, Half Acre Gym and the opportunity to apply for short-term emergency student loans.

Graduate students taking less than 4.5 credit hours should contact their academic department and also refer to the "Graduate Student Optional Fee Package Petition" document, which may be found on the Office of the Registrar website.

Students not assessed insurance who would like to purchase the benefit package, not for full-time status purposes, can fill out a form in Student Financial Services, 172 Knight Hall, and then pay for the package at the Cashier's Office, 170 Knight Hall, or online.

Student medical insurance is mandatory for international students. International students are automatically enrolled in the medical insurance every fall and spring semester that they enroll in classes. Students may potentially waive this requirement if they meet university regulations and provide the necessary documentation by the add/drop deadline. Students are not eligible for student health insurance if they are online only.

Each domestic enrolling student will be required, as part of the registration process, to make a Student Medical Insurance selection. If the eligible student selects "YES" to the question, the premium will be assessed on the student's account. If the student selects "NO," they will not be assessed for the premium. Part-time students who select yes for the health insurance will also be assessed for the Part-time Student Benefit Package.

Domestic students are eligible for insurance if they are enrolled in at least 6 hours for undergraduate or 4.5 hours for graduate students. Students are not eligible for student health insurance if online or remote only.

For questions regarding the Student Medical Insurance program, contact the Student Medical Insurance Advocate (248 Knight Hall) at (307) 766-3025.

Tuition and Fee Payment 2020-21

All university charges are due by September 1 (Fall), February 1 (Spring), and June 1 (Summer).

An institutional Payment Plan is available for students who need extra time paying.

A non-refundable \$50.00 payment plan enrollment fee is charged per semester to all students that are not paid in full by the payment dates above. The payment plan adds three monthly installments in addition to the first due date above. These are due on the 1st of two subsequent months. Registration holds and interest of 1.5% per month may be charged on all past due amounts.

Special Course Registration Fees

Additional charges (special course, college, advising, and program fees) must be paid by students enrolling in those courses and colleges with approved special fees. Fees for these courses and colleges will be indicated in the semester Class Schedule. Program fees, assessed to all courses under 5000 level, are by the college in which the course is held and may be different than a student's primary program.

Tuition Waivers

If an employee, spouse of an employee or cooperating agency waiver is used for payment of tuition and/or fees, the properly completed and signed waiver must be received by the Student Financial Services office by the first day of the term. All waivers will be applied to accounts after the drop deadline. To be eligible for the waiver, the student (or spouse of student is utilizing spousal waiver) must be a benefited employee by the first day of class.

Financial Holds

A student failing to pay fees, charges, fines, penalties, deposits or short term loans as prescribed by the Trustees of the University of Wyoming shall be denied registration at the university and copies of academic transcripts and/or diplomas until such fees, charges, fines, penalties, deposits or short term loans are paid in full. A ten-day wait is required before a student loan hold can be removed if the debt is paid with a personal check. Contact Student Financial Services in Knight Hall for information regarding financial holds.

If a payment is made on a student account and the payment is returned to the University as a result of insufficient funds or otherwise, the student will have a hold on their account until the return payment fee in addition to the original amount is a paid. Registered classes secured by a returned payment are subject to cancellation.

Summer Session 2021

Please refer to the 2021 Summer Bulletin for rates and applicable deadlines.

Refunds/Cancellations

Tuition and course fees will be canceled or refunded to a student who officially drops a class or classes, withdraws from the university through the Dean of Students office, or changes enrollment status (i.e. non-resident to resident; full-time to part-time) in accordance with the institutional refund policy outlined below.

No tuition penalty will be assessed for dropping and adding during the drop period identified in the term's class schedule unless all classes are dropped. Students who withdraw from individual courses after the end of the drop/add period will have their charges canceled in accordance with the institutional refund policy outlined below.

Mandatory fees, late registration fees, or service fees are not refundable.

The portion of tuition refund/cancellation is computed from the first day of the term, not class meeting pattern. If a student's initial registration includes blocked classes or short courses that begin at a later date, the refund/cancellation will still be computed from the first day of the term. If a student's initial registration occurs during an approved late registration period, the date for computing a refund/cancellation will be the first day of the term.

Institutional Refund Schedule

Before first day of semester	100%
Semester Class Day 1-8	100%
Semester Class Day 9-15	75%
Semester Class Day 16-20	50%
Semester Class Day 21-25	25%
Semester Class Day 26 on	0%

Examples of these calculations are available in Student Financial Services.

Interaction of Federal Return of Funds Policy and Institutional Refund Policy

When a student who receives federal financial aid withdraws from the university, he or she may owe a repayment of federal funds and/ or be due a refund from UW or owe an additional amount to UW. For details on the application of these policies to a specific situation, please consult with Student Financial Services, 172 Knight Hall, (307) 766-6232.

Student WyoOne ID Cards

167 Information Technology Center, (307) 766-5268

ID cards are issued to all students during their first semester of enrollment. These cards are used throughout the student's entire career at the university.

The ID card, also referred to as the WyoOne card, is needed to pick up transcripts, financial aid, cash checks, access student health services, attend athletic events, enter recreation facilities, check out library books and materials, food service access, enter residence halls, and other necessities. Visit the online card office at www.uwyo.edu/idooffice/ to make deposits, view transaction history, and access other card management features.

The WyoOne card may also be used as a debit card to make purchases at some locations on campus after the deposit account is established. Spouses, domestic partners and dependents of students are eligible for an ID card.

Credit Available to Undergraduate Students

The University of Wyoming offers credit towards an undergraduate degree through:

I. University of Wyoming Credit

Instructed Classes

Courses are offered on campus and at distance settings around the state, including recognized academic courses under faculty general supervision such as internships, clerkships, clinical experience, co-op programs, etc.

Distance courses

Unlike some institutions, UW delivers courses at a distance through its mainstream academic departments, not through a separate academic unit. Academic department heads have the authority to assign instructors to distance-delivered courses, including online courses. They also have a responsibility to ensure that those courses are comparable in rigor and effectiveness to courses delivered face to face.

For this reason, when a department offers a UW course both face to face and at a distance, any UW student may satisfy any relevant university-, college-, and department-level requirements or elective credit by taking the course in either format.

Exceptions may arise when it is necessary to reserve space in a distance-delivered course for off-campus students, who can't take the face-to-face version. In these cases, departments may reserve spaces for off-campus students. But to the extent that spaces remain available after all interested off-campus students have enrolled, these spaces must be available to interested on-campus students.

Credit by Examination

An examination of an appropriate type and content for the credit sought may be conducted to determine if the applicant's proficiency is equivalent to that which could be expected upon completion of a college-level course in the subject. An applicant found to have this level of proficiency will be awarded credit for that course and allowed to proceed either with more advanced courses or with courses in other areas.

The use of credit by examination, or credit for prior learning, in graduate programs is not allowed.

Information concerning credit by examination can be obtained by contacting the Office of the Registrar.

Departmental Exams

While there is no maximum placed on the amount of credit earned by examination, credit so earned does not count in fulfilling the residency requirement of 30 hours of upper division University of Wyoming credit.

A student may not be allowed credit by examination in a course in which the student is currently or was previously enrolled either for credit or as a visitor or auditor, except that credit by examination may be used as a means to obtain credit for courses previously taken at institutions from which credit is nontransferable. A student may not challenge equivalent courses.

A student may not earn credit by examination in a course if the student has completed a course in the subject matter area above the level of the course for which the examination is sought. However, at the discretion of the departments involved, during the add/drop period a student may challenge a lower-level course while enrolled in a higher-level course in the same subject matter area, if the course challenged is a prerequisite for the course in which the student is currently enrolled.

If an examination exists, eligible students who pay the testing fee of \$80.00 may not be denied an examination in the introductory undergraduate course in any department. "Introductory course" is interpreted as that course which is prerequisite for successive courses in the department. Additional fees for examinations offered by testing agencies other than the University of Wyoming are determined by the agency concerned.

Grades of S or U (satisfactory/unsatisfactory) are given in all examinations. Credit by examination is not included in the student's grade point average; it is, however, included in the hours earned toward graduation. The grade of S is the equivalent of a C or better. See below for specific subject requirements. Entry on the student's academic record for credit by examination is made only if a grade of S is obtained and is noted as a grade obtained by examination.

To qualify for undergraduate credit, the student must be currently registered at the University of Wyoming as a degree candidate. The student must also be able to demonstrate to the satisfaction of the chair of the department involved that background experience has prepared him or her to attempt a challenge examination if such an examination is sought. The department chair's decision will be based upon existing departmental constraints such as accreditation, graduation requirements, and program requirements.

Other Options Include:

- Subject CLEP tests
- AP tests
- International Baccalaureate (IB)
- DSST

Students showing proficiency by passing examinations such as the College Board Advanced Placement Program (AP), for example, or examinations developed by University of Wyoming departments may earn college credit through the level of demonstrated proficiency. Credit may be allowed on the basis of any testing procedure acceptable to any department, which may include tests of the AP program and both the general and subject (specific) examinations of the College Level Examinations Program (CLEP).

Advanced Placement (AP) Information

Portfolio Evaluations

In recognition of factors in our society that produce great individual differences in backgrounds and preparation of students entering the university, the university has developed various options to assess extraintitutional college-level learning. To qualify for undergraduate credit, the student must be currently registered at the University of Wyoming as a degree candidate.

Credit based on faculty evaluation of the kinds and extent of collegelevel learning which an applicant has acquired in prior extra-institutional settings, evidenced in a portfolio of documentation, may count toward university undergraduate graduation requirements. In such event, the student's degree program can be enriched by freeing time needed to take additional courses, or accelerated to earn the baccalaureate degree earlier and commence postgraduate studies sooner.

The number of credit hours able to be earned by means of a portfolio evaluation is normally limited to 12. Such credit, when awarded, shall be for specific University of Wyoming content-oriented courses (rather than given as X number of hours of credit in a general discipline area), following the college course model of assessment as defined by the Council for Adult and Experiential Learning. Portfolio assessment, when used, will be conducted by a committee of appropriate tenured faculty including at least one member with the academic rank of professor. *All credit assigned for experiential learning based upon portfolio evaluations is excluded from the minimum credit hour requirements as set forth in the university requirements.*

II. Transfer Credit

Transfer credit includes college courses accepted from other regionally-accredited colleges or universities. Such course work must be considered equivalent or comparable to course work required by the University of Wyoming. The university accepts only academic courses in the study of religion similar to those offered by the Religious Studies Program in the College of Arts and Sciences.

Students transferring to UW must have the registrar or records office of the previous school(s) send an official transcript to the University of Wyoming Admissions Office. Once all final transcripts have been received by the Admissions Office, the degree analysts in the Office of the Registrar will create an electronic record of all courses that transfer to UW.

Evaluations are not accomplished for students working toward a Second Bachelor's Degree or those admitted as non-degree seeking. Second Bachelor's students should consult with their adviser concerning the applicability of transfer work to their UW degree program.

The recording of credit does not automatically imply acceptance toward a degree since degree requirements vary from major to major. Questions concerning the transferability of course work from other institutions should be directed to the Office of the Registrar.

Nontraditional credits awarded by another institution will not normally be accepted by the University of Wyoming. They may be validated by departmental exam within the faculty regulations allowing for such examinations.

a. UW Policy (Academic Affairs Policy Letter, October 9, 2012)

UW maintains a system for accepting transfer credits from other institutions and prides itself on forward-looking approaches to distance education. The following clarifies policies for:

- Accepting transfer credit from Wyoming's public community colleges
- Accepting transfer credit for students transferring to UW from other institutions
- Accepting transfer credit for students enrolled at UW

1.. Transfer credit from Wyoming's public community colleges

UW generally accepts credit earned at any Wyoming public community college in accordance with the Wyoming Transfer Catalog. This policy applies to students transferring to UW and to students enrolled at UW who take courses at one of these community colleges while they pursue degrees at UW. It does not apply to FYS credit earned by students who earned concurrent enrollment FYS credit or students transferring with less than 30 semester hours.

UW maintains an active regimen of institution-wide and discipline-specific articulation with Wyoming community colleges. These discussions, together with department-driven decisions about which courses to list in the statewide common course-numbering system, provide mechanisms that can ensure appropriate levels of course equivalency.

2..Transfer credit for students transferring from other institutions

The UW Office of the Registrar (OTR) maintains a list of course equivalencies and courses accepted for general credit from other institutions of higher learning. In maintaining this list, the OTR, in consultation with academic departments as necessary, determines which outside courses:

- are equivalent to specific UW courses
- count for general university-level credit
- are not transferable for university-level credit

For courses beyond the 1000-2000 level and in cases where questions arise, the OTR relies on academic departments to assist in the assessment.

For any student transferring to UW from another institution of higher learning, UW will adhere to the OTR's equivalencies on the date that the transcript is evaluated. If a course in question has not previously been articulated, the

OTR will follow the normal protocol to make a determination. If an academic department determines that an outside course has been improperly articulated, the OTR will correct the equivalency. The corrected equivalency will apply to subsequent transfer students but not retroactively.

3. Transfer credit for students enrolled at UW

The university's faculty and administration expect UW students to earn credits by taking courses at UW. Exceptions may be appropriate in some instances. For example, the university encourages students to pursue opportunities to study abroad, whether through UW course offerings or through other approved programs. As another example, a student who spends a summer in another university town may also have a compelling case for taking a non-UW course and applying the credits to the UW transcript. There are many other possibilities.

For any student enrolled at UW, the university will guarantee transfer credits only for courses for which the student has received prior, course-specific approval from the Office of the Registrar. A Transfer Evaluation Form should be submitted prior to enrolling for a transfer course.

The only exceptions are transferable credits from Wyoming community colleges, as discussed above. In considering requests of this type, academic department heads may take into account the student's circumstances, department, and university-level learning outcomes such as global awareness, and the department faculty's assessment of the course's content, level, and academic rigor.

This policy has no effect on such programs as WICHE's Internet Course Exchange and other inter-institutional arrangements through which courses taught elsewhere count as credit-bearing UW courses.

b. Process

Transfer credit includes college courses accepted from other accredited colleges or universities. Such course work must be considered equivalent to course work required by the University of Wyoming. Students transferring to UW must have the registrar or records office of previous school(s) send an official transcript to the University of Wyoming Admissions Office. Once all final transcripts have been received by the Admissions Office, the degree analysts in the OTR will create an electronic record of credit transferred.

The recording of credit does not automatically imply acceptance toward a degree since degree requirements vary from major to major. Questions concerning the transferability of course work from other institutions should be directed to the Office of the Registrar.

c. Articulation: Earned Associate Degrees

1. Wyoming Community Colleges

Students entering UW beginning Fall 2001 who have completed an AA, AS, ADN, or AB degree from a Wyoming Community (spring 2001 or later) College receive credit toward completion of the lower division general education requirements included in the University Studies Program with the exception of the US/WY Government and Constitutions requirement. Students with an eligible associate's degree who have not completed both components of the US/WY Government and Constitutions requirement must complete it with coursework or challenge exam.

This policy applies to graduates receiving an Associate of Arts, and Associate of Sciences, Associate Degree Nursing, or an Associates of Business degree from any of the seven Wyoming Community Colleges. All graduates with an AA, AS, ADN, or AB degree complete a minimum of 64 college-level credits with a minimum of 2.000 GPA.

2. Community College Articulation: effective spring 2012

Graduates of regionally-accredited Colorado community colleges earning an AA/AS Spring 2012 or later are awarded the lower-division general education core in the same manner as graduates of Wyoming community colleges, with the exception of the US/WY Government and Constitutions requirement. Students must complete the Wyoming component through coursework or challenge exam. Spring 2008 (and later) graduates of Pikes Peak Community College are included due to a pre-existing articulation agreement.

Spring 2012 and later AA/AS graduates of Western Nebraska, Mid- Plains (Nebraska), and Colby (Kansas) Community Colleges will be extended the lower-division general education core in the same manner as Colorado schools above.

3.Community College Articulation: effective spring 2015

Graduates of regionally-accredited institutions earning an AA/ AS/AB Spring 2015 or later are awarded the lower-division general education core in the same manner as graduates of Wyoming community colleges, with the exception of the US/WY Government and Constitutions requirement. Students must complete the Wyoming component through coursework or challenge exam.

Transfer Credit from Regionally-Accredited U.S.Colleges and Universities

The Wyoming Transfer Catalog is a searchable online database of courses which the University of Wyoming has previously articulated from regionally-accredited U.S. institutions. Coursework may transfer in as equivalent, elective or NA. Elective coursework may be a general elective, academic department specific elective and/or elective with University Studies (USP) credit. Transfer courses which return values of "NA" in the UW Subject field are considered to be not transferable to UW. All new classes are evaluated on an individual basis. All new upper-division courses are initially given upper-division general elective credit; University faculty may then evaluate an upper-division course for direct UW equivalency transfer credit.

UW operates on semester credit; credit is awarded credit hour for credit hour. Quarter hours are recognized as two-thirds (2/3) of a semester hour.

Academic advisors may submit an elective course to fulfill a major or curricular requirement. Elective courses may also be considered for University Studies requirements via the University Studies Petition process.

Students intending to transfer to UW are encouraged to meet with advisors and review both the Wyoming Transfer Catalog and the UW Catalog when planning their program of study to ensure courses taken elsewhere will transfer to UW as intended for their desired major. Final determination of transfer credit acceptance is made by the University Registrar and faculty. Students must submit official transcripts of all completed coursework before a final determination can be made on credit transfer.

These equivalencies are subject to change without notice.

d.Transfer Credit for Study Abroad

Study abroad coursework is evaluated based off the documentation provided by the student and what is available to the Office of the Registrar. It is the students' responsibility to review the transfer work and to provide any course documentation (syllabi, descriptions, sample course work) to the Office of the Registrar. Once the transcripts received from the study abroad experience have been evaluated, students will have one year from that date to make any appeals or changes to what was initially awarded. Requests for changes to transfer credit awarded through study abroad following one year of the initial review will not be processed.

III. Military Service Courses

Students who have served in the Armed Forces may be allowed transfer credit for courses taken in some military schools. Students who desire to apply for credit on the basis of their military schooling should submit a copy of their DD-214 form or AARTS/SMART/CCAF transcript (or equivalent) to the UW Admissions Office. The degree analysts in the Office of the Registrar determine whether the course work is transferable to UW. Evaluations for the granting of credit for military-based training are based on recommendations in the American Council of Education (ACE) guidelines. Individual colleges will determine whether such course work is applicable to their degree programs.

The Grading System

Students are evaluated according to the following grading system:

Grade	Pts.	Definition
A	4.000	Exceptional
B	3.000	Very good
C	2.000	Fair
D	1.000	Poor
F	0.000	Failure (may be assigned as a grade for failure to attend or to indicate failure to formally withdraw)
I		Incomplete (temporary mark pending coursework completion as agreed in a signed document). See section on incompletes below for details.
W		Withdrawal (from the individual course or all courses), only if the student follows the official withdrawal procedure. If a student enrolls in a course and then abandons it (stops attending) without following the official withdrawal procedure, a grade of F will be assigned.
S		Satisfactory (equivalent to a C or better [B or better in courses numbered 5000 or above]; see general information on S/U grading below)
U		Unsatisfactory (see general information on S/U grading below)
UK		Unable to compute grades (for midterm grades only)

Grade Points

Each letter-graded course carries a grade point value computed as: the total credit hours earned in the course multiplied by the point value of the letter grade earned. For example: a student earning an A (point value of 4) in a 3 credit-hour course would earn 12 grade points for the course.

Semester (or Term) Grade Point Average

The semester grade point average (GPA) is the sum of all grade points earned in a semester or term divided by all credit hours attempted for letter grade. Credit hours in courses in which marks of I, W, S, or U were assigned, as well as developmental courses, are excluded.

Cumulative Grade Point Average

The average of all grade points earned by a student below is termed the cumulative grade point average. It is used for determining activity eligibility, honors, probation, suspension, graduation, and for all comparisons or purposes requiring measurement of academic standing.

The cumulative grade point average is defined as the sum of all grade points earned in University of Wyoming residence, correspondence, or Distance Education, divided by all credit hours attempted for letter grade, with the following exceptions:

1. The credit hours shall not be counted in courses in which marks of W, S, or U were assigned, or in which marks of I (for incomplete) are still in effect.
2. For repeated courses:
 - a. First repeat: only the second credit and grade is used to determine earned hours and to calculate the cumulative grade point average.
 - b. If repeated more than once, only the last credit and grade earned is used to determine earned hours and to calculate the cumulative grade point average.
 - c. A student is limited to a maximum of three (3) attempts, including withdrawals, in any course at the University of Wyoming.
 - d. If a mark of W, S, or U is assigned in a repeated course, the previous grade assigned will stand except when an S or U is earned repeating a previous S or U.
 - e. Courses applied towards one completed degree may be repeated as part of a second degree; however, the grade and grade point average in the original degree will not be changed.
3. Transfer grades are not counted in the UW grade point average. If a course taken at UW is repeated at another institution, the credits and grade earned at UW will be deleted from computation of the UW cumulative grade point average if credit for the repeated course is transferred to UW.
4. For graduate students, courses numbered below 4000 are not added in to the semester and cumulative totals, nor computed into the GPA.

Repeating a Course

Students may repeat course work; however, credit earned in any given course (or equivalent course) is applicable toward a degree requirement only once. All grade entries remain on the student's record, but only the last grade earned will be calculated in the UW cumulative grade point average. Refer to the Cumulative Grade Point Average section of this catalog for further information. Variable-credit courses are not considered as repeats unless the department head provides written certification that the course content was, in fact, repeated. Courses repeated will remain as entries on the academic transcript. Courses applied towards one completed degree may be repeated as part of a second degree; however, the grade and grade point average in the original degree will not be changed. A student is limited to a maximum of three (3) attempts in any course at the University of Wyoming. An "attempt" includes any instance in which the student earns a grade for the course or withdraws from the course. The three-attempt limit does not apply to courses identified in the University Catalog as being appropriate for students to take multiple times. A student can petition for exceptions to this limitation through established university procedures (UW Regulation 2-204). See the University Regulations online for the most up-to-date version.

Registration and Enrollment in Courses

Registration Procedures

Eligible students can register, drop, add, and get a schedule of their courses through WyoRecords. To insure that students have seen an adviser, access numbers for each semester's registration are distributed through the academic advisers. Directions for registration are contained in the appropriate *Class Schedule*. *Class Schedules* are available online no later than one week prior to advising week. Students are responsible for following directions and deadlines contained in the *Class Schedules*.

The following categories of continuing students in good standing or on academic probation are eligible to register for the semesters indicated:

1. *For the fall semester:*
All students who were enrolled the previous fall, spring, or summer semester.
2. *For the spring semester:*
All students who were enrolled the previous spring, summer, or fall semester.
3. *For the summer session:*
Students who were enrolled the previous summer, fall, or spring semester.

All other applicants and students should complete admission requirements by the admission deadline. (Refer to the sections on undergraduate and graduate admissions in this catalog for deadlines.)

All information requested during admission and registration is important to the student and to the university and should be kept accurate and complete. If a student's address, telephone, major, adviser, or other vital information changes after enrollment, the Office of the Registrar should be informed without delay.

Academic Adviser

Academic advising is a decision-making process involving a partnership between the academic adviser and the student (advisee). In this partnership, issues and questions regarding personal, professional, and educational goals are examined and evaluated. This includes, but is not limited to, planning an appropriate course of study and the scheduling of classes.

The purpose of academic advising is to promote rational, informed, and independent choices by the student. To that end, the academic adviser is a significant link for the student to other resources in the university community. Students are expected to take the initiative in developing the adviser-advisee relationship and to assume an ever-increasing role in developing their own academic, career, and personal goals.

Change of Registration

Modification of a course schedule during the drop/add time period is accomplished through WyoRecords. After the end of the drop/add period, individual class withdrawals can be done by the students on WyoRecords. Changes to a student's registration or withdrawals are not official until the process is completed as prescribed.

The period of time allowed for modifying a student's schedule or withdrawing during the summer session or other special terms is established in regulations or by the registrar, subject to the approval of the vice president for academic affairs.

During the fall and/or spring semester(s):

1. *Dropping a class or changing sections:* A student may drop classes during the first eight class days of the semester (four class days for blocked courses).
2. *Adding a course or changing grading option:* A student may add classes, change sections, or change grading options or hours in variable-credit courses during the first four class days of the semester (two class days for blocked courses).
3. *Withdrawal from a course:* After the designated drop/add period, students may officially withdraw from individual regular term courses until fifteen class days after mid-semester (five days after the middle of the course for blocked courses). Withdrawing means that a non-punitive grade of "W" is assigned as the final grade for the class. Students considering withdrawing should contact the Student Financial Aid Office prior to withdrawing to fully understand how withdrawing will affect their aid and scholarships. Students may withdraw from an individual course through their WyoRecords account. If a student has a hold on their account preventing them from withdrawing through WyoRecords, they may submit an online Class Withdrawal form available on the Office of the Registrar website. The online form is required for students who wish to withdraw from First Year Seminar classes. Refunds for course withdrawal (when applicable) are based on the date the withdrawal is processed, not on submission of the online petition. When a class has a status of "Indiv Course Withdrawal" on the "Add or Drop Classes" page in WyoRecords, the student has officially withdrawn. Students may also confirm that a final grade of "W" is noted on the transcript, which may be viewed through WyoRecords. Unauthorized discontinuance of enrollment or unofficial abandonment of classes will result in a failing grade.
4. *All-School-Withdrawal (termination of enrollment):* Withdrawal from the university is the official termination of student status prior to the end of a fall or spring semester, but students may otherwise register for classes for the subsequent semester if they choose to do so. Students wishing to withdraw from all on-campus classes should initiate the procedure with the Dean of Students Office. Withdrawal from the university is not permitted during the last 15 days of a term. After clearing with the Dean of Students Office, the withdrawal form must be presented to the university cashier for initial processing. The Office of the Registrar will report withdrawals to instructors concerned. Students withdrawing from distance classes should send an email to the Office of the Registrar to initiate the process.